

# MAPPING THE LANDSCAPE OF SPORTS PSYCHOLOGY AND ATHLETE PERFORMANCE: A BIBLIOMETRIC ANALYSIS OF REPUTABLE INTERNATIONAL JOURNALS

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## ABSTRACT

*This study aims to map the research landscape in the field of sport psychology and athlete performance through a bibliometric analysis approach. A total of 579 articles published in reputable international journals during the period 2003–2023 were analyzed using VosViewers software. The results showed a significant increase in the number of publications in this field, especially in the last two decades. The most frequently appearing keywords were "anxiety," "performance," and "mental imagery," indicating a major focus on anxiety management and visualization strategies to enhance athlete performance. Network analysis revealed that researchers from the United States, the United Kingdom, and Australia dominated the research, with close collaboration between major institutions. However, several research gaps were identified, including a lack of studies focusing on accuracy sports such as archery and shooting, minimal exploration of the use of technology such as Virtual Reality (VR) in psychological training, and a lack of attention to junior athletes and cross-cultural perspectives. This study provides theoretical contributions by mapping research trends and patterns, as well as practical contributions by identifying areas that require further exploration. Recommendations for future research include the development of studies on psychological interventions in accuracy sports, the use of modern technology in emotion management, and cross-cultural approaches in sports psychology.*

**Keywords:** *sport psychology, athlete performance, bibliometric analysis, anxiety, mental imagery*

## 1. INTRODUCTION

In recent decades, sport psychology has become one of the fastest-growing fields of research. Its focus is on understanding the psychological factors that influence athlete performance, such as motivation, anxiety, concentration, and self-confidence. Sport psychology is a discipline that studies how psychological factors influence sports performance and how sport affects an individual's mental health (Kurniawan et al., 2021; Weinberg & Gould, 2024).

Key aspects of sports psychology include motivation, emotion regulation, concentration, and stress management. Research shows that psychology-based interventions can improve athlete performance, especially in competitive situations (Hanin, 2022). Aliyyah, A et al. (2020) found that psychological aspects have an 80% influence in matches. In the context of accuracy sports, such as archery, research emphasizes the importance of mental visualization and breathing techniques to reduce anxiety and increase focus (Lee & Park, 2020). As a multidisciplinary branch of science, sports psychology combines concepts from psychology, sports science, and physiology to improve athlete performance and their overall well-being (Weinberg & Gould, 2024).

The increasing interest in sports psychology is reflected in the growing number of scientific publications in reputable international journals. This research provides new insights and offers practical solutions to overcome the psychological challenges faced by athletes, including competitive pressure and mental fatigue (Cotterill, 2021). For example, in accuracy sports such as archery, target shooting, and golf, mental pressure and concentration are key factors in determining success. Studies have shown that archers often face challenges in the form of "target panic" or fear of failure when aiming, which significantly affects their performance (Kim et al., 2022). Likewise, in target shooting, anxiety management is an important element in maintaining precision during competition (Smith & Jones, 2021).

However, despite significant developments, there are not many studies that systematically map research trends and patterns in this field. Bibliometric approaches can be used to identify scientific contributions, collaborations between researchers, and under-explored research areas. Bibliometric analysis is a research method used to analyze and visualize bibliographic data, such as the number of publications, citation patterns, and collaborations between authors (Donthu et al., 2021). Iftikhar, Pulwasha M., et al., (2021) explained that bibliometric analysis is an effective statistical evaluation of scientific articles, books, or chapters of a published book, including measuring the influence of publications in the scientific community. In the context of sport psychology, bibliometric analysis allows researchers to evaluate the development of the literature, identify leading journals and authors, and explore global research trends. Reputable journals play an important role in disseminating scientific knowledge and serve as a reference for researchers to develop further studies.

The development of research in the field of sports psychology shows a significant role in improving athlete performance. Sports psychology studies psychological factors that influence athlete performance and the impact of sports activities on individual development. Evaluation of research results in this field is important to map scientific contributions that have been published, especially in reputable journals indexed by Scopus. Scopus is the world's largest scientific literature database that provides abstracts and citations from various studies that have been reviewed. Evaluation of publications in Scopus-indexed journals shows that research in sports psychology continues to grow, focusing on various aspects such as stress management, motivation, self-confidence, and other mental techniques that contribute to improving athlete performance. Mapping these research results is important to identify trends, strengths, and areas that require further development in the field of sports psychology.

Therefore, this study aims to map the research landscape of sport psychology and athlete performance using bibliometric analysis on publications in reputable journals. This analysis will provide a comprehensive overview of research developments, key trends, and research gaps in this field. This study contributes to the development of sport psychology literature by presenting a comprehensive map of research trends and under-explored areas. This information can be the basis for further research to fill the existing gaps. Provides insights for coaches, athletes, and sport psychologists on the most relevant psychological interventions based on the latest research trends.

## **2. RESEARCH METODOLOGY**

This study uses a bibliometric analysis approach to map the landscape of sports psychology and athlete performance research. Assisted by Publish or Perish software to search for data and VosViewers to analyze it. The steps taken in this study include data collection, data filtering, data analysis, and interpretation of

results. Bibliometrics helps in studying and identifying patterns of material use and analyzing the development of a specific literature, especially for authorship, publication and use so that an overview of journal quality, journal maturity, journal productivity and so on can be obtained about articles (Reitz, 2004; Saleh & Sumarni, 2016).

Data were collected from reputable journal databases such as Scopus and Web of Science. The search was conducted using the keywords "sports psychology," "athlete performance". The time period analyzed covered the last 20 years (2003-2023) to ensure the relevance and completeness of the data. The obtained articles were screened based on inclusion criteria, such as being published in a Scopus-indexed journal, being in English, and having a primary focus on sports psychology and athlete performance. Articles that were not relevant or did not meet the exclusion criteria, such as review papers or articles that did not mention the sports context, were excluded from the analysis.

The filtered data were analyzed using VOSviewer bibliometric software. The analysis included identifying annual publication trends, analyzing collaboration networks between authors and institutions, and mapping keywords to identify the most frequently occurring research topics. The results of the analysis were interpreted to answer the research questions, such as key trends in sport psychology, contributions of prominent authors and institutions, and under-explored research areas. The findings were presented in the form of map and graph visualizations to facilitate understanding. Validation was done by comparing the findings of this study with the results of previous similar studies to ensure consistency and accuracy.

### 3. RESULTS AND DISCUSSION

This study produces a comprehensive map of the research landscape of sport psychology and athlete performance. The main results include annual publication trends, collaborations between authors and institutions, and analysis of the most frequently discussed research topics. The search results for articles in the last 20 years (2003-2023) according to the keywords "sports psychology," "athlete performance" in Scopus-indexed journals obtained 579 articles that matched the keywords. The articles have been filtered based on the inclusion criteria, articles that are not relevant or do not meet the criteria are excluded from the analysis.

The search results for data on sports psychology and athlete performance using Publish or Perish, then analyzed using VosViewers to obtain network map data on research topics that are predominantly studied by researchers. In the VosViewers analysis using the co-current and full counting methods, a visualization of relevant topics related to metadata articles on sports psychology and athlete performance was obtained. Bibliometric analysis using VosViewers produced three main types of visualizations: network visualization, overlay visualization, and density visualization. Each provides a different perspective on the relationship and development of research in the field of sports psychology and athlete performance.

#### Annual Publication Trends

The number of publications related to sport psychology and athlete performance showed a consistent increase during the period 2003–2023. A significant spike occurred starting in 2018, which may be due to the increasing attention to athletes' mental health in international events such as the Olympics and other multi-events. Collaboration network analysis showed that authors from the United States, the United Kingdom, and Australia dominated publications in this field. The metadata cycle of articles over the last 2 decades is depicted in table 1, the number of publications per five years, and graphically in Figure 1 as follows.

Table 1. Number of Publications Per Fifth Year

Years	Number of Publications
2003–2007	96
2008–2012	88
2013–2017	108
2018–2023	287

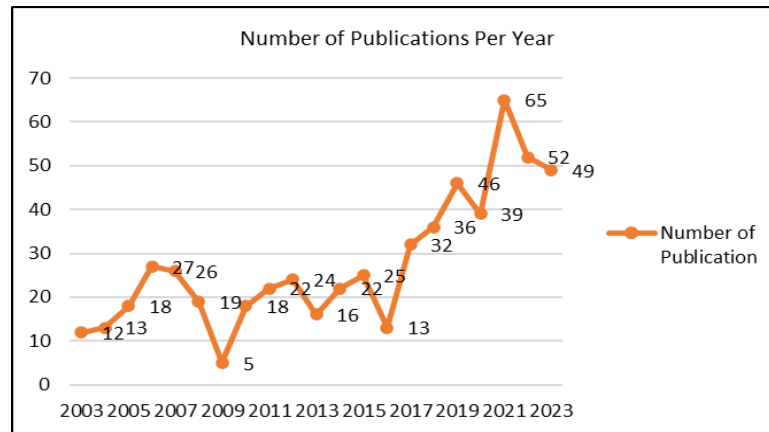


Figure 1. Distribution of sports psychology and athlete performance publications from 2003-2023

As can be seen in Figure 1, published articles about sports psychology and athlete performance in the last 20 years, have experienced a decline and an increase in the number of publications per year. In the first and the second decade, the number of publications tends to increase, with an average publication in the first decade of 18 articles and in the second decade of 36 articles. The highest number of publications occurred in 2021, namely 65 articles and the lowest number of publications occurred in 2009 with 5 articles published. The fluctuation in the number of publications on sports psychology and athlete performance that has occurred tends to increase in the last two decades. Even though it fluctuates every year. This shows that researchers' interest in studying sport psychology has increased.

### Network Visualization of sports psychology and athlete performance publications

Network Visualization displays the relationships between terms or keywords that frequently appear together in the scientific literature. The results obtained are in the form of a dominant topic network map and are presented in Figure 2 below. Figure 2 shows the relationships between keywords or terms that frequently appear in research related to sport psychology and athlete performance. Nodes represent terms, while connecting lines indicate the strength of the relationship based on the frequency of co-occurrence. The size of the node reflects the frequency of occurrence of the term, and the color indicates clustering or grouping based on the close relationship between terms.



Figure 2 Dominant Topic Network Map

Keywords with larger nodes indicate frequently occurring terms, such as “athlete,” “performance,” “sports psychology,” “athlete burnout,” and “coach-athlete relationship.” The keyword performance is located at the center of the network, indicating that this concept is a central topic that is often associated with other aspects such as athlete performance, training, and coaching style. Athlete burnout is also closely related to well-being, sports psychology, and coaching philosophy, highlighting the importance of psychological factors in managing athlete burnout. Topics such as concussion and anxiety and depression in sports show a relationship with athlete performance, which is important in the study of sport psychology. Overall, this figure illustrates the complex relationship between various factors in sport psychology and athlete performance based on bibliometric analysis using VOSviewer.

From this visualization, the main topics and relationships between topics in the field of sports psychology and athlete performance research can be identified. This visualization can help researchers identify research trends, the most frequently studied topics, and research gaps that can still be explored. Research gaps can be found by observing areas where there are few or no connections between clusters, indicating a lack of research connecting these topics. For example, the relationship between burnout, mental well-being, and performance can be the focus of further research to improve athlete performance through psychological interventions.

## Overlay Visualization of sports psychology and athlete performance publications

Overlay visualization of analysis results using VOSviewer, which shows research developments based on year of publication. Overlay visualization is similar to network visualization, but with additional temporal information or other attributes displayed through a color scheme. The results obtained are in the form of research developments based on year of publication and are presented in Figure 3 below. This allows researchers to see the temporal development of sports psychology and athlete performance research topics, identify recent trends, and understand the evolution of research focus over time.

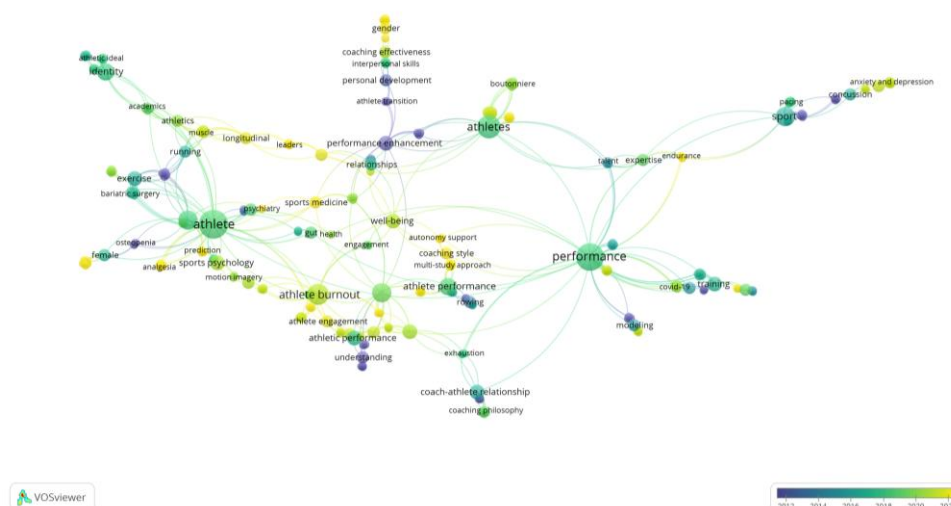


Figure 3 Research Developments Based on Year of Publication

The colors in Figure 3 represent the publication years of terms appearing in the scientific literature on the topic of sports psychology and athlete performance. Shown in purple/dark blue (2012-2014), the topics of sports psychology, prediction, and motion imagery including concussion and anxiety and depression in sport are some of the earlier terms that have emerged and have been the focus of research for a long time. Shown in green (2016-2018), topics related to athlete burnout, well-being, and performance enhancement are gaining more attention. Likewise, coach-athlete relationships and coaching philosophy are starting to emerge as more frequently studied aspects. Shown in yellow (2020-2023), topics such as Covid-19, training, engagement, coaching effectiveness, and gut health show that recent research is focusing more on the impact of the pandemic, coaching styles, and broader aspects of athlete health. Talent, expertise, and endurance also show growing trends in relation to athlete performance. Overall, Figure 3 shows the evolution of sport psychology research, with recent research increasingly focusing on the balance between athlete performance and well-being through psychological and medical approaches.

### Density Visualization of sports psychology and athlete performance publications

Density visualization displays the density of terms in the research map. Each area on the map is colored based on the number and weight of the terms around it. Figure 4 is a density visualization of the analysis results using VOSviewer, which illustrates the density of terms in sports psychology and athlete performance research.

Several areas in bright yellow indicate that these topics appear very frequently in research. The analysis results show that research on athletes and the psychological aspects of sport are very dominant. Performance is a major topic in research related to sport psychology and athlete performance. Research on athlete fatigue and athlete well-being is also widely discussed. Also included is the relationship between sport, anxiety, and depression and research on training in the context of a pandemic has received much attention in recent years.

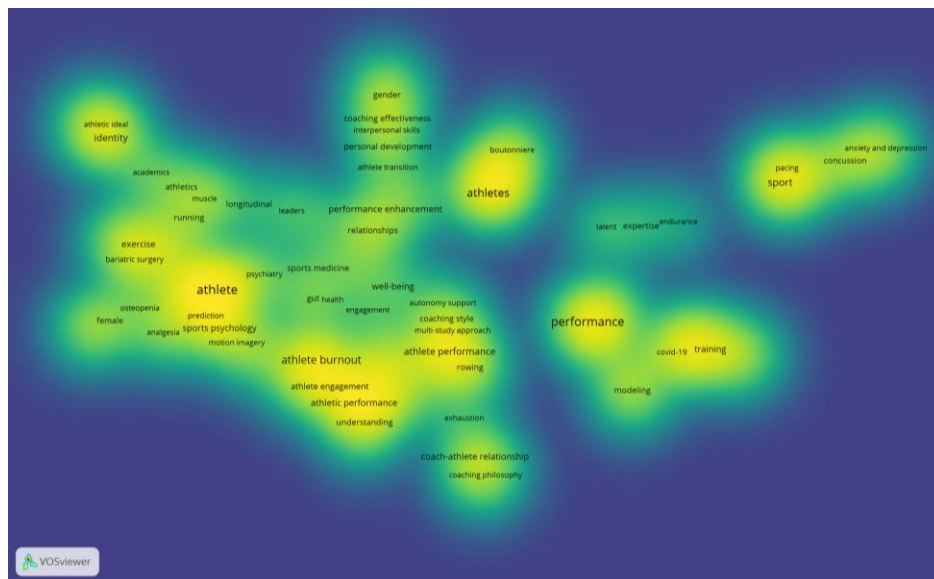


Figure 4 Density of Topics (Terms) in Research

In contrast, green and blue represent areas of medium and low density. The green area includes terms such as coach-athlete relationship, coaching style, gut health, and sports medicine, which, although highly researched, have lower densities than the main term. The blue area reflects less frequent terms, such as bariatric surgery, osteopenia, and boutonniere, which may have had little research in the analyzed dataset. This visualization helps identify the main focus of research and the areas most explored by researchers.

### Dominant Research Topics

Keyword mapping shows that the main topics in sports psychology and athlete performance include performance, anxiety, athlete well-being, motivation, self-awareness, and athlete burnout. The number of studies discussing these keywords can be seen in Table 2. Performance as the main keyword remains the center of research that connects various aspects, including athlete performance, athlete burnout, and coaching style. The topic of athlete performance, where most of the studies conducted refer to a treatment in terms of mental training to support athlete performance, such as highlighting the main factors related to the burnout dimension in team sports (Květon, P., 2021; Setiawan, N. A., 2023; Woods, S., 2022). This shows that research in sports psychology still focuses heavily on how to improve athlete performance through various approaches.

Then the emergence of mental and physical health aspects such as athlete burnout, mental well-being, anxiety and sports medicine are increasingly closely connected. Anxiety & athlete well-being: widely discussed in studies on the regulation of athlete anxiety in several sports, both individual and team. Discussing the relationship between anxiety and athlete performance, including treatments that can be given to minimize athlete anxiety levels (Kurniawan, D. D. et al., 2023; Tingaz, E. O. et al., 2023). In general, the studies conducted offer insights into sports psychology interventions for athlete performance and well-being. Emerging trends highlight: programs to reduce athlete fatigue (eg, behavioral therapy and mindfulness-based interventions); static and dynamic mindfulness-based strategies to reduce stress and improve emotions in athletes of all levels, and specific mindfulness interventions for sports performance (eg, in basketball and tennis), and the ability to cope with psychological problems (Di Fronso, S., & Budnik-Przybylska, D., 2023). This reflects the increasing attention to athlete well-being, not only in terms of performance but also holistic health.

Table 2. Keywords in Sport Psychology and Athlete Performance Research

Keywords	Number of Publications
Performance	71
anxiety, athlete well-being	40
motivation, self-awareness	23
athlete burnout	22
confidence, mental and imagery	20

The study of motivational and self-awareness also developed with the general aim of overcoming competitive pressure. Such as the study conducted by Mageau, G. A., & Vallerand, R. J. (2003) on the motivational model of the coach-athlete relationship which describes how coaches can influence athlete motivation. That study focused on the more global distinction between self-determined and non-self-determined extrinsic motivation. In addition, several studies also highlighted the role of parents, coaches, supporting environments such as facilities and infrastructure in motivating athletes to train (Gee, C. J., 2010; Lorimer, R., & Jowett, S., 2009; O'rourke, D. J., 2014; Smith, R. E., 2007). Coaching effectiveness, personal development, and interpersonal skills began to emerge as newer terms, indicating that attention to the psychological aspects of coaching has grown in recent years.

Research that focuses on mental health with the use of imagery to train mental health so that it can improve concentration is starting to develop. The studies conducted also examine the mental health of athletes and how to condition the mental health of athletes who experience problems. The focus of the studies conducted is to provide an understanding of the phenomenon of mental health based on a continuum type model that describes mental illness, mental health in relation to athlete performance, interventions carried out to monitor and maintain athlete mental health and prevent various forms of mental illness (Edwards, C. D., 2023b; Haugen, E., 2022; Schinke, R. J., et al., 2017; Smith, R. E., et al., 2007;). This is an interesting topic because athletes experience additional mental health risk factors compared to the non-athlete population, such as high training loads, intense competition, and stressful lifestyles.

### Research Implications and Gaps

There are several major clusters, particularly related to athlete performance, athlete burnout, the coach-athlete relationship, and sport psychology. Research is increasingly shifting from athlete performance to overall well-being. Recent research trends highlight the impact of the COVID-19 pandemic on athlete training and performance. Research on athlete mental health, such as burnout and anxiety, is growing, signaling a shift from a focus solely on performance to overall athlete well-being. The psychology of coaching is increasingly being studied, highlighting the important role that the coach-athlete relationship and mental health play in supporting athlete performance.

The topic of training intensity regulation is still under-researched in relation to athlete recovery strategies from fatigue. Further study on how coaching philosophy approaches affect athletes' mentality and long-term performance could be a new contribution to sports coaching science. There is a lack of research on anxiety management strategies in junior athletes, especially in accuracy sports. The description of the results of this study provides important insights into the landscape of sport psychology and athlete performance. Increasing the focus on accuracy sports and the use of technology-based methods could be future research directions. In-depth studies on how coaching philosophy shapes athlete character and motivation need to be developed, especially in junior athletes, as well as cross-cultural perspectives. By filling this gap, research can provide new,



relevant contributions to the fields of sport, athlete health, and athlete performance psychology.

#### 4. CONCLUSION

In sports research and athlete psychology, various factors that influence athlete performance continue to be studied from time to time. The most frequently appearing keywords were "anxiety," "performance," and "mental imagery." However, several research gaps were identified, including a lack of studies focusing on accuracy sports such as archery and shooting, minimal exploration of the use of technology such as Virtual Reality (VR) in psychological training, and a lack of attention to junior athletes and cross-cultural perspectives. Recommendations for future research include the development of studies on psychological interventions in sports accuracy, the use of modern technology in emotion management, and cross-cultural approaches in sport psychology.

#### REFERENCE

- Aliyyah, A., Wicaksono, B., Saniatuzzulfa, R., & Mukholid, A. (2020). Relevance of self efficacy and female futsal athletes' anxiety before the match. *Jurnal SPORTIF : Jurnal Penelitian Pembelajaran*, 6(1), 105–117. [https://doi.org/10.29407/js\\_unpgri.v6i1.14080](https://doi.org/10.29407/js_unpgri.v6i1.14080)
- Cotterill, S. T. (2021). *Applied Sport Psychology: A Practitioner's Guide*. Routledge.
- Di Fronso, S., & Budnik-Przybylska, D. (2023). Sport Psychology Interventions for Athletes' Performance and Well-Being. *International Journal of Environmental Research and Public Health*, 20(4), 3712.
- Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research*, 133, 285-296.
- Edwards, C. D. (2023). Mental health considerations for athlete removal from play and return to play planning. *Sports Psychiatry*.
- Gee, C. J. (2010). How does sport psychology actually improve athletic performance? A framework to facilitate athletes' and coaches' understanding. *Behavior modification*, 34(5), 386-402.
- Hanin, Y. (2022). Emotions in Sport: An Individualized Approach. *Psychology of Sport and Exercise*, 61, 101861.
- Haugen, E. (2022). Athlete mental health & psychological impact of sport injury. *Operative Techniques in Sports Medicine*, 30(1), 150898.
- Iftikhar, P. M., Ali, F., Faisaluddin, M., Khayyat, A., De Gouvía De Sa, M., & Rao, T. (2019). A Bibliometric Analysis of the Top 30 Most-cited Articles in Gestational Diabetes Mellitus Literature (1946-2019). *Cureus*, 11(2), e4131. <https://doi.org/10.7759/cureus.4131>
- Kim, S., Lee, H., & Park, J. (2022). Managing Target Panic in Archery: A Cognitive-Behavioral Approach. *International Journal of Sports Psychology*, 53(4), 257-269.
- Kurniawan, Ari W., Adi Wijayanto, Fahrial Amiq, & Muhammad Hafiz. (2021). *Psikologi Olahraga*. Tulungagung: akademia Pustaka.
- Kurniawan, D. A. W., Wijayanto, D. A., Amiq, F., & N.H, M. H. (2021). *Psikologi Olahraga*. In *Akademi Pustaka: Vol. 14 x 21 cm*. Akademia Pustaka.
- Kurniawan, D. D., Nopembri, S., & Purnomo, E. (2023). Relationship between anxiety levels and the performance of early adolescent athletic athletes in trirace numbers. *Retos: nuevas tendencias en educación física, deporte y recreación*, (48), 742-748.
- Kvėton, P., Jelínek, M., & Burešová, I. (2021). The role of perfectionism in predicting athlete burnout, training distress, and sports performance: A short-term and long-term longitudinal perspective. *Journal of Sports Sciences*, 39(17), 1969-1979.

- Lee, C., & Park, Y. (2020). Mental Imagery and Breathing Techniques in Archery Performance. *Psychology of Sport and Exercise*, 49, 101673.
- Lorimer, R., & Jowett, S. (2009). Empathic accuracy in coach–athlete dyads who participate in team and individual sports. *Psychology of Sport and Exercise*, 10(1), 152-158.
- Mageau, G. A., & Vallerand, R. J. (2003). The coach–athlete relationship: a motivational model. *Journal of Sports Sciences*, 21(11), 883–904. <https://doi.org/10.1080/0264041031000140374>
- O’rourke, D. J., Smith, R. E., Smoll, F. L., & Cumming, S. P. (2014). Relations of parent-and coach-initiated motivational climates to young athletes’ self-esteem, performance anxiety, and autonomous motivation: who is more influential?. *Journal of Applied Sport Psychology*, 26(4), 395-408.
- Reitz, J. M. (2004). Dictionary for library and information science. Libraries Unlimited.
- Saleh, A. R., & Sumarni, E. (2016). Studi bibliometrik pada Jurnal Standardisasi pasca terakreditasi (2011-2015). *VISI PUSTAKA: Buletin Jaringan Informasi Antar Perpustakaan*, 18(3), 231-240. <https://doi.org/10.37014/visipustaka.v18i3.133>
- Schinke, R. J., Stambulova, N. B., Si, G., & Moore, Z. (2017). International society of sport psychology position stand: Athletes’ mental health, performance, and development. *International Journal of Sport and Exercise Psychology*, 16(6), 622–639. <https://doi.org/10.1080/1612197X.2017.1295557>
- Setiawan, N. A., Kinanti, R., & Nanda, F. A. (2023). Performance motivation of Taekwondo athletes: Coach-athlete relationship. *Journal of Coaching and Sports Science*, 2(1), 38-45.
- Smith, J., & Jones, M. (2021). Anxiety Management in Precision Sports: A Comparative Analysis. *Journal of Sports Sciences*, 39(12), 1423-1432.
- Smith, R. E., Smoll, F. L., & Cumming, S. P. (2007). Effects of a motivational climate intervention for coaches on young athletes’ sport performance anxiety. *Journal of sport and exercise psychology*, 29(1), 39-59.
- Tingaz, E. O., Solmaz, S., Ekiz, M. A., & Atasoy, M. (2023). The relationship between mindfulness and self-rated performance in student-athletes: the mediating role of depression, anxiety and stress. *Sport Sciences for Health*, 19(2), 657-663.
- Weinberg, R. S., & Gould, D. (2024). Foundations of sport and exercise psychology (Eighth edi). Human Kinetics.
- Woods, S., Dunne, S., Gallagher, P., & McNicholl, A. (2022). A systematic review of the factors associated with athlete burnout in team sports. *International review of sport and exercise psychology*, 1-41.