

The Effect of Ankle Injuries on Marathon Athletes from a Psychological Perspective

Berlian Agatha Silalahi^{1*}, Ilaika Al Quratu Aini², Fauzi Shaputra Husin³,
Muhammad Arif Setiawan⁴, Dany Aulia⁵

¹²³⁴⁵ Sports Science Study Program, Faculty of Health Sciences, Universitas Singaperbangsa Karawang,
Jl. HS.Ronggo Waluyo, Puseurjaya, Telukjambe Timur, Karawang, Jawa Barat 41361, Indonesia.

Corresponding author. Email : 2310631240005@student.unsika.ac.id

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Abstract. This study aims to determine the effect of ankle injury severity on anxiety levels in marathon athletes in Bekasi. The research method uses a quantitative approach with a simple linear regression analysis technique. The study subjects consisted of 75 marathon athletes who had participated in marathon races in Bekasi. The severity of ankle injuries was measured using an injury classification questionnaire that groups injuries into mild, moderate, and severe categories, while the athletes' anxiety levels were measured using a sports anxiety questionnaire instrument that had been adjusted to the athletes' characteristics. The results of the normality test showed that the data were normally distributed ($p = 0.065$), while the linearity test showed a linear relationship between injury severity and anxiety levels (deviation from linearity $p = 0.541$). The results of the simple linear regression analysis showed a correlation coefficient (R) of 0.786 and a determination coefficient (R^2) of 0.618, which means that 61.8% of the variation in athletes' anxiety levels can be explained by the severity of the ankle injury. The regression equation obtained is $Y = 20.315 + 9.215X$. The results of the regression test showed that the severity of the ankle injury significantly influenced the athlete's anxiety level ($t = 10.829$; $p = 0.000$). This finding indicates that the higher the severity of the injury experienced by the athlete, the higher the level of anxiety felt. Therefore, injury rehabilitation programs for marathon athletes need to integrate physical recovery and psychological support to support optimal recovery processes both physically and mentally.

Keywords: Ankle injury, anxiety, marathon athletes, rehabilitation, sports psychology



INTRODUCTION

Sport is a planned and deliberate physical activity that begins with direction, purpose, time, and place. Sport is a phenomenon as well as a form of human expression in community life, sport can be done individually or in groups.(Pranata, 2022)sport is an activity carried out by humans with the aim of achieving physical and spiritual fitness. Every time you do physical activity, especially sports, you are always faced with the possibility of injury, and this injury will have an impact on physical, psychological and achievement disorders. As an athlete, to achieve maximum results, you need to be prepared starting from physical, technical, tactical and mental readiness (Ismoko & Sukoco, 2013).

The main factor that athletes must prepare is mental readiness. Injury is an inseparable risk in the world of sport, especially in the sport of running which requires hard work from the body's joints(Upe, 2020), especially the ankle. Ankle injuries in runners often occur due to rapid movements, sudden changes in direction, or improper use of technique (Sargeant & Romano, 2025). From a psychological perspective, ankle injuries can cause a variety of negative emotional reactions in runners. In the early stages after an injury, feelings of shock, disbelief, anger, sadness, and frustration often arise. Many runners feel a loss of control over their bodies, resulting in excessive anxiety about the future of their careers, fear of being unable to run again, or even fear of re-injury (Supriatna, 2020). In the long term,3 Injuries that force athletes to stop training for a long time can also lead to feelings of social isolation due to reduced interaction with teammates, coaches, and the sports community.

This leads to decreased motivation, a sense of loss of identity as an athlete, and decreased self-confidence (Marta Utami et al., 2023). Not infrequently, there is also a feeling of fear of running again (fear of re-injury). This condition makes runners feel hesitant, anxious, and excessive in avoiding certain movements for fear of experiencing a similar injury (Gunawan et al., 2019). This fear, if not handled properly, will hinder performance and the overall rehabilitation process. To address these psychological impacts, the rehabilitation approach must include not only physical aspects, but also mental and emotional support(Flore et al., 2024).

Runners who experience injuries need to receive education about the recovery process, assistance from a sports psychologist, and social support from coaches, family,

and friends(Sidik, 2024). Cognitive-behavioral therapy (CBT), relaxation techniques, mindfulness, and gradual recovery programs can help runners manage anxiety, increase motivation, and rebuild their self-confidence(Novrika & Aprilla, 2019). With proper treatment, an ankle injury does not have to be the end of a runner's journey. Instead, this experience can be a momentum to strengthen mentality, increase emotional resilience, and enrich athletes' insights into the importance of maintaining physical and mental health in a sustainable manner.

METHOD

The method used in this research is a quantitative approach, where this approach is a research method based on a certain population or sample, data collection using research instruments, data analysis is quantitative/statistical with the aim of testing linear regression analysis(Darna & Herlina, 2018). The population in this study was 75 marathon athletes in Bekasi who had participated in marathons. The sampling technique used purposive sampling, which selects respondents based on specific characteristics that align with the research objectives. Based on the established criteria, 50 athletes were selected as the study sample.

The study's inclusion criteria included: (1) marathon athletes residing or actively participating in marathons in Bekasi (2) having participated in at least one marathon (3) having experienced an ankle injury (ankle sprain) and (4) agreeing to participate by signing a research consent form. Exclusion criteria included athletes who were currently experiencing a serious injury that prevented them from completing the questionnaire independently, did not complete the questionnaire completely, or withdrew during the research process.

Data collection was conducted using research instruments in the form of an ankle-foot injury severity questionnaire and an athlete anxiety questionnaire. The injury instrument was used to identify the severity of the injury experienced by respondents, while the anxiety instrument was used to measure the athletes' anxiety levels after the injury. Both instruments used a five-point Likert scale. Prior to use in the study, the instrument underwent validity testing using Product Moment correlation and reliability testing using Cronbach's Alpha coefficient. The results showed that all items were valid (calculated $r > \text{table } r$) and reliable (Cronbach's Alpha > 0.70).

Data analysis was performed using IBM SPSS Statistics. The analysis phase began with a normality test using the Kolmogorov–Smirnov test to determine data distribution, followed by a linearity test to confirm a linear relationship between the independent and dependent variables. Next, a simple linear regression analysis was conducted to examine the effect of ankle injury severity on the anxiety levels of marathon athletes. Hypothesis testing was conducted at a significance level of $\alpha = 0.05$, with a p -value < 0.05 indicating a significant relationship between the two study variables.

RESULT AND DISCUSSION

Tabel 1. Regression Assumption Test Results

Assumption Test	Metode	N	Sig.	Information
Normality	Kolmogorov-Smirnov	50	0,065	Normally distributed data
Linearitas	Deviation from Linearity	50	0,541	Linear relationship

Before conducting a simple linear regression analysis, regression assumptions were first tested, including normality and linearity tests. The results of the Kolmogorov–Smirnov normality test on 50 respondents showed a significance value of 0.065 ($p > 0.05$), indicating that the data were normally distributed. Furthermore, the linearity test yielded a significant deviation from linearity value of 0.541 ($p > 0.05$), indicating that the relationship between the severity of foot health injuries and the athlete's anxiety level is linear. Therefore, the data met the assumptions for a simple linear regression analysis.

Tabel 2. Simple Linear Regression Analysis Results

Variable	Sig.	B	Beta	t	F	R
Constant	0,541	20,315	-	6,327	-	-
Ankle Injury	9,215	0,786	0,786	10,829	117,236	0,786

The results of the simple linear regression analysis showed that the regression model built was significant ($F = 117.236$; $p < 0.001$). The correlation coefficient value ($R = 0.786$) indicated a strong relationship between the severity of ankle injury and the level of athlete anxiety. The coefficient of determination ($R^2 = 0.618$) indicated that 61.8% of the variation in athlete anxiety levels could be explained by the severity of ankle injury, while the remaining 38.2% was influenced by other factors outside the research model. The regression equation obtained was $Y = 20.315 + 9.215X$, which indicated that

every increase in injury severity would increase the athlete's anxiety score by 9.215 points.

The interpretation is that every increase in one level of injury severity (e.g. from "minor injury" to "moderate injury") will increase the anxiety level by 9.215 points. The constant value of 20.315 indicates that when the athlete does not experience an injury (hypothetical), the anxiety level remains at the baseline value of 20.315. The findings of this study indicate that the severity of ankle injury is a strong predictor of anxiety among marathon athletes. The regression model produced an R value of 0.786 and an R Square value of 0.618, meaning that 61.8% of the variance in athletes' anxiety can be explained by the severity of ankle injury. This result strengthens the argument that ankle injury should not be understood only as a biomechanical problem, but also as a psychological stressor that can influence confidence, emotional stability, and readiness to return to sport. The finding is consistent with previous studies showing that injury history and fear of re-injury are closely related to anxiety, hesitation, and reduced mental readiness among athletes (Moesch, 2024)

Theoretically, these findings can be interpreted through the perspective of sport psychology and motor learning. Marathon running requires repetitive movement patterns, rhythm stability, endurance, and confidence in lower-limb function (Johnson, 2025). When an ankle injury occurs, the athlete may lose trust in the injured limb and become more cautious during movement execution. This condition can disturb movement automaticity and reduce the athlete's willingness to perform running movements with normal intensity. In motor learning, structured practice, repetition, progressive task difficulty, feedback, and simplification of movement tasks are important to rebuild movement accuracy and confidence after injury (Madsen et al., 2022). Therefore, rehabilitation should not only restore joint range of motion, balance, and strength, but also gradually retrain the athlete's perception of safe movement through progressive exposure and sport-specific drills (Silbernagel, 2022)

The increase of 9.215 points in anxiety for every one-level increase in injury severity also demonstrates that athletes' emotional responses are sensitive to changes in physical condition. Mild injuries may still be perceived as manageable, but moderate and severe injuries can raise concerns about recovery duration (Ridwan et al., 2025), decreased performance, loss of training opportunities, and the possibility of re-injury. Previous

research on injured runners reported that psychological distress, negative mood, and fear-avoidance beliefs may appear during rehabilitation and can be associated with lower perceived running ability (Maschke, 2022). This supports the present finding that psychological responses should be monitored from the early phase of injury management.

The practical implication of this study is that coaches, physiotherapists, and sport practitioners should apply a holistic rehabilitation program. First, physical rehabilitation should include balance training, proprioceptive exercises, strengthening, mobility training, and gradual return-to-running programs. Second, psychological support should include education about the injury and recovery timeline, relaxation techniques, imagery, goal setting, positive self-talk, and counseling when needed (Ismoko & Sukoco, 2013). These strategies are relevant because athletes who understand their rehabilitation process and receive social support from coaches, family, and peers tend to be more confident in returning to training (O'Brien & Finch, 2019).

For teachers, trainers, and practitioners in physical education or sport coaching, the results also imply that modified training media and adjusted training equipment may be needed during the recovery period. For example, athletes may begin with low-impact running drills, elastic resistance exercises, balance boards, treadmill walking, or controlled surface training before returning to full outdoor running. These modifications can reduce excessive fear, increase training involvement, and maintain training effectiveness without forcing the athlete to return too quickly (Forelli et al., 2024). In this context, feedback from coaches is important to help athletes correct movement patterns, maintain motivation, and rebuild confidence in ankle function.

However, this study has several limitations. First, the study did not include a control group of athletes without ankle injuries, so the comparison of anxiety levels between injured and non-injured athletes could not be analyzed directly. Second, although the sample size of 75 marathon athletes was sufficient for simple regression analysis, a larger sample would increase generalizability. Third, this study only examined ankle injury severity as the main predictor, while athlete anxiety may also be influenced by competitive pressure, previous injury experience, social support, training load, and individual coping strategies (Mustafa & Sa'diyah, 2021). Future studies are recommended to include a control group, involve a larger and more diverse sample, add other

psychological variables, and conduct retention testing to determine whether anxiety decreases after athletes complete rehabilitation and return to sport.

CONCLUSION

This study shows that ankle injuries have a significant effect on the anxiety levels of marathon runners in Bekasi. The results of the simple linear regression analysis produced a correlation coefficient (R) value of 0.786, indicating a strong relationship between the severity of the injury and the level of anxiety of athletes. The coefficient of determination (R^2) value of 0.618 indicates that 61.8% of the variation in athlete anxiety can be explained by the severity of the ankle injury, while the remaining 38.2% is influenced by other factors.

The regression equation obtained, namely $Y = 20.315 + 9.215X$, indicates that every one increase in injury severity will increase the athlete's anxiety level by 9.215 points. These findings make it clear that physical injuries, especially in vital areas such as the ankle in long-distance running, not only have physical impacts but also provide real psychological pressure on athletes. Therefore, the rehabilitation process for athletes' injuries must be carried out comprehensively, including not only physical recovery, but also psychological support to manage anxiety and fear of re-injury. A holistic rehabilitation approach involving physiotherapy and sports psychology is essential to ensure optimal recovery and prevent long-term impacts on athletes' performance and mental health (Ichsan & Alpiah, 2024).

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