Level Of Knowledge Among Sports Participants Regarding Injury Prevention

Tingkat Pengetahuan Pelaku Olahraga Terhadap Pencegahan Cedera

Original Article

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Abstract.

Background Sports injury is one of the risks frequently experienced by individuals who engage in physical activity, and it can have an impact on a decline in performance, disturbance of bodily function, and even a decline in quality of life. One factor that plays a role in injury prevention efforts is the level of knowledge of sports participants regarding appropriate preventive measures.

Objectives This study aims to determine the level of knowledge of sports participants regarding injury prevention during exercise, covering the aspects of warm-up, sports technique, cool-down, the use of sports equipment, knowledge of injury, and *recovery* (recovery).

Methods This study used a quantitative approach with a descriptive survey method. The research sample consisted of 55 respondents, who were selected using the *purposive sampling* technique, with the criteria of being at least 18 years old, actively engaging in sport, and being willing to complete the questionnaire. The research instrument was a questionnaire consisting of 25 statement items using a four-point Likert scale. The data were analysed using descriptive statistics in the form of frequency, percentage, mean value (*mean*), standard deviation, minimum value, and maximum value.

Results The research results show that the level of knowledge of sports participants regarding injury prevention is in the high category. The indicator with the highest mean value is *recovery* (3.72), followed by warm-up (3.66), sports technique (3.56), knowledge of injury (3.43), cool-down (3.39), and the use of sports equipment (3.38). These findings show that most respondents already have a good understanding of the steps for injury prevention before, during, and after exercise.

Conclusion Accordingly, a good level of knowledge is expected to support the application of safer sporting behaviour and to contribute to reducing the risk of injury. Nevertheless, education regarding injury prevention still needs to be improved, so that the understanding of sports participants becomes more evenly distributed and is able to be applied consistently in sporting activity.

Keywords: level of knowledge, injury prevention, sports participants.

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INTRODUCTION

Sport is a physical activity that is carried out in a planned, structured, and repeated manner, with the aim of improving physical fitness, maintaining health, and improving a person's quality of life [20]. In addition to improving fitness, physical activity that is carried out routinely has also been proven able to lower the risk of various chronic diseases and to improve the quality of life of the community [4]. Physically, sport can help improve the function of the cardiovascular system, strengthen muscles and bones, control body weight, and reduce the risk of various non-communicable diseases such as diabetes mellitus, hypertension, and heart disease. In addition, sport also contributes to the improvement of mental health through the reduction of levels of stress, anxiety, and depression [20].

Public awareness of the importance of physical activity and sport continues to increase [6,7]. According to [6], sporting activity recorded through the Garmin Connect platform increased by 8% compared with the previous year [6]. This increase shows the growing participation of the community in various sporting activities as part of the effort to maintain bodily health and fitness. Although it provides many benefits, sport also carries a risk that cannot be ignored, namely the occurrence of sports injury.

Sports injury is damage to, or disturbance of, bodily tissue that occurs during sporting activity, either as a result of direct impact or as a result of the excessive use of a body part (*overuse injury*) [1]. According to [3], sports injury can occur in muscles, tendons, ligaments, bones, and joints as a result of acute trauma or overuse, so that prevention strategies become an important part of every training programme. The form of injury experienced by sports participants may range from minor injuries, such as bruises and muscle cramps, to severe injuries, such as ligament tears, joint dislocation, and bone fractures.

Sports injury has also become a problem that occurs quite frequently among individuals who are active in physical activity. [8] reported that the incidence of injury across various sports is fairly high, particularly in competitive sports and in physical activity of high intensity. These findings show that injury prevention efforts need to become a main concern for every sports participant. Data from [10] show that sport and recreational activity account for more than 3.7 million injury cases that receive treatment in emergency departments in the United States every year. Recent research shows that most sports injuries can be prevented through the application of comprehensive prevention strategies, such as appropriate warm-up, neuromuscular training, education, and evidence-based injury prevention programmes [18].

Various factors that can increase the risk of sports injury include a lack of warm-up and cool-down, the use of unsuitable equipment, less appropriate movement technique, physical fatigue, excessive training intensity, and a low level of understanding regarding safety in sport [9,15]. In addition, the arrangement of a training programme that is carried out gradually through the regulation of training volume, intensity, and frequency also plays an important role in lowering the risk of injury [2]. One factor that plays an important role in injury prevention efforts is the level of knowledge possessed by sports participants [11,19]. In the context of sport, knowledge regarding injury prevention can influence the way in which a person prepares before exercising, carries out sporting activity, and performs recovery after exercise.

Sports participants who have a good level of knowledge tend to have a better understanding of the importance of performing warm-up and cool-down, of using suitable sports equipment, of applying correct movement technique, of maintaining physical condition, and of regulating training intensity in accordance with the ability of the body [14,19]. Conversely, a low level of knowledge regarding injury prevention can cause sports participants to neglect various preventive measures that are in fact important to carry out, so that the risk of sports injury may potentially be increased. Therefore, an adequate understanding of injury risk factors and of the steps for their prevention becomes an important requirement for every individual who is involved in sporting activity.

Information regarding the level of knowledge of sports participants may serve as a basis for the formulation of education programmes, health promotion, and more effective injury prevention training [20]. Accordingly, the risk of injury can be minimised, so that the community is able to obtain the benefits of sport optimally without experiencing health disturbances as a result of sports injury. Based on the explanation above, research regarding the level of knowledge of sports participants concerning injury prevention during exercise needs to be carried out, in order to determine the extent of sports participants' understanding of injury prevention efforts, of the importance of warm-up and cool-down, and of the risk factors that may cause injury during exercise.

METHOD

Research Design

This study used a quantitative approach with a survey method. The quantitative approach was used because the research data were in the form of numbers, which were obtained through the distribution of a questionnaire to respondents and analysed using descriptive statistics [5,16]. According to [16], quantitative research is a research method that is based on the philosophy of

positivism, used to investigate a particular population or sample by employing a research instrument and statistical data analysis.

The descriptive method aims to describe or portray a condition objectively, without giving treatment to the variable under investigation. This study aims to determine the level of knowledge of sports participants regarding injury prevention during exercise.

Participant

According to [16], a population is a generalisation area consisting of objects or subjects that have particular characteristics, which are established by the researcher to be studied and from which conclusions are then drawn. The population in this study consisted of members of the community who are active in sport and who met the research criteria.

A sample is part of the number and characteristics possessed by a population [16]. The sampling technique used purposive sampling, that is, a technique for determining a sample based on particular considerations in accordance with the research objectives. The criteria for respondents were as follows: (1) being at least 18 years old; (2) actively carrying out physical activity or sport; and (3) being willing to become a respondent by completing the questionnaire. Based on these criteria, 55 respondents were obtained.

Instrument

The research instrument used was a questionnaire that was compiled on the basis of the indicators of injury prevention knowledge. The questionnaire consisted of 25 statement items covering six indicators, namely warm-up, sports technique, cool-down, the use of sports equipment, knowledge of sports injury, and knowledge of recovery after exercise.

The measurement scale used a four-point Likert scale, namely:

Table 1. Likert Scale

Answer	Positive Score	Negative Score
Strongly Agree	4	1
Agree	3	2
Disagree	2	3
Strongly Disagree	1	4

Negative statements were given a reversed score (*reverse scoring*) so that all scores had the same direction of assessment.

Table 2. Statement Indicators

Variable	Indicator	Item Number	Number of Items
Level of Knowledge of Sports Participants regarding Injury Prevention during Exercise	Warm-up	1–4	4
	Sports technique	5–9	5
	Cool-down	10–13	4
	Use of sports equipment	14–16	3
	Knowledge of sports injury	17–21	5
	Knowledge of recovery after exercise	22–25	4
	Total	25	

Procedures and if relevant, the time frame

Data collection was carried out by distributing the questionnaire directly and online through Google Forms to respondents who met the research criteria. Before completing the questionnaire, respondents were given an explanation regarding the purpose of the research and the confidentiality of the data. Data collection was carried out over a period of two weeks.

RESULTS AND DISCUSSION

This study was carried out in order to determine the level of knowledge of sports participants regarding sports injury prevention, their understanding of the importance of warm-up and cool-down, and their knowledge of the risk factors that may cause injury during exercise. Data were obtained through the online distribution of a questionnaire to 55 respondents.

Table 3. Respondent Characteristics by Gender

Gender	Number (people)	Percentage (%)
Male	31	56,4
Female	24	43,6
Total	55	100

Source: Primary Data, 2026.

Based on the table above, it is known that most respondents were male, numbering 31 people (56.4%), whereas female respondents numbered 24 people (43.6%). This shows that the respondents in this study were fairly diverse and represented both gender groups.

Table 4. Respondent Characteristics by Age

Age Group	Frequency (n)	Percentage (%)
≤17 years	4	7,3
18-20 years	43	78,2
21-23 years	2	3,6
≥24 years	6	10,9
Total	**55**	**100**

Source: Primary Data, 2026.

Based on the table above, the majority of respondents were in the 18-20 year age group, namely 43 people (78.2%). The ≤17 year age group numbered 4 people (7.3%), the 21-23 year age group numbered 2 people (3.6%), whereas the ≥24 year age group numbered 6 people (10.9%). The majority of respondents were in the 18-20 year age range, which is included in the productive age group, that is, the age group that generally has a relatively high level of physical activity [20].

Table 5. Respondent Characteristics by Frequency of Exercise per Week

Frequency of Exercise	Frequency (n)	Percentage (%)
Rarely	12	21,8
1-2 times/week	11	20,0
3-5 times/week	24	43,6
Almost every day	8	14,5
Total	**55**	**100**

Source: Primary Data, 2026.

Based on the table above, the majority of respondents exercised 3-5 times per week, namely 24 people (43.6%). Subsequently, 12 respondents (21.8%) stated that they rarely exercised, 11 respondents (20.0%) exercised 1-2 times per week, and 8 respondents (14.5%) exercised almost every day. The majority of respondents exercised 3-5 times per week. This frequency shows that most respondents were fairly active in carrying out physical activity. According to [20], adults are recommended to carry out moderate-intensity physical activity for at least 150-300 minutes every week

in order to obtain optimal health benefits. Therefore, the characteristics of the respondents in this study are consistent with the group of community members who are active in sport.

Table 6. Descriptive Statistics of the Level of Knowledge by Indicator

Indicator	Mean	SD	Minimum	Maximum
Warm-up	3,66	0,41	1,75	4,00
Sports technique	3,56	0,46	1,60	4,00
Cool-down	3,39	0,51	2,25	4,00
Sports equipment	3,38	0,43	2,00	4,00
Knowledge of injury	3,43	0,46	1,60	4,00
Recovery	3,72	0,46	1,25	4,00

Source: Primary Data, 2026.

Based on the table above, the recovery indicator has the highest mean value (*mean*) of 3.72, with a standard deviation of 0.46. Subsequently, the warm-up indicator obtained a mean value of 3.66 (SD = 0.41), followed by sports technique at 3.56 (SD = 0.46), knowledge of injury at 3.43 (SD = 0.46), cool-down at 3.39 (SD = 0.51), and sports equipment at 3.38 (SD = 0.43). The high mean values across all indicators show that the respondents already have good knowledge regarding injury prevention efforts. Knowledge is a factor that can influence a person's behaviour in maintaining health. Individuals who have good knowledge tend to apply preventive measures more appropriately than individuals with low knowledge [11,19]. These findings show that the respondents have understood the importance of the processes of warm-up, cool-down, and recovery as part of injury prevention efforts. These results are consistent with the research of [12], which stated that education regarding warm-up and cool-down is able to improve the understanding of sports participants regarding injury prevention.

Overall, the research results show that the level of knowledge of sports participants regarding injury prevention is in the high category. A good level of knowledge is expected to encourage the formation of safer sporting behaviour, so that the risk of injury can be minimised. Nevertheless, there are still several respondents who have a relatively lower level of knowledge on some indicators, particularly in relation to the use of sports equipment and cool-down. Therefore, education regarding injury prevention still needs to be improved through counselling, training, and health promotion programmes, so that the understanding of sports participants becomes more evenly distributed and is able to be applied consistently in sporting activity.

CONCLUSION

Based on the research results, it can be concluded that the level of knowledge of sports participants regarding injury prevention during exercise is in the high category. All of the indicators investigated, namely warm-up, sports technique, cool-down, the use of sports equipment, knowledge of injury, and *recovery* (recovery), show high mean values. The *recovery* indicator has the highest mean value, whereas the use of sports equipment has the lowest mean value, but it still remains in the high category. These research results show that most sports participants already have a good understanding of the steps for injury prevention before, during, and after exercise. This good level of knowledge is expected to support the application of safer sporting behaviour, so that the risk of injury can be minimised.

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AUTHOR CONTRIBUTION STATEMENT

The Author Contributions Statement can be up to several sentences long and should briefly describe the tasks of individual authors. Please list only 2 initials for each author, without full stops, but

separated by commas (e.g. JC, JS). In the case of two authors with the same initials, please use their middle initial to differentiate between them (e.g. REW, RSW). The Author Contributions Statement should be included at the end of the manuscript before the References.

CONFLICT OF INTEREST AND FUNDING

There is no conflict of interest

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