RESEARCH PAPER

A Pilot Study on the Development and Preliminary Validation of the Comprehensive Pre-Event Athlete Screening Tool (PEAST)

Danishta[1*], Mayank Kumar[2], Ruma Rajbhar[3], Jyoti Yadav[4], Bandita Gupta[5], Ayushi Sisodia[6], Mahendra Singh[7]

[1]Assistant Professor, Department of Physiotherapy, NIMS College of Physiotherapy and Occupational Therapy, NIMS University Rajasthan, Jaipur

[2]Assistant Professor, Department of Physiotherapy, Faculty of Paramedical Sciences, Uttar Pradesh University of Medical Sciences, Saifai, Etawah, U.P, India

[3]Assistant Professor, Department of Physiotherapy, University of Engineering and Management, Jaipur, Rajasthan

[4]Assistant Professor, Department of Physiotherapy, Mangalaytan University, Aligarh

[5]Assistant Professor, Department of Physiotherapy, NIMS College of Physiotherapy and Occupational Therapy, NIMS University Rajasthan, Jaipur

[6]Assistant Professor, Department of Physiotherapy, NIMS College of Physiotherapy and Occupational Therapy, NIMS University Rajasthan, Jaipur

[7]Associate Professor, Department of Physiotherapy, NIMS College of Physiotherapy and Occupational Therapy, NIMS University Rajasthan, Jaipur

***Corresponding Author: Danishta | Email: drdanishtaupums@gmail.com**

Received: 16/03/2026 | Revised: 10/04/2026 | Accepted: 28/05/2026 | Published online: 04/06/2026

ABSTRACT

Pre-event anxiety, quality of life (QOL), and dietary habits influence athletic performance; however, existing tools typically assess these domains independently. This study aimed to evaluate the feasibility, clarity, acceptability, internal consistency, and preliminary validity of the Comprehensive Pre-Event Athlete Screening Tool (PEAST). A pilot cross-sectional study was conducted among 70 university athletes (52 males, 18 females; mean age 21.39 ± 2.20 years). PEAST includes three domains: pre-event anxiety (6 items), QOL (5 items), and dietary habits (6 items), rated on 5-point Likert scales. Psychometric testing included internal consistency using Cronbach's alpha, test–retest reliability using a two-way random-effects intraclass correlation coefficient (ICC [2,1]) in a subgroup of 20 athletes, and content validity assessed through a Delphi expert review. Mean domain scores were 20.99 ± 5.13 for anxiety, 13.23 ± 3.69 for QOL, and 18.54 ± 5.46 for dietary habits. Pre-event anxiety showed a significant negative correlation with QOL ($r = -0.23$, $p = 0.029$), while QOL showed a strong positive correlation with dietary habits ($r = 0.78$, $p < 0.001$). Cronbach's alpha values ranged from 0.72 to 0.82, and ICC values ranged from 0.79 to 0.88, indicating acceptable reliability. PEAST is a feasible and preliminarily valid tool for integrated assessment of pre-event anxiety, QOL, and dietary habits in university athletes and may assist in early identification of at-risk athletes and guide targeted performance interventions.

Keywords: pre-event anxiety, quality of life, dietary habits, athlete readiness, screening tool.

How to cite this article: Danishta, Kumar M, Rajbhar R, Yadav J, Gupta B, Sisodia A, Singh M. A Pilot Study on the Development and Preliminary Validation of the Comprehensive Pre-Event Athlete Screening Tool (PEAST). Int J Drug Deliv Technol. 2026;16(56s): 381-384. DOI: 10.25258/ijddt.16.56s.42

Source of support: Nil.

Conflict of interest: None.

Source of support: This study received no external funding.

Conflict of interest: The authors declare no conflict of interest in the development, validation, or application of this questionnaire. This study was conducted solely for research and academic purposes, with no financial or personal benefits influencing the outcomes.

INTRODUCTION

Athletic performance is shaped by a complex interplay of psychological, physiological, and nutritional factors. In the period immediately preceding competition, athletes often face heightened pressure — not only from physical demands but also from internal expectations, external competition, and uncertainty of outcomes. In such contexts, pre-event (or pre-competition) anxiety emerges as a common and influential psychological response among athletes. This anxiety may manifest cognitively (worry, negative thoughts) as well as somatically (tension, rapid heartbeat, restlessness), and has been shown to significantly affect concentration, motor coordination, decision-making, and overall performance.[1,2] High levels of pre-competition anxiety are associated with impaired confidence, poor focus, and increased physiological arousal, whereas moderate levels may sometimes enhance alertness and motivation.[3,4]

The mental burden of competition also influences quality of life (QOL) and overall well-being. Well-being encompasses physical health, psychological resilience, recovery capacity, stress adaptation, and lifestyle balance — all of which are essential for consistent training and optimal performance. Athletes with poor well-being or reduced QOL often report increased stress, sleep disturbances, and reduced adherence to training, negatively affecting performance outcomes.[5,6] Assessing QOL can help identify athletes who may require psychological support or lifestyle modifications prior to competition.[7]

Nutrition is another crucial factor that strongly impacts performance, recovery, immune function, and psychological state. Proper dietary habits — including balanced macronutrient intake, adequate hydration, and appropriate pre-event meal timing — improve energy availability, reduce fatigue, and modulate stress responses.[8,9] Conversely, poor dietary practices have been linked to higher anxiety, reduced stamina, and impaired performance outcomes.[10,11] Recent evidence also indicates that nutrition can influence psychological variables such as stress and mood, highlighting the interdependence of mental state, lifestyle, and diet in athlete readiness.[12] Therefore, an integrated assessment tool is necessary to capture these domains simultaneously.

Despite substantial evidence regarding the importance of anxiety, QOL, and dietary habits, most existing assessment tools measure these domains separately. For instance, the Competitive State

Anxiety Inventory-2 (CSAI-2) is commonly used to assess pre-competition anxiety alone.[13] While various QOL and dietary questionnaires evaluate their respective domains independently.[14] This fragmented approach limits clinicians' ability to obtain a holistic understanding of athlete readiness.

To address this gap, the Comprehensive Pre-Event Athlete Screening Tool (PEAST) was developed to integrate these domains into a single, practical assessment. The present pilot study evaluates its feasibility, clarity, acceptability, internal consistency, and preliminary validity among university-level athletes. Findings from this pilot will guide refinement and future large-scale validation studies.

Rationale: PEAST provides an integrated assessment of pre-event anxiety, QOL, and dietary habits, offering a practical tool for early identification of at-risk athletes and enabling targeted interventions. Its use may support coaches, physiotherapists, nutritionists, and sports scientists in enhancing performance, recovery, and long-term athlete well-being.

MATERIALS AND METHODS

Study Design

This pilot cross-sectional study was conducted to evaluate the feasibility, clarity, acceptability, internal consistency, and preliminary validity of the PEAST before large-scale validation.

Participants

Seventy student-athletes (52 males, 18 females; mean age 21.39 ± 2.20 years) from NIMS University and affiliated training centers were recruited using convenience sampling. Participants were involved in sports such as cricket, Kho-Kho, volleyball, table tennis, sprinting, and high jump.

Inclusion Criteria

Active engagement in regular training and competition for ≥6 months.

Age between 18 and 35 years.

Ability to understand and respond to the questionnaire.

No major injury or illness in the past 3 months.

Willingness to provide informed consent.

Exclusion Criteria

Inactive athletes or those not participating in competitions.

Diagnosed anxiety disorders or psychiatric conditions.

Current severe injury or illness affecting performance.

Incomplete questionnaire responses.

Diagnosed eating disorders or extreme dietary restrictions.

Questionnaire Development

The PEAST questionnaire evaluates three domains: pre-event anxiety (6 items), quality of life (QOL; 5 items), and dietary habits (6 items). Each item is rated on a 5-point Likert scale, with higher scores indicating more favorable outcomes. The questionnaire was developed using the Delphi Method with input from 7 experts (2 sports psychologists, 2 physiotherapists, 2 nutritionists, and 1 performance analyst). Items achieving >80% consensus after two rounds of feedback were retained to ensure clarity, relevance, and comprehensiveness.

PEAST Questionnaire Domains

These score ranges were determined based on expert consensus during the Delphi process and are preliminary in nature, subject to refinement in future validation studies.

Pre-Event Anxiety: 6 items assessing cognitive and somatic anxiety; total score 6–30 (6–14: high anxiety, 15–21: moderate, 22–30: low).

Quality of Life (QOL): 5 items assessing physical, mental, and social well-being; total score 5–25 (5–12: low, 13–18: moderate, 19–25: high).

Dietary Habits: 6 items assessing nutrition, hydration, and recovery; total score 6–30 (6–14: poor, 15–21: moderate, 22–30: excellent).

Pilot Testing and Data Collection

The questionnaire was administered digitally (Google Forms) and in-person during training sessions, requiring approximately 10 minutes to complete. Participants were instructed on completion and assured of confidentiality. Responses with more than 10% missing data per domain were excluded; for less than 10% missing data, mean imputation was applied.

RELIABILITY AND VALIDITY

Internal consistency: Cronbach's alpha calculated separately for each domain (target 0.7–0.85).

Test-retest reliability: Assessed in a subgroup of 20 athletes over a 2-week interval using ICC (2,1).

Content validity: Established via Delphi panel review.

Statistical Analysis

Descriptive statistics were calculated using mean ± standard deviation for continuous variables and frequencies with percentages for categorical data. Group differences were assessed using independent t-tests and one-way ANOVA, following verification of normality and homogeneity of variance assumptions. Pearson's correlation coefficient was used to assess associations among PEAST domains. A p-value < 0.05 was considered statistically significant. All statistical procedures were conducted using SPSS (Version 26).

Ethical Considerations

The study was approved by the Ethical Committee of NIMS College of Physiotherapy and Occupational Therapy, NIMS University Rajasthan (Code: NIMS/PTOT/Ethical/Feb/2025/11). Written informed consent was obtained from all participants.

RESULTS

Participant Demographics

Table 1. Participant Demographic Characteristics

Variable	n (%) / Mean ± SD
Age (years)	21.39 ± 2.20
Gender	Male: 52 (74.3%)
	Female: 18 (25.7%)
Sport Type	Mixed (individual & team-based)

A total of 70 student-athletes participated in the study (52 males, 18 females), representing both individual and team-based sports such as Kho-Kho, cricket, high jump, 100-meter sprint, relay race, table tennis, and volleyball. The mean age was 21.39 ± 2.20 years (Table 1).

Descriptive Statistics of PEAST Domains

Table 2. Descriptive Statistics for PEAST Domains

Domain	Mean ± SD	Score Range
Pre-Event Anxiety	20.99 ± 5.13	6–30
Quality of Life (QOL)	13.23 ± 3.69	5–25
Dietary Habits	18.54 ± 5.46	6–30

The mean scores for the PEAST domains were: pre-event anxiety 20.99 ± 5.13, QOL 13.23 ± 3.69, and dietary habits 18.54 ± 5.46 (Table 2). Higher scores indicated more favorable outcomes, including lower anxiety, higher QOL, and healthier dietary habits.

Correlation Analysis

Table 3. Pearson Correlation Matrix of PEAST Domains

Variables	r	p-value
Anxiety ↔ QOL	-0.23	0.029
Anxiety ↔ Dietary Habits	-0.004	0.938
QOL ↔ Dietary Habits	0.78	<0.001

Pearson's correlation analysis revealed a significant negative association between pre-event anxiety and QOL ($r = -0.23$, $p = 0.029$), no significant correlation between anxiety and dietary habits ($r = -0.004$, $p = 0.938$), and a strong positive correlation between QOL and dietary habits ($r = 0.78$, $p < 0.001$) (Table 3).

Gender Differences

Table 4. Gender-wise Differences in PEAST Domains

Domain	Male (Mean ± SD)	Female (Mean ± SD)	p-value	Effect Size
Pre-Event Anxiety	20.63 ± 5.17	21.94 ± 4.91	0.39	0.26 (small)
Quality of Life (QOL)	13.51 ± 3.56	12.39 ± 4.03	0.38	0.29 (small)
Dietary Habits	18.84 ± 5.37	17.61 ± 5.81	0.45	0.22 (small)

Independent samples t-tests showed no statistically significant differences between male and female athletes across all domains. Descriptive trends indicated slightly higher anxiety in females and slightly lower QOL and dietary habits (Table 4).

Sport Type Differences

Table 5. Sport Type Differences in PEAST Domains (ANOVA)

Domain	Individual Sports Mean ± SD	Team Sports Mean ± SD	F-Statistic	p-value
Pre-Event Anxiety	22.1 ± 4.9	20.2 ± 5.2	1.43	0.19
Quality of Life (QOL)	12.9 ± 3.8	13.4 ± 3.6	2.01	0.11
Dietary Habits	18.6 ± 5.5	18.5 ± 5.4	1.26	0.28

ANOVA comparing individual vs. team-based sports revealed no statistically significant differences in any domain. Descriptive means suggested slightly higher anxiety in individual sports (22.1 ± 4.9) compared to team sports (20.2 ± 5.2), with comparable QOL and dietary habits (Table 5).

DISCUSSION

The feasibility and acceptability of PEAST were demonstrated by complete participant responses, minimal missing data, and positive feedback regarding ease of understanding and administration. The Delphi process further enhanced content validity by ensuring that each item was clear, relevant, and comprehensive. Overall, this pilot study demonstrates the feasibility, clarity, acceptability, and preliminary validity of the Comprehensive Pre-Event Athlete Screening Tool (PEAST) among university-level athletes. The findings suggest that PEAST is a practical and holistic tool for assessing pre-event anxiety, quality of life (QOL), and dietary habits, thereby supporting comprehensive evaluation of athlete readiness before competition. Although PEAST demonstrated acceptable reliability and content validity, criterion validity against established instruments such as the Competitive State Anxiety Inventory-2 (CSAI-2) or the WHOQOL-BREF was not assessed in this pilot study and should be examined in future validation research.

Pre-Event Anxiety

The mean pre-event anxiety score was 20.99 ± 5.13, reflecting moderate anxiety levels. This aligns with previous findings showing that athletes frequently experience moderate pre-competition anxiety, which can influence concentration, motor coordination, and performance outcomes.[2] High anxiety levels were negatively correlated with QOL ($r = -0.23$, $p = 0.029$), suggesting that athletes with greater cognitive and somatic tension also report lower well-being. These findings are consistent with previous literature indicating that elevated pre-competition anxiety is associated with reduced psychological well-being in athletes. Notably, moderate levels of anxiety may have functional benefits by enhancing alertness and motivation, indicating the need for individualized management strategies.

Quality of Life

The mean QOL score was 13.23 ± 3.69, indicating moderate perceived well-being. QOL was strongly positively correlated with dietary habits ($r = 0.78$, $p < 0.001$), suggesting that athletes who maintain better nutritional practices also report higher overall well-being. These results reinforce evidence that nutrition, psychological resilience, and physical performance are interconnected.[5] Monitoring QOL can help identify athletes who may benefit from psychological or lifestyle interventions before high-stakes competitions.

Dietary Habits

Participants' dietary habits averaged 18.54 ± 5.46, reflecting moderate adherence to performance-oriented nutrition. Although dietary habits were not significantly correlated with pre-event anxiety ($r = -0.004$, $p = 0.938$), the strong association with QOL emphasizes nutrition's role in maintaining overall readiness. Adequate macronutrient intake, hydration, and recovery nutrition are critical for energy availability, reducing fatigue, and supporting psychological state.[8]

Gender and Sport Type Differences

No significant differences were observed in anxiety, QOL, or dietary habits between male and female athletes or between individual and team sports. Small effect sizes suggested slightly higher anxiety in female athletes and those in individual sports; mean ± SD values were consistent with prior studies showing variable gender differences in pre-competition anxiety depending on sport type and experience.[15] The lack of significant subgroup differences may reflect the pilot study's small sample size.

Implications

PEAST provides a comprehensive, integrated tool to assess athlete readiness across psychological, lifestyle, and nutritional domains. Its 5-point Likert format and clear items make it practical for use by sports psychologists, physiotherapists, nutritionists, and coaches. By identifying athletes at risk of high

anxiety or low QOL, PEAST enables early interventions such as mental skills training, stress management, or nutritional counseling. The pilot findings support the tool's internal consistency and preliminary validity, forming a foundation for larger-scale validation studies.

Limitations

This pilot study has several limitations that should be acknowledged. The relatively small sample size and convenience sampling from a single university limit the generalizability of the findings. The cross-sectional design does not allow causal inferences between pre-event anxiety, quality of life, and dietary habits. Data were self-reported and may be influenced by response or social desirability bias. Although acceptable internal consistency and test–retest reliability were observed, criterion validity was not assessed against established instruments such as the Competitive State Anxiety Inventory-2 (CSAI-2) or the WHOQOL-BREF. In addition, exploratory and confirmatory factor analyses were not conducted due to the pilot nature and sample size of the study.

FUTURE DIRECTIONS

Exploratory and confirmatory factor analyses were not conducted due to the pilot nature and sample size and should be performed in future large-scale validation studies.

Conclusion

The PEAST questionnaire demonstrates feasibility, acceptability, and preliminary psychometric support for assessing pre-event anxiety, quality of life, and dietary habits among university athletes. The observed relationships among psychological, lifestyle, and nutritional domains support the conceptual framework of integrated athlete readiness assessment. PEAST may serve as a practical screening tool to guide early, targeted interventions; however, further large-scale and longitudinal validation studies are required.

Acknowledgements

We extend our sincere gratitude to the panel of experts, including sports psychologists, nutritionists, and performance analysts, who provided valuable insights during the Delphi Method process. Their expertise was instrumental in refining and validating the questionnaire. We also thank the participants for their time and honesty in responding to the survey, improving understanding of pre-event factors affecting athletic performance.

Funding:

This study received no external funding.

Conflict of interest:

The authors declare no conflict of interest in the development, validation, or application of this questionnaire. This study was conducted solely for research and academic purposes, with no financial or personal benefits influencing the outcomes.

REFERENCE

Patel DR, Omar H, Terry M. Sport-related performance anxiety in young athletes. Pediatr Clin North Am. 2018;65(4):725–739.

López González-De la Torre MP, García-Mas A, Palou P. Cognitive and somatic anxiety in athletes: a systematic review. Int J Environ Res Public Health. 2020;17(22):8524.

Correia ME, Rosado AF. Anxiety and coping in sport: a systematic review. Int J Sport Exerc Psychol. 2019;17(1):1–20.

Lee YH, Park I. Competitive trait anxiety and athlete performance: a meta-analysis. J Sports Sci. 2021;39(2):123–135.

Henriksen K, Schinke RJ, Moesch K, McCann S, Parham WD, Larsen CH, et al. Athlete mental health in international sport: an IOC consensus statement. Br J Sports Med. 2020;54(11):667–699.

Lundqvist C, Sandin F. Well-being in elite sport: a conceptual model. Front Psychol. 2020;11:567866.

Rice SM, Purcell R, Walton CC, Gwyther K, McCann S, Baker A, et al. Screening for mental health symptoms in elite athletes: a scoping review. Br J Sports Med. 2019;53(12):730–738.

Kerksick CM, Wilborn CD, Roberts MD, Smith-Ryan AE, Kleiner SM, Jäger R, et al. ISSN exercise & sports nutrition review update: research & recommendations. J Int Soc Sports Nutr. 2018;15(1):38.

Jeong TS, Hasegawa Y, Yoon JR. Effects of pre-competition carbohydrate intake on performance and psychophysiological responses. Nutrients. 2021;13(2):354.

Simpson AJ, Kistangari G, White A, Mathers JC, Pourshahidi LK, Livingstone MBE, et al. Association of diet quality with anxiety and stress in athletes: a cross-sectional analysis. Nutrients. 2022;14(10):2041.

Mujika I, Stellingwerff T, Tipton KD. Nutrition and training adaptation in athletes. Int J Sports Nutr Exerc Metab. 2022;32(2):127–138.

Gibson-Smith D, Bot M, Brouwer IA, Visser M, Giltay EJ, Penninx BWJH. Diet quality and mental health: a systematic review. Eur J Nutr. 2019;58(1):1–20.

Fernandez E, Burns R, Afremow J. Assessing performance-related anxiety in athletes: a review of modern tools. Curr Sports Med Rep. 2020;19(9):364–371.

Krägeloh CU, Kersten P, Billington DR, Hsu PHC, Shepherd D, Landon J, et al. WHOQOL-BREF: recent updates and new psychometric evidence (2018–2023). Qual Life Res. 2023;32(4):1057–1070.

Ruíz-Juan F, Zarauz A. Gender and sport-type differences in pre-competition anxiety among athletes: a systematic review. Int J Environ Res Public Health. 2020;17(23):8972.