Innovations

The Study on Competitive Performance Effects of Psychological Skill Training Program among Athletes

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Abstract

This study investigates the impact of a 12-week psychological skill training program on the performance and psychological skill abilities of 400m runners. Utilizing a pre-test/post-test one-group experimental design, six athletes aged 19 to 25 from the Ethiopian Sport Academy participated in the intervention targeting imagery, relaxation, and self-talk. Performance and psychological skills were assessed before and after the intervention using standardized measures and the Psychological Skills Inventory for Sports. Descriptive analysis revealed a slight improvement in performance times post-intervention, with significant enhancements in relaxation and self-talk abilities. However, imagery ability remained relatively unchanged. Paired samples t-tests confirmed the statistical significance of these differences. These findings suggest that the intervention positively influenced both performance and psychological skill abilities. They align with previous research demonstrating the efficacy of psychological skill training in sports performance en8hancement. Further research is recommended to refine interventions for optimal effectiveness.

1. Introduction

Psychological skill training programs have become increasingly recognized in the domain of enhancing sports performance, with the aim of improving athletes' mental capabilities for better competitive results. This study delves into the influence of such programs on runners' competitive performance, emphasizing the effectiveness and importance of psychological interventions in athletics. Numerous research studies have illustrated the positive impacts of these programs on athletes' performance across various sports disciplines. For example, *Weinberg and Gould (2015)* demonstrated the effectiveness of techniques like imagery, relaxation, and self-talk in enhancing athletes' psychological abilities and overall performance. These interventions empower athletes to effectively manage stress, anxiety, and performance-related challenges, thus enabling them to

achieve peak performance during competitions. Psychological skill training equips runners with crucial tools for mental resilience, enabling them to navigate the psychological demands of competition with confidence and composure. By developing strategies to regulate arousal levels, maintain focus, and overcome setbacks, athletes can consistently perform at their best *(Gucciardi et al., 2015).* This heightened mental resilience not only leads to improved performance but also contributes to long-term athletic development and well-being. The implementation of psychological skill training programs has consistently shown positive effects on runners' competitive performance. *Hardy et al. (2017)* found that athletes who underwent such training exhibited significant improvements in race times, technique execution, and overall performance on race day. Furthermore, these enhancements were sustained over time, indicating the lasting benefits of acquiring psychological skills. Additionally, alongside improving performance during competition, psychological skill training programs can optimize athletes' adaptation to training processes. By fostering positive psychological states such as motivation, confidence, and resilience, athletes are better equipped to endure rigorous training regimes and achieve higher levels of physical conditioning *(Hanton et al., 2013)*. This integration of psychological and physical preparation ultimately leads to improved competitive performance outcomes.

Several factors impact the development and expression of psychological skills in athletes, including individual traits, environmental influences, and situational circumstances (Gucciardi et al., 2017; Carron &Hausenblas, 1998; Jones et al., 2002). Individual factors such as personality, past experiences, and genetic predispositions shape athletes' psychological profiles, with some naturally exhibiting higher levels of skills like confidence and resilience (Gucciardi et al., 2017). Environmental factors, like coaching quality and team dynamics, significantly influence skill development, either enhancing or hindering athletes' confidence and motivation (Carron &Hausenblas, 1998). Negative team dynamics may erode these skills. Additionally, situational factors like competitive pressure and life stressors can temporarily impact psychological skills, highlighting their dynamic nature (Jones et al., 2002). Effective training programs should address these diverse influences, providing tailored strategies to enhance athletes' mental resilience, focus, confidence, and motivation.

2. Psychological Skill Ability and Change in Performance Among Athletes.

Psychological skill training programs, including imagery, relaxation, and self-talk, positively impact athletes' performance by aiding stress and anxiety management, leading to improved outcomes.As athletes hone these skills, they enhance their ability to regulate arousal levels, maintain focus, and overcome challenges critical for peak performance. Research, exemplified by highlights significant performance improvements, such as race times and technique execution, following psychological skill training these enhancements endure over time, suggesting a lasting effect on performance outcomes. Mechanisms underlying this relationship include increased mental resilience, which helps athletes navigate pressure, and heightened confidence, which reduces performance anxiety. Ultimately, integrating psychological skill training into athletes' routines is vital for optimizing their performance potential.*(Weinberg & Gould, 2019; Gucciardi et al., 2015)*.

Understanding the shifts in athletes' psychological skill abilities before and after engaging in intervention programs is essential for evaluating the efficacy of such initiatives in bolstering mental resilience and performance. Prior to participation, athletes undergo evaluations to gauge their

psychological skills, encompassing areas like imagery, relaxation, and self-talk, establishing a benchmark for measuring post-intervention changes. These assessments highlight strengths and weaknesses, guiding targeted intervention strategies. Through structured sessions and exercises, intervention programs aim to refine athletes' psychological skills, fostering improvements in imagery, relaxation, and self-talk proficiency. As athletes immerse themselves in these activities, they hone their abilities to regulate mental states and address performance-related challenges. Subsequent assessments post-intervention, as evidenced by *Hardy et al. (2017),* reveal notable enhancements in imagery, relaxation, and self-talk, indicating an augmented mental readiness for competition. Various mechanisms contribute to these changes, including structured training, feedback mechanisms, and heightened confidence resulting from skill implementation. These factors collectively underscore the positive impact of intervention programs on athletes' psychological preparedness and performance potential. (*Hardy et al. 2017*;

The psychological traits of 400m runners, including motivation, confidence, focus, and mental toughness, are crucial for their performance and success in the race (Hausenblas et al., 1999; Jones et al., 2002). Motivation drives athletes to excel despite challenges, while confidence fosters belief in their abilities (Hausenblas et al., 1999). Maintaining focus amid distractions allows for precise execution of race strategies (Jones et al., 2002), while mental toughness enables athletes to endure physical and psychological pressures, sustaining optimal performance levels (Jones et al., 2002). These traits not only influence individual race outcomes but also shape athletes' overall resilience and ability to thrive in competitive environments.

3. Factors Affecting Performance of Athletes

Numerous factors influence the performance of athletes, spanning physiological, psychological, environmental, and situational domains. Physiologically, factors like genetics, fitness level, and biomechanics play pivotal roles (Joyner & Coyle, 2008). Additionally, psychological factors such as motivation, confidence, focus, and mental toughness significantly impact performance outcomes (Jones et al., 2002). Environmental conditions like weather, altitude, and playing surface can also affect performance, while situational factors such as opponent strength and match significance further contribute to performance variability (Foster et al., 2009). Moreover, social factors including coaching quality, team dynamics, and social support systems exert considerable influence (Carron &Hausenblas, 1998). Each athlete's unique combination of these factors interacts dynamically to shape their performance in training and competition. Recognizing and understanding these multifaceted influences is crucial for athletes, coaches, and sports scientists in optimizing performance and facilitating achievement in competitive sports.

Various factors impact the performance of 400m runners, encompassing physiological, psychological, environmental, and tactical aspects. Physiologically, elements like aerobic capacity, anaerobic power, muscle strength, and running technique significantly influence performance (Stewart et al., 2016). For example, athletes with superior aerobic fitness can maintain faster speeds over the race, while those with robust anaerobic power showcase stronger sprinting abilities towards the end. Psychological factors such as motivation, confidence, focus, and mental resilience are also key determinants (Hausenblas et al., 2009). Athletes equipped with strong mental skills can better

cope with the race's physical and mental demands, executing strategies effectively. Environmental conditions such as temperature, wind, and altitude can impact performance, with ideal conditions favoring faster times. Additionally, tactical considerations like pacing strategy, race tactics, and positioning within the field are crucial in race outcomes (Hanley et al., 2017). Athletes must adeptly manage their efforts, balancing speed and energy expenditure to optimize performance. Understanding and optimizing these diverse factors are imperative for 400m runners to reach their peak potential and thrive in competitive settings.

4. Performance Under Procure

Performance under pressure" refers to an athlete's ability to maintain or even enhance their performance despite facing challenging or high-pressure situations during competition. Athletes often encounter various sources of pressure, including the importance of the event, expectations from themselves or others, and the presence of formidable opponents. Effectively managing pressure is crucial for athletes to perform at their best and achieve optimal results. Research suggests that athletes who possess strong mental skills, such as resilience, focus, and self-confidence, are better equipped to handle pressure and perform well under demanding circumstances (Jones et al., 2002). Additionally, athletes can benefit from specific psychological strategies aimed at managing pressure, such as visualization, positive self-talk, and relaxation techniques (Gucciardi et al., 2015). The ability to remain calm and focused under pressure can help athletes execute their skills with precision and make effective decisions during critical moments of competition. However, the impact of pressure on performance can vary among athletes and across different sports. While some athletes thrive under pressure and perform better in high-stakes situations, others may struggle to maintain their performance levels. Understanding how individuals respond to pressure and implementing appropriate coping strategies is essential for optimizing performance in competitive sports.

5. Methodology

The research design employed in this study, based on the pre-test/post-test one-group experimental design outlined by Campbell and Stanley (1963), involves assessing the impact of a psychological skill training program on the performance of 400m runners. Initially, athletes' psychological skills abilities and performance are measured as a baseline, followed by participation in a 12-week intervention program targeting imagery, relaxation, and self-talk. Post-test measurements are then conducted to evaluate any changes in performance and psychological skill ability. The study aims to determine significant differences in performance before and after the training program, allowing for rigorous evaluation of its effectiveness while controlling for potential variables. The study involved six athletes, equally divided between genders and aged 19 to 25, recruited from the Ethiopian Sport Academy. Various instrumentation components are utilized, including standardized measures of 400m race performance and the Psychological Skills Inventory for Sports (PSIS) to assess psychological skill abilities (Baker et al., 2010; Smith et al., 1995). Detailed documentation of the training program and gathering participant feedback via structured surveys or interviews facilitate comprehensive evaluation it ishypothesize that ‘‘there is a significant difference in the performance of athletes after intervention’’and with is the flowing specific objective what effect does the

psychological skill training on performance of athletes? And what are the changes in psychological skill ability among athletes? The intervention program focuses on improving imagery, relaxation, and self-talk abilities based on multimodal reduction approaches (Smith & Christensen, 1995). Led by experienced coaches or sports psychologists, weekly training sessions will offer guidance, practice opportunities, and feedback to help athletes master these skills. Imagery training will entail guided visualization exercises and mental rehearsal to help athletes visualize successful race performances (Vealey, 2008). Relaxation training will involve techniques like progressive muscle relaxation and deep breathing exercises to alleviate pre-race stress and anxiety (Hanton et al., 2009). Self-talk training will emphasize identifying and challenging negative self-talk while promoting positive affirmations to boost confidence and resilience during races (Hardy et al., 2010). Athletes will receive homework assignments to reinforce learning and practice skills independently, with ongoing monitoring of progress through assessments and performance reviews. This comprehensive intervention program aims to assess the impact of psychological skill training on 400m race performance. For data analysis, the paired samples t-test will be utilized to compare pre-test and post-test performance scores, while descriptive statistics will summarize the collected data (Fisher, 1925; Dodge, 1897). Additionally, athletes change in psychological skill ability was analysis lastly analysis of participant feedback will provide insights into the perceived effectiveness of the training program, complementing quantitative findings forquestions of post intervention (i.e., ‘‘was the intervention meaningful for you? Was the intervention helpful in improving your running Performance? Did you find the intervention to be relevant to your sport?’’) (Patton, 2002).

6. Results and Dissection

Table 1:the descriptive and the t-test result on performance of athletes 400M before and after intervention.

Performance of athletes 400M								
Descriptive result				t-test result				
Before interventions (n=6)		After intervention (n=6)					95% CI of the difference	
M	SD	M	SD	T	Df	Sig(2 tailed)	Lower	upper
56.066	5.201	55.867	5.008	3.135	5	.026	.03570	.36097

The descriptive analysis indicates that before the intervention, the mean performance time of the 400m runners was 56.066 seconds, with a standard deviation of 5.201 seconds. After the intervention, the mean performance time slightly decreased to 55.867 seconds, with a standard deviation of 5.008 seconds. This suggests a minor improvement in performance times after the intervention, accompanied by a reduction in the variability among athletes' performances. Conducting a paired samples t-test to compare pre- and post-intervention performance times, the results reveal a

statistically significant difference (t(5) = 3.135, p = 0.026, 95% CI [0.03570, 0.36097]) See table 1. This implies a notable change in performance times from before to after the intervention period, supporting the effectiveness of the intervention in improving the athletes' performance. The analysis indicates a statistically significant improvement in performance times following the intervention. This suggests that the psychological skill training program likely had a positive impact on the performance of the 400m runners.

Table 2: the descriptive and the t-test result on psychological skill ability of athletes before and after interventions.

The descriptive result					t-test result				
Psychological skill ability	Before interventions (n=6)		After intervention (n=6)					95% CI of the difference	
	M	SD	M	SD	t	Df	Sig(2 tailed)	Lower	upper
Imagery ability	1.7500	.47434	1.9167	.51640	-1.581	5	.175	-.43763	.10430
Relaxation ability	2.2917	.65986	3.4583	.36799	-4.300	5	008	-1.86410	-.46923
Self-talk ability	2.3333	.46547	3.8750	.20917	-6.520	5	.001	-2.14945	-.93388

The descriptive analysis reveals that prior to the intervention, athletes scored an average of 1.7500 in imagery ability, 2.2917 in relaxation ability, and 2.3333 in self-talk ability, with standard deviations of .47434, .65986, and .46547 respectively. Following the intervention, these scores increased to 1.9167, 3.4583, and 3.8750 respectively, with standard deviations of .51640, .36799, and .20917 respectively. These findings indicate an overall enhancement in psychological skill abilities after the intervention, with particularly notable improvements observed in relaxation and self-talk abilities. Conducting paired samples t-tests to compare pre- and post-intervention psychological skill abilities, statistically significant differences were observed for relaxation ability (t(5) = -4.300, p = .008) and self-talk ability (t(5) = -6.520, p = .001), indicating significant enhancements in these areas. However, no statistically significant difference was found for imagery ability (t(5) = -1.581, p = .175),See table 2 suggesting that the intervention may not have exerted a significant impact on this particular aspect of psychological skill ability. The analysis underscores substantial improvements in relaxation and self-talk abilities following the intervention, while imagery ability appeared relatively unaffected. These results imply that the psychological skill training program positively influenced the overall psychological skill abilities of the athletes, with certain areas experiencing more noticeable advancements than others.

7. Conclusion and Recommendations

The study's findings indicate a positive impact of the psychological skill training program on both the performance and psychological skill abilities of 400m runners. Significant improvements in performance times, as well as in relaxation and self-talk abilities, were observed post-intervention. These results are consistent with previous research, such as Gould et al. (2002) and Weinberg and Gould (2014), which demonstrated the effectiveness of psychological skill training in enhancing athletic performance. Overall, the study suggests that incorporating techniques like imagery, relaxation, and self-talk can lead to better performance outcomes for athletes. However, further research and refinement of interventions are necessary to optimize their effectiveness for all athletes.

References

1. *Baker, J., Horton, S., Robertson-Wilson, J., & Wall, M. (2010). Nurturing sport expertise: Factors influencing the development of elite athlete. Journal of Sports Sciences, 28(11), 1149–1156.*
2. *Gould, D., Dieffenbach, K., & Moffett, A. (2002).Psychological characteristics and their development in Olympic champions. Journal of Applied Sport Psychology, 14(3), 172-204.*
3. *Gucciardi, D. F., Gordon, S., &Dimmock, J. A. (2015).Advancing mental toughness research and theory using personal construct psychology. International Review of Sport and Exercise Psychology, 8(1), 133-157.*
4. *Hanton, S., & Jones, G. (2009). The acquisition and development of cognitive skills and strategies: I. Making the butterflies fly in formation. The Sport Psychologist, 23(1), 89-105.*
5. *Hanton, S., Fletcher, D., & Coughlan, G. (2013). Stress in elite sport performers: A comparative study of competitive and organizational stressors. Journal of Sports Sciences, 31(2), 173-183.*
6. *Hardy, L., Jones, G., & Gould, D. (2010). Understanding psychological preparation for sport: Theory and practice of elite performers. John Wiley & Sons.*
7. *Hardy, L., Jones, G., & Gould, D. (2017). Understanding psychological preparation for sport: Theory and practice of elite performers. John Wiley & Sons.*
8. *Patton, M. Q. (2002). Qualitative research and evaluation methods (3rd ed.). Thousand Oaks, CA: Sage Publications.*
9. *Smith, D., & Christensen, D. (1995). Psychological skills training and the efficacy of performance: A review. Journal of Applied Sport Psychology, 7(1), 17-35.*
10. *Vealey, R. S. (2008). Mental skills training in sport.In T. S. Horn (Ed.), Advances in sport psychology (3rd ed., pp. 317-356).Human Kinetics.*
11. *Weinberg, R. S., & Gould, D. (2014).Foundations of sport and exercise psychology.Human Kinetics.*
12. *Weinberg, R. S., & Gould, D. (2015).Foundations of sport and exercise psychology.Human Kinetics.*