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The Dominant Role of Intrinsic Motivation and Extrinsic Motivation in Improving the Performance of Gymnasts

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Abstract

Athlete performance in gymnastics is influenced by various psychological factors, particularly motivation, which plays a crucial role in training consistency and competitive outcomes; however, previous studies have shown inconsistent findings regarding whether intrinsic or extrinsic motivation has a more dominant influence, especially among student-athletes in structured training programs. Therefore, this study aims to analyze the role of intrinsic and extrinsic motivation in improving the performance of gymnastics athletes and to determine the most dominant motivational factor. This study employs a quantitative approach with a correlational method, involving 11 gymnastics athletes who are members of the Student Education and Training Center (PPLP) program selected using a total sampling technique. Data were collected through Likert-scale questionnaires using the Sport Motivation Scale II (SMS-II) to measure intrinsic and extrinsic motivation and the Test of Performance Strategies (TOPS) to assess athlete performance. Data analysis was conducted using Pearson correlation and multiple linear regression with the assistance of SPSS. The results indicate that intrinsic motivation does not have a significant effect on athlete performance, as evidenced by a t-value of 0.831 and a significance level of 0.430 (>0.05), whereas extrinsic motivation has a significant effect with a t-value of 3.594 and a significance level of 0.007 (<0.05), and emerges as the most dominant variable with a beta coefficient of 0.962. Simultaneously, intrinsic and extrinsic motivation significantly influence athlete performance ($F = 8.770$; $p = 0.010 < 0.05$), while the coefficient of determination (R Square) of 0.687 indicates that 68.7% of the variation in athlete performance is explained by these variables, confirming that extrinsic motivation plays a more dominant role in this context.

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INTRODUCTION

An athlete's performance is the result of a long, structured, and continuous training process, which involves the integration of physical, technical, tactical, and psychological aspects. Achieving peak performance (Peak performance) is the primary goal in the world of sport because it reflects the best abilities resulting from a combination of disciplined and consistent training (Short, 2023),To achieve peak performance, an athlete requires not only physical readiness but also mental readiness, motivation, concentration, and high self-confidence to face various pressures during training and competition (Buerba et al., 2021). Support from coaches, a good training environment, and a good coaching system also play a vital role in helping athletes maintain optimal and sustainable performance (Huebner & Perperoglou, 2020).

Motivation is one of the most fundamental psychological factors determining the quality of an athlete's performance (Alkasasbeh & Akroush, 2025). Essentially, motivation acts as an internal driving force that directs, sustains, and intensifies an individual's efforts to achieve performance goals (Brooks et al., 2022). Athletes with high levels of motivation typically demonstrate a strong fighting spirit, perseverance, and mental resilience in the face of training loads and competitive pressures (Almagro, 2020). Conversely, low motivation often results in decreased commitment, inconsistent training, and poor performance on the field. Therefore, motivation is not only a supporting factor but also a key foundation for an athlete's success, as it determines how far they can maximize their potential (Syafiq et al., 2023).

In sports psychology studies, motivation is generally categorized into two main types: intrinsic motivation and extrinsic motivation (Ryan & Deci, 2020). Intrinsic motivation stems from an individual's inner drive, arising from a sense of enjoyment, satisfaction, or challenge inherent in the activity (Morris et al., 2022). An athlete with high intrinsic motivation typically trains because they enjoy the process, feel challenged to develop, and derive satisfaction from each achievement. Conversely, extrinsic motivation arises from external factors such as rewards, recognition, social support, or pressure from coaches or the environment. Both types of motivation play an important role in shaping achievement behavior, but differences in the source of these drives can affect an athlete's level of consistency, persistence, and long-term performance (Alkasasbeh & Akroush, 2025). Research (Bakhtiar, 2023), revealed that 78% of athletes who had a balance between intrinsic and extrinsic motivation showed a performance increase of up to 25% compared to those who relied solely on one type of motivation.

Artistic gymnastics is a sport that demands perfection of movement, physical strength, flexibility, and high mental focus (Vargas et al., 2021). Gymnasts must possess the ability to control their emotions, maintain balance, and maintain full concentration throughout each complex and precise sequence of movements. In this context, motivation plays a crucial role because the mental and physical pressure faced by gymnasts tends to be greater than in other sports (Schütz & Schultheiss, 2020). Without strong motivation, whether from personal encouragement or environmental support, athletes will struggle to maintain their training enthusiasm and achieve their desired peak performance (Pramono et al., 2024).

However, in practice, decreased motivation is often a problem faced by gymnasts, especially when they experience fatigue, injury, or high competitive pressure (Lautenbach et al., 2021). Several studies have shown that decreased training enthusiasm can be triggered by a less harmonious relationship with the coach, an unfavorable training environment, or minimal recognition of the athlete's achievements (Subijana et al., 2022). These conditions not only impact physical performance but also disrupt the athlete's mental stability and self-confidence. Therefore, maintaining a balance between intrinsic and extrinsic motivation is crucial for gymnasts to maintain motivation, manage stress, and maintain optimal performance in every competition (Alkasasbeh & Akroush, 2025).

Several previous studies have shown that motivation has a significant relationship with athlete performance. However, most research still focuses on team sports such as soccer, basketball, and futsal (Moradi et al., 2020). Research on motivation in individual sports, particularly gymnastics, is still relatively limited. This is despite the fact that gymnastics requires a more complex combination of physical and mental abilities than team sports. This situation indicates a research gap regarding the understanding of the role of intrinsic and extrinsic motivation in gymnast performance.

The novelty of this study lies in its specific examination of the comparative and dominant roles of intrinsic and extrinsic motivation in influencing the performance of artistic

gymnastics athletes within a structured athlete development program. Unlike previous studies that predominantly focus on team sports or general athletic populations, this research provides a more focused analysis on gymnastics as an individual sport that requires a complex integration of physical and psychological factors. In addition, this study not only investigates the relationship between motivational variables and performance but also identifies the most dominant factor through a multiple regression approach, offering a deeper analytical perspective. Furthermore, the use of standardized instruments, namely the Sport Motivation Scale II (SMS-II) and the Test of Performance Strategies (TOPS), strengthens the empirical contribution of this research. Therefore, this study offers a contextual and methodological contribution to sports psychology, particularly in understanding motivation among developing athletes in structured training environments.

METHOD

This study used a quantitative method with a correlational design to analyze the influence of intrinsic and extrinsic motivation on the performance of gymnasts. According to Sugiyono, quantitative research is research conducted on a specific population or sample using standardized research instruments and statistically analyzed to obtain objective conclusions.

A correlational approach was used to determine the relationship and contribution of each motivational variable to athlete performance. The subjects in this study were gymnastics athletes who were members of the Student Education and Training Center Program (PPLP). The sampling technique used was total sampling, meaning that all members of the population were used as the research sample. The sample size for this study was 11 athletes. comprising 6 female and 5 male athletes, aged between 13 and 17 years. This technique was applied because the population was relatively small, allowing all individuals to be involved as respondents in the study.The instruments used in this study consisted of intrinsic and extrinsic motivation questionnaires, as well as the Test of Performance Strategies (TOPS) instrument to measure athlete performance. In sports psychology, measuring motivation is crucial because both intrinsic and extrinsic motivation can influence athlete engagement in training and athletic performance (Bakhtiar, et al., 2023).

The instruments used in this study consisted of intrinsic and extrinsic motivation questionnaires, as well as the Test of Performance Strategies (TOPS) instrument to measure athlete performance. In sports psychology, measuring motivation is crucial because both intrinsic and extrinsic motivation can influence athlete engagement in training and athletic performance (Bakhtiar, Abdul, Mazalan, Munsif, et al., 2023).

Data analysis was performed using multiple regression analysis with the aid of statistical software. Prior to the regression analysis, prerequisite analysis tests, including normality and multicollinearity tests, were conducted to ensure the data met statistical assumptions. Next, regression tests, t-tests, and F-tests were conducted to determine the effect of intrinsic and extrinsic motivation on gymnast performance (Brooks et al., 2022).

RESULTS AND DISCUSSION

This research examines data derived from a comparative analysis of dominant motivational orientations and their significant role in enhancing athletic performance. The study focuses on identifying how intrinsic and extrinsic motivation contribute both individually and collectively to athletes' performance outcomes within a structured training environment. The participants comprised 11 gymnasts affiliated with the Student Sports Education and Training Center (PPLP) in Arcamanik, Bandung, West Java, who were actively engaged in regular training and competitive preparation. These athletes represent a development-level cohort, making them a relevant group for understanding how motivational factors influence performance during critical stages of athletic growth and specialization.

Tabel 1. Descriptive Statistics

	N	Min	Max	Mean	Std.
Intrinsik	11	19	30	26.27	3.636
Ekstrinsik	11	18	33	23.64	5.143
Performa	11	106	159	128.38	17.078

Based on the results of descriptive statistical analysis, it was obtained that the intrinsic motivation variable had an average value of 26.27 with a standard deviation of 3.636, and a score range between 19 and 30. The extrinsic motivation variable showed an average value of 23.64 with a standard deviation of 5.143, and a score range between 18 and 33. Meanwhile, the athlete performance variable had an average value of 128.36 with a standard deviation of 17.078, and a score range between 106 and 159.

These findings indicate that each variable has a different level of data distribution, with

extrinsic motivation and athlete performance variables showing relatively higher variation than intrinsic motivation. Overall, the data distribution for all three variables can be categorized as adequate and meets the requirements for proceeding to inferential statistical analysis.

Tabel 2. Test of Normality-Shapiro-Wilk

	Sta-tistic	df	Sig.
Intrinsik	.878	11	.098
Ekstrinsik	.873	11	.084

Based on the results of the normality test using the Shapiro–Wilk method, the significance value for the intrinsic motivation variable was 0.098 and the extrinsic motivation variable was 0.084. Both values are greater than 0.05, thus concluding that the data for each variable is normally distributed. These results indicate that the assumption of normality in the study has been met.

Testing the simultaneous influence of intrinsic and extrinsic motivation on athlete performance was conducted using the F-test in regression analysis. The results of the analysis showed that the regression model was statistically significant, indicating that both independent variables jointly influenced athlete performance.

Tabel 3. F Anova Test

Model	F	Sig
Regression	8.770	.010b

Based on the ANOVA test results, an F value of 8.770 was obtained with a significance level of 0.010 ($p < 0.05$). These results indicate that the regression model used in this study is statistically significant. Thus, it can be concluded that the variables of intrinsic and extrinsic motivation simultaneously have a significant influence on athlete performance.

Testing the influence of each independent variable on athlete performance was partially carried out using the t-test in regression analysis.

Tabel 4. T Coefficient Test

Model	t	Sig.
Intrinsik	.831	.430
Ekstrinsik	3.594	.007

Based on the results of the partial test (t-test), it was obtained that the intrinsic motivation variable has a significance value of 0.430 ($p>0.05$) with a t-value of 0.831, so it does not show a significant influence on athlete performance. Meanwhile, the extrinsic motivation variable has a significance value of 0.007 ($p<0.05$) with a t-value of 3.594, which indicates a The findings indicate that extrinsic motivation has a statistically significant influence on athlete performance, while intrinsic motivation does not demonstrate a significant effect within this research model. The term significant in this context refers to the statistical evidence that the effect of extrinsic motivation is unlikely to have occurred by chance ($p < 0.05$), indicating a reliable and meaningful contribution to performance outcomes. In contrast, intrinsic motivation does not meet this statistical threshold, suggesting that its effect is not strong enough to be considered a decisive predictor of performance in this sample.

From a theoretical perspective, these results can be interpreted through the framework of Self-Determination Theory, which posits that motivation exists along a continuum from intrinsic to extrinsic regulation (Ryan & Deci, 2020). In the context of developing athletes, extrinsic motivation such as rewards, coach support, and structured training demands tends to play a more immediate and observable role in shaping behavior and performance. This is particularly relevant for athletes in the developmental stage, who are generally more responsive to external reinforcement than to internalized motivation.

The non-significant role of intrinsic motivation does not imply that it is unimportant; rather, it suggests that intrinsic factors may not yet be fully developed or may function more as long-term determinants of consistency and psychological resilience rather than immediate performance outcomes. Previous studies have also indicated that intrinsic motivation contributes more strongly to sustained engagement and long-term athlete development rather than short-term performance gains.

Furthermore, the dominance of extrinsic motivation in this study highlights the practical importance of external support systems. Coaching strategies that incorporate clear goal-setting, structured feedback, and appropriate reward mechanisms appear to be effective in enhancing athlete performance. However, an over-reliance on extrinsic factors may pose risks in the long term, particularly if athletes fail to internalize motivation, which is essential for maintaining performance stability and independence.

Previous research has reinforced this finding by demonstrating that extrinsic motivation is a crucial factor in supporting athlete performance, as it can increase training enthusiasm and discipline in implementing training programs

(Munkácsi, 2012). Other findings also indicate that motivation, both intrinsic and extrinsic, has a strong relationship with athlete performance and contributes significantly to overall performance improvement.

The results of this study indicate that coach support, reward provision, and achievement targets play a significant role in improving athlete performance(Abdollahipour et al., 2015). Thus, these findings reinforce the notion that extrinsic motivation is a key factor in improving athlete performance, especially in situations where intrinsic motivation has not yet developed optimally.

The findings of this study confirm that in athletes still in the development stage, extrinsic motivation tends to play a more dominant role in improving performance than intrinsic motivation. This demonstrates the importance of external factors in fostering enthusiasm, discipline, and consistent training during the athlete's development phase.

The implications of these results point to the need for efforts to optimize extrinsic motivation by coaches and related parties, through strategies such as providingreward, social support, and creating a conducive training environment. However, developing intrinsic motivation remains crucial as a long-term foundation for athletes to maintain their performance independently and sustainably.

CONCLUSION

Based on the research results, it can be concluded that extrinsic motivation plays a more dominant role in influencing athlete performance than intrinsic motivation. This finding indicates that external factors such as coach support, reward systems, recognition, and competitive demands serve as the primary drivers in improving performance quality, especially for athletes still in the development stage. This condition reflects that athletes' orientation tends to be more influenced by external targets and demands than internal drives originating from within themselves. Nevertheless, intrinsic motivation still provides a meaningful contribution to supporting performance when interacting with extrinsic motivation, particularly in maintaining consistent training and long-term mental resilience.

The implications of this study emphasize the importance of the coach and training environment in building an effective coaching system through the provision of targeted external stimuli, such as clear goal setting, constructive feedback, and reinforcement in the form of rewards. These external factors demonstrate a substantial impact on enhancing athlete effort, focus, and commitment. However, the development of intrinsic motivation also needs to be considered so that athletes do not rely solely on external factors but also develop a strong internal drive to sustain long-term performance. This study still has limitations in the relatively small sample size and limited scope to one group of athletes. Therefore, further research is recommended to involve a wider sample and consider other psychological variables to obtain a more comprehensive understanding.

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