

**Examining the Effect of Participation Level on Intrinsic and Extrinsic Sports Motivation
Among University Athletes of Lahore, Pakistan**

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ABSTRACT

Sports motivation is an important psychological factor influencing the behaviour and performance of athletes. According to Self-Determination Theory (SDT), athletes' motivation is broadly categorised into intrinsic and extrinsic motivation. Despite numerous studies from international contexts, the relationship between participation levels and motivation among university athletes in Pakistan has received limited empirical attention. The study aimed to examine the impact of participation levels on intrinsic and extrinsic motivation among university athletes in Lahore, Pakistan. A cross-sectional research design was used. Data were collected from 234 university athletes of Punjab University (Public) and the University of Lahore (Private) using convenience sampling. Participants were categorised into three groups: Beginner ($n = 53$), intermediate ($n = 119$), and elite ($n = 62$). The Kruskal-Wallis H test was used to test group differences, followed by Mann-Whitney U post-hoc comparisons with Bonferroni correction. Results showed significant differences in intrinsic motivation across participation levels, $H(2) = 15.074$, $P = .001$, $\eta^2 = .057$. Post-hoc analyses indicated that beginner athletes showed significantly less intrinsic motivation than both intermediate and professional/elite athletes. However, extrinsic motivation revealed a significant difference overall, $H(2) = 6.983$, $p = .030$, $\eta^2 = .022$; however, none of the pairwise comparisons was significant after Bonferroni correction. The Spearman correlation analysis demonstrated a significant positive relationship between participation level and intrinsic motivation ($r_s = .240$, $p < .001$), while the relationship with extrinsic motivation was relatively weak ($r_s = .156$, $p = .017$). Higher participation levels are associated with stronger intrinsic motivation among university athletes, while extrinsic motivation appears to be relatively stable across participation levels. The results align with Self-Determination Theory (SDT) that increasing sports participation can enhance competence and autonomy, thereby strengthening

intrinsic motivation. These findings contribute to the limited literature on sports motivation in Pakistan and provide practical suggestions for promoting an intrinsically motivating sports environment in universities.

Keywords: *Sports motivation, intrinsic motivation, extrinsic motivation, participation level, university athletes, Self-Determination Theory*

INTRODUCTION

Sports motivation is an important psychological factor that influences athletes' behavioural patterns, regulates their degree of involvement, and shapes their level of interest in sports participation (Alkasasbeh & Akroush, 2025; Shoxrux, 2023). In sports psychology, motivation is conceptualised as two primary dimensions: intrinsic motivation, which involves engaging in sports for enjoyment and personal satisfaction; and extrinsic motivation, which includes seeking external rewards, recognition, and avoiding negative consequences (Ryan & Deci, 2022). Together, these motivational orientations highlight the psychological engagement of athletes in sports and have been studied extensively in various athletic populations and competitive settings. The most widely used theoretical framework for understanding sports motivation is Self-Determination Theory, proposed by Deci and Ryan (2000). According to this theory, motivation is influenced by the fulfilment of three basic psychological needs: autonomy, competence, and relatedness. When these needs are satisfied in the sport context, intrinsic motivation develops, which in turn leads to better athletic performance, improved psychological preparation, and long-term sports engagement (Cerasoli et al., 2016; Deci & Ryan, 2000). In contrast, if these needs are not satisfied, athletes become more dependent on extrinsic motivation rather than intrinsic motivation, commitment may weaken over time, and the chances of dropout increase in sports (Deci & Ryan, 2000; Ntoumanis, 2001).

The role of participation level is an important aspect of sports motivation; it has received increasing attention but has not yet been fully explored. Beginner athletes, intermediate competitors, and elite athletes go through different experiences in their sport careers. These experiential differences greatly influence athletes' motivational tendencies. Self-Determination Theory explains this by stating that as athletes advance to higher levels and accumulate more experience, their vital psychological needs, particularly competence and autonomy, are met, which increases their intrinsic motivation (Dai et al., 2024; Deci & Ryan, 2000). Elite athletes, compelled by strong internal goals and long-term aspirations for their sport, tend to exhibit higher intrinsic motivation than beginner athletes (Mallett & Hanrahan, 2004; Kaswati Salleh et al., 2025). In contrast, beginner athletes rely more on extrinsic motivation to maintain participation in the game, such as rewards, social recognition, and praise from coaches, as their intrinsic motivation is still in the early stages of development and will be strengthened through continued experience, skill acquisition, and a sense of mastery (Bhatnagar & Karageorghis, 2008; Tsorbatzoudis et al., 2006). Importantly, both intrinsic and extrinsic motivation exist at all levels of sports participation, with research suggesting that as individuals become more involved in sports, both types of motivation become stronger and amotivation gradually diminishes (Tsorbatzoudis et al., 2006; Walczak & Tomczak, 2019).

In recent decades, student engagement in university sports has significantly increased, indicating the growing recognition of sports as an essential component in promoting students' balanced development (Eime et al., 2013). University athletes are a particularly complex motivational group as they must simultaneously fulfil academic requirements, social adaptation, and athletic commitments, and these overlapping demands create a multidimensional stress system that can both enhance or hinder their sports motivation (Anjum et al., 2025; Guo et al., 2025). Research conducted among university athletes in Pakistan has indicated that both intrinsic and extrinsic motivation play a crucial role in determining students' participation in sports, underscoring the significance of motivation in influencing the consistency of their involvement in university athletic activities (Rehman et al., 2023). However, empirical evidence on sports motivation among university athletes in Pakistan is still relatively scarce. Particularly extensive research is

available in Western contexts where the socio-cultural and institutional environment is quite different from those in developing countries like Pakistan (Aftab et al., 2022; Rehman et al., 2023)

Despite this conceptual clarity, the majority of existing studies have examined extrinsic and intrinsic motivation separately without examining the motivation of athletes in relation to competition levels. Furthermore, many studies have treated athletes as a homogeneous group, ignoring the different motivational patterns that may develop as athletes progress through various stages of athletic development (Alkasasbeh & Akroush, 2025; Azid et al., 2023; Schüler et al., 2023). This limitation reduces the ability to accurately capture the variances in motivation between beginner, intermediate, and elite athletes, and also obscures the practical implications of designing sports programs and coaching methods that are intended to promote development (Angot & Martinet, 2025; Díaz-Rodríguez et al., 2025). The research gap is evident in Pakistani universities, where unique cultural expectations, educational pressure, and poor sports infrastructure influence intrinsic and extrinsic motivation. The literature that derives from the Western context cannot fully explain the contextual variations observed in Pakistan (Aftab et al., 2022; Anjum et al., 2025). Therefore, this study attempts to explore the effects of participation level (Beginner, Intermediate, and Elite) on intrinsic and extrinsic motivation among university athletes in Lahore, Pakistan. It is hypothesized that significant differences exist in both intrinsic and extrinsic motivation across participation levels among university athletes.

METHODOLOGY

Study design

This study employed a quantitative and cross-sectional research design to examine the effect of participation level on intrinsic and extrinsic motivation among university athletes. The data was collected at a single point, utilizing a cross-sectional study design, which provides a snapshot of the variables, valuable to consider the existing state of the intrinsic and extrinsic motivation under consideration and to provide the degree of interrelation of both variables (Creswell, 2023). The data was measured in numeric form and analysed statistically to identify the significant patterns and group differences.

Variables

This study consists of two primary variables, including the independent variable, participation level, operationalized as a categorical variable (considering Amateur/beginners, competitive/intermediate, and professional/elite). The dependent variable was the athletes' intrinsic and extrinsic motivation for sports, measured using an adopted version of the Sports Motivation Scale (Pelletier et al., 2013).

Participants

The study consisted of 234 university athletes who actively participate in university sports, recruited from Punjab University Lahore (public) and the University of Lahore (private), in Lahore, Pakistan. Using the convenience sampling method, the researcher selects university student athletes considering participation level (beginners, intermediate, and elites) and their engagement in university sports. This research scope was not restricted by gender to accept a comprehensive analysis of the motivation perspectives of athletes.

Operational Definition of Participation Level

Participation level, the independent variable, was operationally defined and self-reported by participants in the demographic section of the questionnaire. Three levels were identified: (1) Amateur/Beginner, athletes at the initial stage of competitive sports participation with limited university-level competition experience;

(2) Competitive/Intermediate, athletes actively competing at the university level with moderate experience; and (3) Professional/Elite, athletes competing at advanced levels, including inter-university or intra-university sports competitions. This categorization is consistent with commonly used frameworks for classifying athletic participation in sports motivation research.

Sample Size

The researchers aim for a sample that is both practically attainable and statistically sufficient to draw meaningful conclusions. The researcher gathered data from 234 participants through non-probability convenience sampling for this study on student-athletes' motivation for sports. The sample size was determined using G*Power 3.1, with a medium effect size ($f = 0.25$), $\alpha = .05$, and power = 0.80, which indicated a minimum required sample of 159 participants for a three-group non-parametric comparison; the obtained sample exceeded this threshold. Each participation level group also meet the minimum requirement of a minimum of 30 participants per group for parametric and non-parametric statistical analyses (Creswell, 2023), with the threshold, beginners ($n=53$), competitive/intermediate ($n=119$), and professional/elites ($n=62$), ensuring statistically meaningful analysis to examine the effect of participation level on intrinsic and extrinsic sports motivation among university athletes (Creswell, 2023).

Selection Criteria

Inclusion Criteria

The participants, including male and female student-athletes above 18, who actively participate in university sports competitions, classifiable under one of three participation level categorization (beginners, intermediate, and elites) from only Punjab University Lahore (public) and the University of Lahore (private) currently studying in any department of the university (Bachelor's, Master's, MPhil, or PhD programs), were included in this research work.

Exclusion Criteria

Male and female student-athletes below 18 years of age at university sports, who are not actively engaged in sports competitions, have no experience in sports, do not meet the categorized participation level (beginners, intermediate, and elites), and the student-athletes who are training only to maintain fitness without competition aspiration, were also excluded from this research work.

Instrument for Data Collection

A structured questionnaire comprising two sections was used for data collection. Section one gathered demographic information including age, gender, university, sport type, participation level, years of involvement in sports, training hours per week, and academic focus. Section two comprises an adopted version of the Sport Motivation Scale (SMS), as the primary instrument to measure intrinsic and extrinsic sports motivation. The SMS was originally developed by (Pelletier et al., 1995) and subsequently revised by (Pelletier et al., 2013) to better align with the SDT-Theory. The revised version of the SMS is a well-validated, theoretically grounded instrument rooted in Self-Determination Theory (SDT), with well-established validity and reliability across diverse athlete populations and cultural contexts (Mallett et al., 2007; Pelletier et al., 1995). For this study, an adapted version of the SMS, comprising 18 items were organized into six subscales with three items each: three subscales measuring intrinsic motivation, Intrinsic Motivation to Know (IMK), Intrinsic Motivation to Accomplish (IMA), and Intrinsic Motivation to Experience Stimulation (IMES), and three subscales measuring extrinsic motivation, Identified Regulation (EMIR), Introjected Regulation (EMInR), and External Regulation (EMER). Composite scores for intrinsic

motivation and extrinsic motivation were calculated by averaging the item scores of their respective subscales. The instrument was administered using a five-point Likert scale (1 = Strongly Disagree; 5 = Strongly Agree).

Validity of the Instrument

The validity of the adapted SMS used in this study is supported on multiple grounds. First, the instrument demonstrates strong theoretical validity through its direct alignment with the SDT motivational continuum, which positions intrinsic and extrinsic motivation as the core regulatory styles governing athletic behaviour (Deci & Ryan, 2000). Second, the construct validity of the SMS has been previously confirmed through confirmatory factor analysis conducted across multiple cultural and sporting contexts in prior studies (Mallett et al., 2007; Pelletier et al., 2013). Third, the internal consistency reliability of the adapted scale in the current study was strong, with Cronbach's Alpha of .829 for the intrinsic motivation subscale, .801 for the extrinsic motivation subscale, and .874 for the full 18-item scale, all exceeding the acceptable threshold of .70, further confirming the scale's reliability within the Pakistani university athlete context.

Regarding the exclusion of the amotivation subscale, this was justified on two grounds. First, the adapted SMS framework employed in this study (Pelletier et al., 2013) restructured the original subscales with primary emphasis on the active motivational regulatory styles, and amotivation fell outside the constructs being operationalized. Second, the research objective was specifically focused on examining the nature and comparative levels of intrinsic and extrinsic motivational orientations across participation levels; therefore, the absence of motivation was beyond the defined scope of this study. This exclusion is theoretically consistent with SDT, which positions intrinsic and extrinsic motivation as the core regulatory styles most relevant to actively competing sports participants (Deci & Ryan, 2000). This approach is further supported by prior studies that have similarly examined intrinsic and extrinsic motivation independently among active athlete populations without incorporating amotivation (Anjum et al., 2025; Rehman et al., 2023).

No pilot study was conducted before data collection; however, this was justified by the extensive theoretical grounding of the SMS in SDT, its well-established psychometric properties confirmed across numerous prior studies in sports motivation research (Pelletier et al., 2013), and the strong internal consistency reliability observed in the current sample as reported above.

Statistical method

Data were analysed using SPSS (Statistical Package for Social Sciences) version 26. Responses were recorded on a five-point Likert scale (1 = Strongly Disagree; 5 = Strongly Agree). Two composite scores, intrinsic motivation and extrinsic motivation, were computed by averaging the relevant subscale items. Data screening was performed initially to identify missing values; no missing data were found. Descriptive statistics (frequencies, means, and standard deviations) were computed for all variables. Cronbach's Alpha was calculated to assess internal consistency reliability. The Shapiro–Wilk test, alongside the Kolmogorov–Smirnov test, was used to assess normality of score distributions within each participation level group. Levene's test was applied to examine homogeneity of variance. As normality assumptions were violated across most groups for both motivation variables, the non-parametric Kruskal–Wallis H test was selected as the primary inferential test to examine differences in intrinsic and extrinsic motivation across participation levels. Following significant Kruskal–Wallis results, pairwise post-hoc comparisons were conducted using the Mann–Whitney U test with Bonferroni correction applied, setting the adjusted significance threshold at $\alpha = .0167$ (i.e., $.05 \div 3$ comparisons). Additionally, Spearman's rank-order correlation was conducted to examine the directional association between participation level and motivation variables. Spearman's rho was preferred over Pearson correlation as the participation level variable is

ordinal in nature (Liu et al., 2017). A supplementary Mann–Whitney U test was also conducted to examine gender differences in motivation.

Common Method Bias Assessment

To assess the potential threat of common method bias arising from the use of a self-report questionnaire, Harman's single factor test was conducted following the procedure recommended by Podsakoff et al. (2003). All 18 items of the adapted SMS were subjected to an exploratory principal component analysis with a single factor forcibly extracted. In the analysis, the single factor accounted for 32.662% of the total variance, which is substantially below the 50% threshold commonly used to indicate the presence of common method bias (Podsakoff et al., 2003). These results suggest that common method bias does not pose a significant threat to the validity of the findings in this study.

Ethical Consideration

Data was collected through a structured questionnaire administered via an online Google Form, which was distributed to athletes via WhatsApp and email. Participants were provided with an informed consent statement at the beginning of the Google Form, which clearly conveyed voluntary participation, the purpose of the research, the rights afforded to participants, and stated that no emails, names, or any identifying information would be gathered; everything would be anonymous. Only male and female student-athletes above 18 years of age could participate in the research voluntarily. Data confidentiality was maintained throughout the study, and all findings are presented only in aggregate form to prevent any identification of participants.

Settings

The study was conducted at two universities in Lahore city, the University of Lahore and the University of the Punjab. The researcher collected data from these institutions due to their diverse student-athlete population, providing a broad sample across sport types and participation levels.

RESULTS

A total of 234 valid responses were collected from university athletes with no missing data, including 148 males (63.2%) and 86 females (36.8%). Approximately 60.3% were aged 18–24 years, reflecting a predominantly younger, undergraduate athlete population. Further, 58.5% of them were enrolled at Punjab University Lahore (public) and 41.5% at the University of Lahore (private). The majority of respondents, 66.7%, represented team sports, whereas 33.3% participated in individual sports. Regarding participation level, 22.6% were at the Amateur/Beginner level, 50.9% at the Competitive/Intermediate level, and 26.5% at the Professional/Elite level. Most athletes, 52.1%, had more than four years of involvement in sports, and 79.1% reported balancing both sports and academics as their primary focus.

Assumption Testing and Reliability

Prior to the main analysis, assumption testing was conducted. Cronbach's Alpha was used to examine the reliability and internal consistency of the adapted Sport Motivation Scale. The intrinsic motivation subscale (9 items) produced a Cronbach's Alpha of .829, and the extrinsic motivation subscale (9 items) yielded a Cronbach's Alpha of .801. The combined reliability value for the full 18-item scale was .874, indicating good internal consistency across all items. The Shapiro–Wilk normality test revealed significant deviations from normality for intrinsic motivation across all three participation level groups (all $p < .05$). For extrinsic motivation, the Amateur/Beginner group demonstrated a normal distribution ($p = .276$), while the

Competitive/Intermediate ($p = .002$) and Professional/Elite ($p = .000$) groups violated the normality assumption. Levene's test confirmed homogeneity of variance for intrinsic motivation ($F(2, 231) = 2.984$, $p = .053$), but indicated a violation for extrinsic motivation ($F(2, 231) = 3.424$, $p = .034$). Given these widespread violations of normality and homogeneity assumptions, the non-parametric Kruskal–Wallis H test was selected as the appropriate primary analysis, consistent with recommendations for non-normally distributed data across independent groups.

Descriptive Statistics for Motivation Variables

Table 1. Descriptive Statistics for Intrinsic and Extrinsic Motivation by Participation Level ($N = 234$)

Participation Level	n	Intrinsic (Mean)	Intrinsic M (SD)	Extrinsic M (Mean)	Extrinsic M (SD)
Amateur/Beginner	53	3.59	0.65	3.56	0.53
Competitive/Intermediate	119	3.94	0.51	3.75	0.61
Professional/Elite	62	3.97	0.70	3.74	0.81
Total	234	3.87	0.62	3.70	0.65

The descriptive statistics indicated that participants reported moderate to high levels of both intrinsic motivation ($M = 3.87$, $SD = 0.62$) and extrinsic motivation ($M = 3.70$, $SD = 0.65$) on a five-point Likert scale, with intrinsic motivation scoring marginally higher. The slightly larger standard deviation for extrinsic motivation suggests marginally greater variability in participants' responses. Amateur/Beginner athletes reported the lowest mean scores for both intrinsic motivation ($M = 3.59$, $SD = 0.65$) and extrinsic motivation ($M = 3.56$, $SD = 0.53$), followed by Competitive/Intermediate athletes (IM: $M = 3.94$, $SD = 0.51$; EM: $M = 3.75$, $SD = 0.61$). Professional/Elite athletes reported the highest mean scores for intrinsic motivation ($M = 3.97$, $SD = 0.70$), while extrinsic motivation scores were comparable between Competitive/Intermediate and Professional/Elite groups ($M = 3.75$ vs. $M = 3.74$, $SD = 0.81$), indicating a positive trend between participation level and intrinsic motivation across groups, with a less pronounced pattern observed for extrinsic motivation.

Kruskal–Wallis Test Results

Table 2. Kruskal–Wallis Test Results for Intrinsic and Extrinsic Motivation Across Participation Levels ($N = 234$)

Variable	Group	n	Mean Rank	H	df	p	η^2
Intrinsic Motivation	Amateur/Beginner	53	87.40	15.074	2	.001**	.057
	Competitive/Intermediate	119	121.96				
	Professional/Elite	62	134.68				
Extrinsic Motivation	Amateur/Beginner	53	96.39	6.983	2	.030*	.022
	Competitive/Intermediate	119	121.75				
	Professional/Elite	62	127.40				

Table 2 presents the Kruskal–Wallis test results examining the differences in intrinsic and extrinsic motivation across three participation levels. Effect size was calculated using the eta-squared (η^2) formula: $\eta^2 = (H - k + 1) / (N - k)$, where k = number of groups and N = total sample size, to assess the practical

significance of the findings. For intrinsic motivation, the test revealed a statistically significant difference across the three participation levels, $H(2) = 15.074$, $p = .001$, $\eta^2 = .057$, representing a small-to-medium effect. Mean ranks increased progressively from Amateur/Beginner (87.40) to Competitive/Intermediate (121.96) to Professional/Elite (134.68), indicating a consistent upward trend in intrinsic motivation with increasing participation level. For extrinsic motivation, the Kruskal–Wallis test also produced a statistically significant result, $H(2) = 6.983$, $p = .030$, $\eta^2 = .022$, representing a small effect. Mean ranks similarly increased from Amateur/Beginner (96.39) to Competitive/Intermediate (121.75) to Professional/Elite (127.40), though the differences between groups were notably smaller than those observed for intrinsic motivation, particularly between intermediate and elite athletes, suggesting a weaker but statistically detectable pattern.

Post-Hoc Pairwise Comparisons

Table 3. Mann–Whitney U Post-Hoc Pairwise Comparisons with Bonferroni Correction ($\alpha = .0167$)

Comparison	Variable	n	U	Z	p	r
Beginner vs. Intermediate	Intrinsic	172	2200.00	-3.172	.002	-.242
	Extrinsic	172	2439.50	-2.375	.018	-.181
Beginner vs. Professional/Elite	Intrinsic	115	1001.00	-3.611	<.001	-.337
	Extrinsic	115	1238.00	-2.277	.023	-.212
Intermediate vs. Professional/Elite	Intrinsic	181	3266.00	-1.268	.205	-.094
	Extrinsic	181	3480.50	-0.625	.532	-.046

Note. Bonferroni-corrected significance threshold $\alpha = .0167$. r = rank-biserial correlation effect size. $|r| < .10$ = negligible, $.10$ – $.30$ = small, $.30$ – $.50$ = medium effect.

Following significant Kruskal–Wallis results, pairwise post-hoc comparisons were conducted using the Mann–Whitney U test with Bonferroni correction applied, setting the adjusted significance threshold at $\alpha = .0167$. Effect size for each comparison was calculated using rank-biserial correlation: $r = Z / \sqrt{N}$, where N refers to the combined sample size of the two groups being compared. For intrinsic motivation, Amateur/Beginner athletes reported significantly lower intrinsic motivation than both Competitive/Intermediate ($U = 2200.00$, $Z = -3.172$, $p = .002$, $r = -.242$) and Professional/Elite athletes ($U = 1001.00$, $Z = -3.611$, $p < .001$, $r = -.337$), with both comparisons surviving Bonferroni correction. The effect size for the Beginner vs. Elite comparison ($r = -.337$) indicates a medium practical effect, while the Beginner vs. Intermediate comparison ($r = -.242$) reflects a small-to-medium effect. No significant difference was found between Competitive/Intermediate and Professional/Elite athletes ($U = 3266.00$, $Z = -1.268$, $p = .205$, $r = -.094$), indicating that the motivational distinction is primarily between beginners and more experienced athletes. For extrinsic motivation, no pairwise comparison survived Bonferroni correction. It is noteworthy, however, that the Beginner vs. Intermediate comparison approached but did not reach the adjusted threshold ($U = 2439.50$, $Z = -2.375$, $p = .018$, $r = -.181$), and the Beginner vs. Elite comparison was similarly borderline ($U = 1238.00$, $Z = -2.277$, $p = .023$, $r = -.212$). These borderline results suggest a potential trend that may become statistically detectable with a larger sample size and should not be entirely dismissed from a practical standpoint. No difference was detected between Competitive/Intermediate and Professional/Elite athletes ($U = 3480.50$, $Z = -0.625$, $p = .532$, $r = -.046$).

Spearman Correlation between Participation Level and Motivation

Table 4. Spearman's Rank-Order Correlations among Age, Participation Level, Intrinsic Motivation, and Extrinsic Motivation (N = 234)

Variable	1	2	3	4
1. Age	—			
2. Participation Level	.149*	—		
3. Intrinsic Motivation	-.012	.240**	—	
4. Extrinsic Motivation	-.053	.156*	.462**	—

Note. * $p < .05$. ** $p < .01$ (two-tailed). Spearman's rank-order correlation coefficients are reported. Age and Participation Level are ordinal variables; Intrinsic and Extrinsic Motivation are composite scores averaged from SMS subscales.

To further examine the directional association between participation level and motivation variables, Spearman's rank-order correlation was selected in preference to Pearson correlation, as the participation level variable is ordinal in nature (Bressan et al., 2018). The results revealed a statistically significant positive correlation between participation level and intrinsic motivation ($r_s = .240$, $p < .001$), indicating that higher participation level is associated with greater intrinsic motivation. A statistically significant but weaker positive correlation was also observed between participation level and extrinsic motivation ($r_s = .156$, $p = .017$), suggesting a modest positive association. Additionally, a strong significant correlation was found between intrinsic and extrinsic motivation themselves ($r_s = .462$, $p < .001$), indicating that athletes higher in one motivational orientation tend to also score higher in the other. Age showed a small but significant correlation with participation level ($r_s = .149$, $p = .022$), but was not significantly correlated with either intrinsic motivation ($r_s = -.012$, $p = .857$) or extrinsic motivation ($r_s = -.053$, $p = .418$).

Gender Comparison on Motivation Variables

Table 5. Mann–Whitney U Test Results for Gender Differences in Motivation (N = 234)

Variable	Male (n=148) Mean Rank	Female (n=86) Mean Rank	U	Z	p	r
Intrinsic Motivation	122.07	109.64	5688.00	-1.358	.175	-.089
Extrinsic Motivation	112.32	126.42	5597.00	-1.540	.124	-.101

Note. r = rank-biserial correlation. $|r| < .10$ = negligible effect.

A supplementary Mann–Whitney U test was conducted to examine whether intrinsic and extrinsic motivation differed significantly between male and female athletes. Results indicated no statistically significant gender difference in intrinsic motivation ($U = 5688.00$, $Z = -1.358$, $p = .175$, $r = -.089$) or extrinsic motivation ($U = 5597.00$, $Z = -1.540$, $p = .124$, $r = -.101$). Both effect sizes were negligible, suggesting that gender does not meaningfully influence motivational orientation in this sample.

Hypothesis Testing Summary

The findings partially support the alternative hypothesis (H1), which stated that significant differences exist in intrinsic and extrinsic motivation across participation levels among university athletes. Participation level significantly differentiated intrinsic motivation both at the overall level ($H(2) = 15.074$, $p = .001$, $\eta^2 = .057$) and in specific pairwise comparisons, with Amateur/Beginner athletes consistently reporting lower intrinsic

motivation than Competitive/Intermediate ($p = .002$, $r = -.242$) and Professional/Elite athletes ($p < .001$, $r = -.337$). These findings were further corroborated by Spearman correlation analysis, which confirmed a significant positive association between participation level and intrinsic motivation ($r_s = .240$, $p < .001$). For extrinsic motivation, the overall Kruskal–Wallis test reached significance ($H(2) = 6.983$, $p = .030$, $\eta^2 = .022$); however, no individual pairwise comparison survived Bonferroni correction, and the Spearman correlation revealed only a weak association ($r_s = .156$, $p = .017$). The null hypothesis (H_0) is therefore partially rejected — participation level significantly affects intrinsic motivation with clear group-level differences and corroborating correlational evidence, while its effect on extrinsic motivation remains globally significant but weak and without identifiable pairwise distinctions following correction for multiple comparisons.

DISCUSSION

Overview

The current study examined the impact of participation levels on intrinsic and extrinsic motivation among university athletes from the University of the Punjab(public) and the University of Lahore (private), Pakistan. The results partially supported the alternative hypothesis, which showed that participation levels were significantly associated with the motivational states of athletes, particularly intrinsic motivation. The Kruskal–Wallis test indicated statistically significant differences across participation levels for both intrinsic motivation, $H(2) = 15.074$, $p = .001$, $\eta^2 = .057$ and extrinsic motivation, $H(2) = 6.983$, $p = .030$, $\eta^2 = .022$. However, post-hoc analysis revealed that the main difference was in intrinsic motivation, with relatively low intrinsic motivation among beginner athletes, while athletes at higher participation levels were found to have stronger intrinsic motivation. These results suggest that increased participation in sports is associated with stronger intrinsic motivation among university students. The Spearman correlation analysis demonstrated a significant positive relationship between participation level and intrinsic motivation ($r_s = .240$, $p < .001$), while the relationship with extrinsic motivation was relatively weak ($r_s = .156$, $p = .017$). No significant gender difference was observed in either motivation dimension.

Impact of Participation Level on Intrinsic Sports Motivation

The statistical findings showed significant differences in intrinsic motivation across varying levels of participation, indicating that beginner athletes showed significantly lower intrinsic motivation than both intermediate and elite athletes, while no significant difference was observed between intermediate and elite athletes. The current findings are consistent with previous literature indicating that elite athletes showed stronger intrinsic motivation than less experienced athletes (Bratko et al., 2020). The apparent increase in intrinsic motivation with higher levels of participation is consistent with previous studies (Anjum et al., 2025; Kaswati Salleh et al., 2025). This suggests that Sustained participation in sports is associated with higher internal motivational resources, especially through the accomplishment of competence, autonomy and sustained enjoyment(Ryan & Deci, 2000, 2022).

Impact of Participation Level on Extrinsic Sports Motivation

In contrast, extrinsic motivation also showed statistically significant overall differences between groups, $H(2) = 6.983$, $p = .030$; However, the absence of significant differences in pairwise comparisons after Bonferroni correction suggests that these changes are not robust between specific types of participation. Although mean rank showed a slight upward trend from Beginners ($MR = 96.39$) to Intermediate ($MR = 121.75$) and Elite athletes ($MR = 127.40$), the pattern was weak and inconsistent, indicating that extrinsic motivation is relatively stable across participation levels in the university sports context. The results corresponding with the previous studies suggest that extrinsic motivation does not increase or decrease

sharply with participation level, indicating that external factors such as rewards, recognition, and social approval may remain relatively stable across all athlete groups (Aftab et al., 2022; Alkasasbeh & Akroush, 2025)

Self-Determination Theory (SDT)

From the perspective of Self-Determination Theory (SDT), Higher levels of sports participation are more strongly associated with the development of intrinsic motivation than extrinsic motivation. Increased sports participation improves athletes' ability to master skills and psychological engagement, which in turn foster more self-directed forms of motivation (Ryan & Deci, 2000, 2022). Overall, these findings support SDT, suggesting that higher participation levels are associated with stronger intrinsic motivation in sports. As athletes gain more experience, their sense of competence and autonomy becomes stronger, resulting in high intrinsic motivation, while extrinsic motivation remains stable across all participation levels (Saugy et al., 2019; Shannon et al., 2023).

CONCLUSION

The current study examined the effects of participation levels on intrinsic and extrinsic motivation among university athletes in Lahore, Pakistan. The results indicated elite athletes have higher intrinsic motivation than beginner/amateur athletes. However, a weak correlation was found between extrinsic motivation and level of participation, signifying that external factors such as rewards, money, and fame are found stable across participation levels. These results are consistent with Self-Determination Theory, emphasizes that increased participation enhances intrinsic motivation through the development of competence, autonomy, and relatedness. These findings guide sports psychologists, sports administrators and coaches in Pakistan to create an environment where the psychological needs of athletes are met, helping to promote their intrinsic motivation, especially in beginner athletes. Future research should be longitudinal to better understand changes in motivation across different stages.

LIMITATIONS OF THE STUDY

The current study has some limitations that must be taken into account when interpreting the results. Since the study employed a cross-sectional design, it is limited in its ability to determine cause and effect relationships between variables. Thus, participants were selected through convenience sampling techniques, which affects the external validity of the results. In addition, the data consisted of self-reports, so it is possible that participants described their responses in a socially acceptable way, which would affect the results. Future research can overcome these limitations by using more diverse samples and a longitudinal study design. In addition, there is a significant gender imbalance, with a higher proportion of male athletes (63.2%) than female athletes (36.8%). An unbalanced distribution of male and female samples may affect the results. Therefore, future research should maintain a gender balance. Geographically, this study was conducted only in two universities in Lahore (University of the Punjab and University of Lahore). This study results cannot be generalized to the whole of Pakistan. Future studies should include more universities and different provinces.

RECOMMENDATIONS

Future research should use a longitudinal design of study to monitor changes in motivations across different stages of athletic development. A wide sample should be collected from various institutions and universities in Pakistan so that the results are applicable. Qualitative or mixed-methods approaches could be used to explore deeper psychological contextual factors that influence athletes' motivation.

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