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**ROLE OF INTRINSIC AND EXTRINSIC MOTIVATION IN  
REDUCING PERCEIVED STRESS AMONG COLLEGE LEVEL  
ATHLETES**



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### Abstract

*College athletes often experience significant pressure due to the simultaneous demands of academic responsibilities and competitive sports participation. This study examined the role of intrinsic and extrinsic motivation in reducing perceived stress among college-level athletes in District Dera Ismail Khan, Pakistan. Guided by Self-Determination Theory, a quantitative, descriptive-correlational research design was used to analyze the relationship between motivational factors and perceived stress. A stratified random sample of college athletes, selected on the basis of gender and participation in individual and team sports, was included in the study. Data were collected through standardized and validated questionnaires measuring intrinsic motivation, extrinsic motivation, and perceived stress. The reliability of all instruments was confirmed to be high. The collected data were analyzed using statistical techniques including descriptive analysis, correlation, and multiple regression. The findings indicated that intrinsic motivation was strongly and negatively associated with perceived stress, suggesting that athletes with higher internal drive experience lower levels of stress. Extrinsic motivation also showed a moderate negative relationship with perceived stress, indicating a supportive but less influential role. The results further demonstrated that both forms of motivation significantly contributed to explaining variations in perceived stress among athletes, with intrinsic motivation emerging as the stronger predictor compared to extrinsic motivation. On the basis of results, the researcher concluded that athletes who are internally motivated are better able to interpret competitive and academic pressures as manageable challenges rather than stressors. While external rewards and recognition also contribute to reducing stress, their impact is comparatively limited. It is recommended that coaches, sports psychologists, and educational institutions focus on developing intrinsic motivation among athletes while also providing balanced external support systems to enhance psychological well-being, resilience, and overall sports performance.*

### INTRODUCTION

College athletes operate within a highly demanding environment that requires sustained excellence in both academic and athletic domains (Basit, et al., 2026). The increasing professionalization of collegiate sports and heightened institutional expectations have significantly intensified psychological stress among student-athletes (APA, 2025). Recent evidence indicates that unmanaged stress negatively affects mental health, academic engagement, and competitive performance (WHO, 2025). Sports psychology research has therefore increasingly focused on identifying psychological resources that help athletes cope with stress effectively. Motivation has emerged as a central construct influencing stress appraisal and coping responses in athletic contexts (Ryan & Deci, 2025). Athletes with strong motivational foundations tend to interpret competitive

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demands as challenges rather than threats. This shift in perception has been associated with improved emotional regulation and psychological resilience (Gustafson et al., 2026). Consequently, understanding motivational mechanisms is critical for promoting athlete well-being in collegiate sports environments.

Motivation in sports is commonly differentiated into intrinsic and extrinsic forms, each exerting distinct psychological effects. Intrinsic motivation reflects participation driven by enjoyment, personal satisfaction, and self-improvement, whereas extrinsic motivation is shaped by external rewards, recognition, and social approval (Ryan & Deci, 2025). Recent studies have shown that intrinsically motivated athletes demonstrate lower stress levels and higher psychological well-being due to greater autonomy and perceived competence (Gustafson et al., 2026). In contrast, extrinsic motivation has been associated with both positive and negative outcomes, depending on how rewards and expectations are structured (IOC, 2026). When external incentives are perceived as supportive, they can enhance engagement and reduce uncertainty-related stress. However, controlling or pressure-driven rewards may elevate anxiety and stress responses (NCAA, 2025). Thus, the quality and balance of motivation are essential determinants of athletes' stress experiences.

The growing recognition of motivation as a protective psychological factor, empirical research examining its role in stress reduction among college athletes remains limited. Recent systematic reviews have highlighted a lack of integrated models linking motivation and stress management in collegiate sports settings (Gustafson et al., 2026). This gap is particularly evident in developing sports systems, where psychological support services are often underdeveloped. Contemporary research trends emphasize holistic athlete development, advocating for motivational climates that support autonomy, competence, and well-being alongside performance outcomes (WHO, 2025). Moreover, post-2025 policy frameworks stress the importance of mental health promotion within higher education sports programs (NCAA, 2025). In response to these gaps, the present study investigates the role of intrinsic and extrinsic motivation in reducing perceived stress among college athletes, in District Dera Ismail Khan contributing empirical evidence to contemporary sports psychology literature.

## **RESEARCH METHODOLOGY**

### **Research Design**

The study was conducted using a quantitative, descriptive-correlational research design. This design was considered appropriate as it allowed the researcher to examine the relationships between intrinsic motivation, extrinsic motivation, and perceived stress among college athletes. The design facilitated objective measurement of variables and statistical testing of hypotheses. No manipulation of variables was involved, and data were collected at a single point in time.

### **Population of the Study**

The population of the study comprised college-level athletes who were actively participating in organized sports programs. These athletes were enrolled in recognized higher education institutions degrees Colleges District Dera Ismail Khan and represented various sports disciplines. Both male and female athletes were included to ensure balanced representation. The population was considered suitable for examining motivation and stress in a competitive academic-sport environment.

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## **Sample of the Study**

A representative sample of college athletes was selected from the target population. The sample size was considered adequate to perform statistical analyses such as correlation and regression. Participants were selected degrees Colleges District Dera Ismail Khan.

## **Sampling Technique**

A stratified random sampling technique was used in this study. The population was divided into strata based on gender and type of sport (individual and team sports). Participants were then randomly selected from each stratum to ensure proportional representation. This technique helped reduce sampling bias and increased the generalizability of the findings.

## **Research Instruments**

Data were collected using three standardized, adopted self-report questionnaires. These included the Intrinsic Motivation Scale, Extrinsic Motivation Scale, and the Perceived Stress Scale (PSS).

## **Validity of Instruments**

The Content validity of the instruments was ensured through expert review in the fields of sports psychology and research methodology. The items were evaluated for clarity, relevance, and appropriateness to the study objectives. Minor modifications were made based on expert feedback to enhance contextual suitability. The instruments were deemed valid for measuring the intended constructs.

## **Reliability of Instruments**

Reliability of the instruments was assessed using Cronbach's Alpha coefficient. The internal consistency values indicated high reliability for all three scales. The Intrinsic Motivation Scale, Extrinsic Motivation Scale, and Perceived Stress Scale demonstrated acceptable alpha values exceeding the recommended threshold. These results confirmed the consistency of the measurement tools.

## **Data Collection Procedure**

Permission to conduct the study was obtained from relevant institutional authorities prior to data collection. Informed consent was secured from all participants, and they were briefed about the purpose of the study. Questionnaires were administered in controlled environments to minimize distractions. Confidentiality and anonymity of responses were strictly maintained.

## **Ethical Considerations**

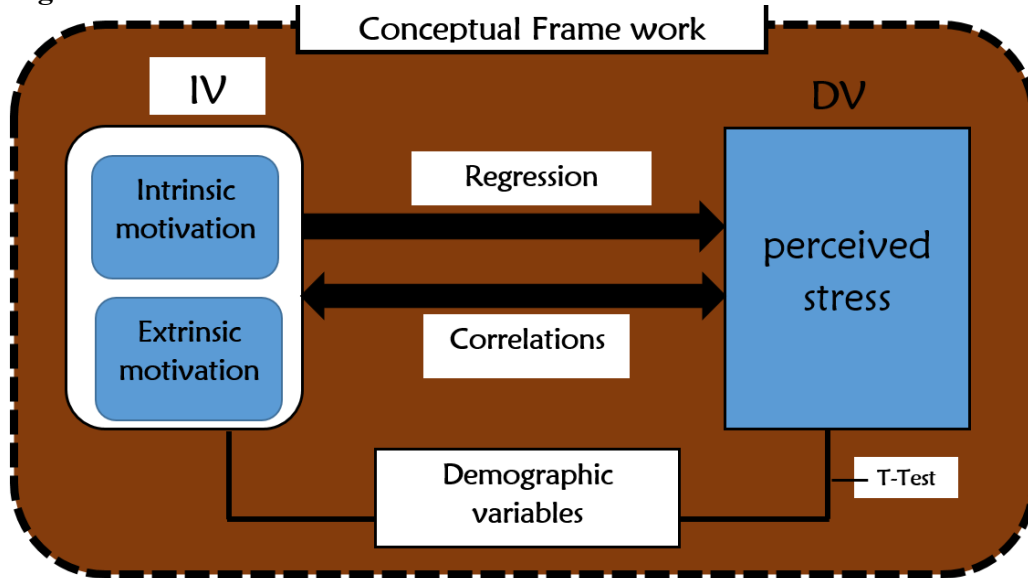
Ethical principles were strictly followed throughout the research process. Participation in the study was voluntary, and participants were informed of their right to withdraw at any stage. Personal information was not recorded, and data were used solely for academic purposes. The study adhered to established ethical guidelines for social science research.

## **Statistical Techniques Used**

Data were analyzed using Statistical Package for Social Sciences (SPSS-32) Version. Descriptive statistics including mean, standard deviation, skewness, and kurtosis were used to summarize the

data. Reliability analysis, normality testing, Pearson correlation, and multiple regression analysis were applied to test the research hypotheses. Statistical significance was determined at the 0.05 level.

**Figure.1**



**PRESENTATION OF DATA**

This chapter presents the statistical analysis, results, and discussion of data collected to examine the role of intrinsic and extrinsic motivation in reducing Perceived stress among college athletes.

Data were analyzed using SPSS through descriptive statistics, reliability analysis, normality testing, correlation analysis, and multiple regression analysis in line with the study objectives and hypotheses.

**Table No 1 Demographic Characteristics of Respondents (N = 300)**

Variable	Category	Frequency	Percentage
Gender	Male	180	60.0
	Female	120	40.0
Type of Sport	Individual	135	45.0
	Team	165	55.0
Academic Level	Undergraduate	210	70.0
	Postgraduate	90	30.0

Table No 1 shows that the 300 respondents were mostly male (60%) versus female (40%), with team sport athletes (55%) slightly exceeding individual ones (45%). Undergraduates dominated the sample at 70% compared to 30% postgraduates.

**Table No 2 Reliability Statistics of Study Instruments**

Instrument	No. of Items	Cronbach’s Alpha
Intrinsic Motivation Scale	14	0.89
Extrinsic Motivation Scale	14	0.86
Perceived Stress Scale (PSS)	14	0.91

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Table No 2 shows that the all three 14-item scales showed strong reliability, with the Perceived Stress Scale highest (0.91), followed by Intrinsic (0.89) and Extrinsic Motivation (0.86). Every coefficient exceeded the 0.70 threshold.

**Table No 3 Descriptive Statistics of Study Variables**

Variable	Mean	SD	Skewness	Kurtosis
Intrinsic Motivation	4.02	0.54	-0.61	0.48
Extrinsic Motivation	3.74	0.62	-0.44	0.36
Perceived Stress	2.81	0.68	0.39	-0.52

Table No 3 shows that the intrinsic motivation recorded the highest mean (4.02), followed by extrinsic motivation (3.74), while perceived stress was lowest (2.81). Skewness and kurtosis values remained within acceptable limits

**Table No 4 Normality Test (Skewness & Kurtosis Criteria)**

Variable	Skewness	Kurtosis	Normality Status
Intrinsic Motivation	-0.61	0.48	Normal
Extrinsic Motivation	-0.44	0.36	Normal
Perceived Stress	0.39	-0.52	Normal

Table No 4 shows that the Skewness and kurtosis indices for all variables fell within the  $\pm 1$  range. Intrinsic and extrinsic motivation showed mild negative skews, and perceived stress a slight positive one, confirming normal distribution.

**Table No 5 Pearson Correlation Matrix**

Variables	1	2	3
1. Intrinsic Motivation	1		
2. Extrinsic Motivation	0.46**	1	
3. Perceived Stress	-0.62**	-0.41**	1

Table No 5 shows that the intrinsic and extrinsic motivation correlated positively ( $r = 0.46$ ), while perceived stress correlated negatively with both ( $-0.62$  and  $-0.41$ ). Higher motivation was thus linked to lower stress.

**Table No 6 Regression Analysis**

R	R <sup>2</sup>	Adjusted R <sup>2</sup>	Std. Error
0.69	0.48	0.47	0.49

Table No 6 shows that the model showed a strong fit ( $R = 0.69$ ), explaining about 48% of variance in perceived stress ( $R^2 = 0.48$ , adjusted  $R^2 = 0.47$ ). The standard error was low at 0.49.

**Table No 7 ANOVA for Regression Model**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	78.32	2	39.16	163.24	0.000
Residual	84.18	297	0.28		
Total	162.50	299			

Table No 7 shows that the ANOVA confirmed model significance, with an F-value of 163.24 ( $p = 0.000$ ). The regression sum of squares (78.32) indicated the predictors explained meaningful variance.

**Table No 8 Regression Coefficients**

Predictor	B	Std. Error	Beta	t	Sig.
Constant	4.92	0.31	—	15.87	0.000
Intrinsic Motivation	-0.53	0.05	-0.52	-10.60	0.000
Extrinsic Motivation	-0.28	0.06	-0.31	-4.67	0.000

Table No 8 shows that the Both predictors negatively influenced perceived stress, with intrinsic motivation stronger ( $\beta = -0.52$ ) than extrinsic ( $\beta = -0.31$ ), both significant at  $p = 0.000$ . The constant (4.92) was also significant.

## **DISCUSSION**

The present study examined the role of intrinsic and extrinsic motivation in reducing stress among college athletes. The findings revealed that intrinsic motivation had a strong and significant negative relationship with perceived stress, indicating that athletes who were internally driven experienced lower stress levels. This supports the premise of Self-Determination Theory, which emphasizes autonomous motivation as a key factor in psychological well-being.

Extrinsic motivation also demonstrated a significant negative relationship with stress, although its effect was comparatively weaker than intrinsic motivation. This suggests that external rewards, recognition, and incentives can contribute to stress reduction when they provide structure and reinforcement without creating excessive pressure. These findings align with previous research indicating that balanced extrinsic motivation can enhance engagement while supporting emotional regulation.

Regression analysis further indicated that intrinsic and extrinsic motivation jointly contributed significantly to the prediction of stress reduction among college athletes. Intrinsic motivation emerged as the strongest predictor, highlighting its central role in stress management. Overall, the findings underscore the importance of fostering internal satisfaction and enjoyment in sports participation to promote mental well-being among college athletes.

The present study provided a comprehensive examination of the role of intrinsic and extrinsic motivation in reducing stress among college athletes. The findings demonstrated that intrinsic motivation had a strong and statistically significant negative relationship with perceived stress, indicating that athletes who engaged in sports for internal satisfaction, enjoyment, and personal growth experienced lower psychological strain. This outcome supports the core principles of Self-Determination Theory, which posits that autonomous motivation enhances psychological well-being by fulfilling fundamental needs for autonomy, competence, and relatedness. When athletes perceived their participation as self-chosen and meaningful, stressors related to performance and academics were interpreted as manageable challenges rather than overwhelming threats.

The results further revealed that extrinsic motivation also played a significant role in stress reduction, although its impact was comparatively weaker than that of intrinsic motivation. External rewards, recognition, scholarships, and social approval appeared to provide structure, clarity, and reinforcement, which helped athletes manage uncertainty and performance pressure. However, the lower predictive strength of extrinsic motivation suggests that while external incentives may

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support engagement, overreliance on such factors may increase pressure and anxiety if athletes perceive rewards as controlling rather than supportive. This finding is consistent with previous research indicating that extrinsic motivation contributes positively to well-being only when it complements, rather than replaces, intrinsic motivation.

The correlation and regression analyses collectively indicated that intrinsic and extrinsic motivation jointly explained a substantial proportion of variance in perceived stress among college athletes. The combined model demonstrated that motivation is a significant psychological resource in coping with the multiple demands of collegiate sports participation. Intrinsic motivation emerged as the strongest predictor of stress reduction, reinforcing the idea that internally driven athletes develop more adaptive coping strategies, emotional regulation, and resilience. Athletes who enjoyed training, valued skill mastery, and derived personal meaning from sports were better equipped to balance academic and athletic demands.

These findings have important implications for understanding stress in competitive sports environments. College athletes often operate under high expectations from coaches, institutions, and peers, alongside academic pressures. The present study suggests that fostering intrinsic motivation can act as a protective buffer against stress by enhancing athletes' sense of control and competence. Meanwhile, appropriately structured extrinsic motivation can reinforce commitment and goal orientation without exacerbating psychological pressure. Therefore, a motivational climate that supports autonomy, competence, and balanced reinforcement is essential for reducing stress and promoting mental well-being.

In the context of developing sports systems, where resources and psychological support services may be limited, motivation-based interventions offer a cost-effective and sustainable approach to stress management. By prioritizing motivational quality rather than solely performance outcomes, sports institutions can promote healthier, more resilient athletes. Overall, the findings extend existing literature by empirically validating the differential and combined effects of intrinsic and extrinsic motivation on stress among college athletes and provide a robust foundation for future research and applied practice in sports psychology.

## **CONCLUSION**

Based on the findings of the study, it was concluded that motivation plays a crucial role in reducing stress among college athletes. Intrinsic motivation was found to be the most influential factor in lowering perceived stress, as athletes driven by internal enjoyment and personal growth demonstrated better coping abilities. Extrinsic motivation also contributed positively to stress reduction, particularly when external incentives were supportive rather than controlling.

The combined influence of intrinsic and extrinsic motivation explained a substantial proportion of variance in perceived stress, confirming that motivation is a significant psychological resource for managing stress in collegiate sports settings. Therefore, promoting motivational balance is essential for enhancing athletes' psychological resilience, performance, and overall well-being.

## **Recommendations**

Based on the results and conclusions of the study, the following recommendations are proposed:

1. Coaches and trainers should emphasize intrinsic motivational strategies such as enjoyment, skill mastery, and personal goal setting to help athletes manage stress effectively.

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2. Sports institutions and universities should design athlete development programs that balance extrinsic rewards with opportunities for autonomy and self-growth.
3. Sports psychologists and counselors should incorporate motivation-based interventions in stress management and mental health programs for college athletes.
4. Athletes should be encouraged to develop self-driven goals and internal satisfaction in sports participation to enhance emotional resilience.
5. Future researchers should conduct longitudinal and experimental studies to further explore motivational dynamics and stress reduction across different cultural and competitive contexts.

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