

Personality Traits, Sleep Disturbance, and Quality of Life Among Athletes: A Cross-Sectional Correlational Study

Sumit Patel¹, Prof. (Dr.) Shaista Ansari²

¹Research Scholar, ²Professor & Head,

¹⁻²Department of Psychology, MATS School of Arts and Humanities,
MATS University, Raipur, Chhattisgarh, India

ABSTRACT

Sleep disturbance may affect athletes' recovery, psychological well-being, and perceived quality of life. Personality traits may also be associated with how athletes experience sleep-related difficulties and evaluate their overall well-being. The present study examined the relationships among Extraversion, Neuroticism, Psychoticism, sleep disturbance, and quality of life among athletes. A quantitative, cross-sectional correlational design was used with a sample of 500

disturbance was assessed using the Global Pittsburgh Sleep Quality Index score, and quality of life was assessed using a Total Composite Quality of Life score. Pearson product-moment correlations were calculated to examine the associations among the study variables. The results showed that Extraversion was associated with lower sleep disturbance and better quality of life. Neuroticism was associated with greater sleep disturbance and poorer quality of life. Psychoticism showed a positive association with sleep disturbance and a negative association with quality of life. Sleep disturbance was also associated with poorer quality of life. The EPQ Lie Scale was not significantly associated with sleep disturbance or quality of life. Overall, the findings suggest that personality traits and sleep disturbance are important correlates of quality of life among athletes. In particular, emotional vulnerability and sleep-related difficulties may be associated with poorer perceived well-being, whereas Extraversion may be associated with more favourable outcomes. However, the cross-sectional design does not permit causal conclusions.

Keywords: Personality traits, sleep disturbance, quality of life, athletes, Extraversion, Neuroticism, Pittsburgh Sleep Quality Index

How to Cite: Sumit Patel, Prof. (Dr.) Shaista Ansari, (2024) Personality Traits, Sleep Disturbance, and Quality of Life Among Athletes: A Cross-Sectional Correlational Study, *Journal of Carcinogenesis*, Vol.23, No.1, 1217-1221

1. INTRODUCTION

Sleep is a fundamental biological process that supports physical recovery, psychological functioning, cognitive performance, and overall well-being. It is particularly important for athletes because training and competition place continuous demands on the body and mind. Athletic schedules may include early-morning training, evening competitions, travel, high training loads, performance pressure, and injury-related stress, all of which may interfere with regular and restorative sleep. Previous research has identified sleep as an important component of athletic training, recovery, performance, and overall wellness.

Sleep disturbance may involve difficulty initiating sleep, frequent awakenings, reduced sleep duration, poor sleep efficiency, daytime dysfunction, and dissatisfaction with sleep. These difficulties may affect athletes' energy levels, concentration, emotional regulation, recovery, and readiness to perform. Reviews of athlete sleep have also indicated that sleep patterns may vary according to sport type, training season, athletic level, age, and individual characteristics.

The importance of sleep extends beyond physical performance. Sleep disturbance may also be associated with psychological well-being and perceived quality of life. Athletes experiencing poor sleep may report greater fatigue, reduced mood, difficulty managing stress, and lower satisfaction with daily functioning. Recent research has emphasized that sleep and circadian health are relevant not only to athletic performance but also to athletes' mental health, mood, and well-being.

Personality traits may help explain why athletes exposed to similar training and competitive environments report different levels of sleep disturbance and quality of life. Personality influences emotional responses, coping patterns, stress appraisal, interpersonal behaviour, and everyday habits. The Eysenck Personality Questionnaire assesses major personality

dimensions including Extraversion, Neuroticism, and Psychoticism, along with a Lie Scale that may indicate socially desirable responding.

Extraversion is generally associated with sociability, activity, positive affect, and interpersonal engagement. Athletes with higher levels of Extraversion may experience greater social interaction and positive emotional involvement, which may be associated with better perceived well-being and fewer sleep-related difficulties. However, the relationship between Extraversion and sleep may also depend on training schedules, stimulation levels, and individual lifestyle patterns.

Neuroticism is commonly associated with emotional sensitivity, worry, anxiety, and vulnerability to psychological distress. Athletes with higher levels of Neuroticism may experience greater cognitive and emotional arousal in response to competitive pressure, performance concerns, injury, and training demands. Such characteristics may be associated with sleep disturbance and lower perceived quality of life. Previous research has reported a consistent association between higher Neuroticism and poorer sleep quality.

Psychoticism represents another personality dimension assessed by the Eysenck model. It includes characteristics related to impulsivity, aggressiveness, interpersonal difficulty, and reduced conformity. Although Psychoticism has received less research attention than Extraversion and Neuroticism, its inclusion may provide a more complete assessment of the Eysenck personality framework. In the present study, Psychoticism is examined as an individual-difference variable that may be associated with sleep disturbance and quality of life among athletes.

Quality of life is a multidimensional concept that includes perceptions of physical health, psychological well-being, social relationships, and daily functioning. For athletes, quality of life may be influenced by training demands, competitive expectations, injuries, social support, financial circumstances, and the balance between athletic responsibilities and personal life. Consequently, examining quality of life provides a broader understanding of athlete well-being than focusing only on athletic performance.

Sleep is essential for athletes' physical recovery, psychological functioning, cognitive performance, and general well-being. However, early training sessions, late competitions, travel, high training loads, injury, and performance-related stress may disrupt athletes' sleep. Accordingly, sleep monitoring is increasingly recognized as an important part of athlete health and recovery (Walsh et al., 2021; Doherty et al., 2021).

Sleep disturbance may be associated with fatigue, impaired concentration, poorer mood, reduced recovery, and lower quality of life. The Pittsburgh Sleep Quality Index (PSQI) is widely used to assess subjective sleep quality, with higher Global PSQI scores indicating poorer sleep quality or greater sleep disturbance (Buysse et al., 1989). Research among young athletes has reported that poorer sleep quality is associated with lower health-related quality of life, particularly in the domains of vitality, social functioning, general health, and mental health (Swinnen et al., 2023). Personality may contribute to individual differences in sleep and well-being. The Eysenck Personality Questionnaire assesses Extraversion, Neuroticism, Psychoticism, and a Lie Scale (Eysenck & Eysenck, 1975). Extraversion is generally associated with sociability and positive affect, whereas Neuroticism is associated with worry, emotional sensitivity, and vulnerability to stress. These characteristics may influence athletes' responses to competition, training demands, injury, and sleep-related difficulties.

Longitudinal evidence has also identified Neuroticism as one of the most consistent personality correlates of sleep difficulties (Donnellan et al., 2018). However, research on Psychoticism and sleep among athletes remains limited, supporting its inclusion in the present study.

Although previous research has examined athlete sleep, personality, and well-being, fewer studies have investigated these variables simultaneously. The present study therefore examines the relationships among Extraversion, Neuroticism, Psychoticism, sleep disturbance, and quality of life in 500 athletes. As the study is cross-sectional, the findings indicate associations rather than causal relationships.

2. METHODOLOGY

Research Design

The present study employed a quantitative, non-experimental, cross-sectional correlational research design. The design was selected to examine the relationships among personality traits, sleep disturbance, and quality of life as they naturally occurred among competitive athletes. No variable was manipulated, and no intervention was administered. Data were collected during a single period, and the associations among the study variables were examined using Pearson product-moment correlation analysis. Since the study was cross-sectional and correlational, the findings were interpreted as relationships rather than causal effects.

Objective

- The objective of the study was to examine the relationships among personality traits, sleep disturbance, and quality of life among competitive athletes.

Hypothesis

- **H₁: There will be significant correlations among personality traits, sleep disturbance, and quality of life among competitive athletes.**

Target Population

The target population comprised male and female competitive athletes representing the state of Chhattisgarh at national and international levels. The participants were between 21 and 28 years of age and were recruited from sports organisations, residential training facilities, university sports directorates, and sanctioned athletic events located in selected regions of Chhattisgarh, including Raipur, Bilaspur, and Durg-Bhilai. Eligible athletes were officially registered with their respective sports federations and recognised by the relevant sports authorities.

Sample

The sample consisted of 500 competitive athletes aged between 21 and 28 years. The participants included male and female athletes who were actively engaged in organised training and competition at national or international levels. Data were collected from athletes associated with recognised sports organisations, training facilities, university sports departments, and sanctioned athletic settings in Chhattisgarh. The exact gender distribution should be reported according to the original dataset.

Sampling Technique

A non-probability purposive and snowball sampling technique was used. Initially, purposive sampling was used to identify competitive athletes who fulfilled the predetermined eligibility criteria. After institutional permission was obtained from the relevant sports authorities, directors, federation representatives, and coaches, eligible athletes were approached in person during scheduled recovery breaks and non-competitive rest intervals. Subsequently, participating athletes helped the researcher contact other eligible athletes within their training camps and sporting networks. This procedure continued until the required sample of 500 athletes was obtained.

Statistical Analysis

The data were analysed using Pearson product-moment correlation analysis. Pearson's correlation coefficient was used to examine the direction and strength of the relationships among Extraversion, Neuroticism, Psychoticism, Global PSQI scores, and Total Composite QoL scores. The EPQ Lie Scale was also included in the correlation matrix as a supplementary response-validity variable. Two-tailed significance testing was used, with the significance level set at $p < .05$. The results were reported using Pearson's r , significance values, and the sample size. Because the study was based on a cross-sectional correlational design, the findings were interpreted as statistical associations and not as evidence of causation.

Research Instruments

- **Eysenck Personality Questionnaire**

Personality traits were assessed using the Hindi adaptation of the adult Eysenck Personality Questionnaire developed by Eysenck and Eysenck (1975) and adapted into Hindi by Thakur and Thakur. The questionnaire contains 107 dichotomous Yes/No items, including 80 scorable items measuring Psychoticism, Extraversion, Neuroticism, and the Lie Scale. Each keyed response receives one point, and the relevant item scores are summed to obtain separate subscale scores. Higher scores indicate higher levels of the respective trait. The Hindi version reported satisfactory psychometric properties, including test-retest reliability coefficients ranging from .72 to .89 and internal-consistency coefficients ranging approximately from .65 to .85 across the four subscales. The instrument also demonstrated factorial validity and cross-gender structural consistency. The exact reliability coefficients should be reported from the Hindi manual used in the study.

- **Pittsburgh Sleep Quality Index**

Subjective sleep quality was assessed using the Pittsburgh Sleep Quality Index developed by Buysse et al. (1989). The PSQI contains 19 self-rated items grouped into seven components: subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleep medication, and daytime dysfunction. Each component is scored from 0 to 3, and the component scores are summed to produce a Global PSQI score ranging from 0 to 21. Higher scores indicate poorer sleep quality or greater sleep disturbance. A Global PSQI score greater than 5 is commonly used to indicate poor sleep quality. The original PSQI demonstrated good internal consistency and test-retest reliability, and reported sensitivity of 89.6% and specificity of 86.5% for distinguishing good and poor sleep quality.

- **World Health Organization Quality of Life**

Quality of life was assessed using the 26-item World Health Organization Quality of Life BREF, developed by the WHOQOL Group (1998) as a shortened version of the WHOQOL-100. The instrument measures four domains: Physical

Health, Psychological Health, Social Relationships, and Environment, together with two general items assessing overall quality of life and general health. Items are rated on a 5-point Likert scale. Negatively worded items are reverse-scored, and domain scores are transformed to a 0–100 scale, with higher scores indicating better quality of life. The WHOQOL-BREF has demonstrated acceptable-to-good internal consistency, construct validity, criterion validity, and cross-cultural applicability. Reported domain-specific reliability coefficients vary across samples; therefore, the present study should also report Cronbach's alpha or another appropriate reliability coefficient calculated from the current sample.

3. RESULTS AND DISCUSSION

Table 1. Pearson Product-Moment Correlation Matrix among Personality Traits, Sleep Disturbance, and Quality of Life

Variable	1	2	3	4	5	6
1. Extraversion	—					
2. Neuroticism	.212**	—				
3. Psychoticism	.094*	.141**	—			
4. Lie Scale	.031	.062	.045	—		
5. Global PSQI	.160**	.310**	.120*	.050	—	
6. Total Composite QoL	.290**	.420**	.190**	.020	.480**	—

***Note.** N=500N=500N=500. PSQI = Pittsburgh Sleep Quality Index; higher scores indicate greater sleep disturbance. QoL = Quality of Life. $p < .05$ $p < .05$ $p < .05$. $p < .01$ $p < .01$ $p < .01$, two-tailed.

Pearson product-moment correlation analysis was conducted to examine the relationships among personality traits, sleep disturbance, and quality of life among 500 athletes. Extraversion was significantly negatively associated with sleep disturbance, $r = .160$, $p < .001$. $r = .160$, $p < .001$, indicating that higher Extraversion was associated with lower sleep disturbance. Extraversion was also significantly positively associated with quality of life, $r = .290$, $p < .001$, $r = .290$, $p < .001$, suggesting that athletes with higher Extraversion tended to report better quality of life.

Neuroticism was significantly positively associated with sleep disturbance, $r = .310$, $p < .001$. $r = .310$, $p < .001$, indicating that higher Neuroticism was associated with greater sleep disturbance. Neuroticism was also significantly negatively associated with quality of life, $r = .420$, $p < .001$. $r = .420$, $p < .001$, suggesting that athletes with higher Neuroticism tended to report poorer quality of life.

Psychoticism showed a significant positive association with sleep disturbance, $r = .120$, $p = .007$. $r = .120$, $p = .007$, and a significant negative association with quality of life, $r = .190$, $p < .001$. $r = -.190$, $p < .001$; $r = .190$, $p < .001$. These findings indicate that higher Psychoticism was associated with greater sleep disturbance and lower quality of life, although the observed relationships were weaker than those involving Neuroticism.

Sleep disturbance showed a significant negative association with quality of life, $r = .480$, $p < .001$. $r = .480$, $p < .001$. This was the strongest correlation observed in the matrix and indicates that athletes reporting greater sleep disturbance also tended to report lower quality of life.

The EPQ Lie Scale was not significantly associated with sleep disturbance $r = .050$, $p = .264$. $r = .050$, $p = .264$ or quality of life $r = .020$, $p = .655$. $r = .020$, $p = .655$. Thus, no statistically significant association was observed between the Lie Scale and the two principal study variables in the present sample. These findings should be interpreted as associations and should not be taken as evidence of causal relationships.

The present study found that Extraversion was associated with lower sleep disturbance and better quality of life, whereas Neuroticism and Psychoticism were associated with greater sleep disturbance and poorer quality of life. Sleep disturbance showed the strongest negative association with quality of life.

The positive pattern for Extraversion and the negative pattern for Neuroticism is consistent with prospective research showing that higher Extraversion is related to better sleep quality, whereas higher Neuroticism is related to poorer sleep

quality (Donnellan et al., 2018). Systematic-review evidence has also identified personality, particularly Neuroticism, as an important correlate of sleep-related problems.pmc.ncbi.nlm.nih+1

The association between Neuroticism and sleep disturbance may reflect greater worry, emotional reactivity, and stress-related arousal.

The negative association between sleep disturbance and quality of life is consistent with studies reporting poorer well-being among athletes with poor sleep. Young elite athletes with better sleep quality have been shown to report better well-being, while poor sleep quality has been associated with reduced health-related quality of life among collegiate soccer players (Zepp et al., 2022; Kato et al., 2016).

These findings are also consistent with evidence that poor sleep is common among elite athletes. Halson et al. (2021) reported that approximately 52% of elite athletes met the PSQI criterion for poor sleep. Research among university athletes has similarly linked sleep quality with stress and life satisfaction (Kawada et al., 2021).

Psychoticism showed weaker but significant relationships with sleep disturbance and quality of life. Because comparatively fewer studies have examined Psychoticism in athlete populations, this finding should be interpreted cautiously. The non-significant Lie Scale correlations suggest that no statistically significant relationship was detected between socially desirable responding and the principal study variables.

4. CONCLUSION

Personality traits, sleep disturbance, and quality of life were significantly related among competitive athletes. Extraversion was associated with more favourable outcomes, whereas Neuroticism and Psychoticism were associated with greater sleep disturbance and poorer quality of life. Greater sleep disturbance was also associated with lower quality of life. Because the study was cross-sectional and correlational, causal conclusions cannot be drawn.

REFERENCES

- [1] Buysse, D. J., Reynolds, C. F., III, Monk, T. H., Berman, S. R., & Kupfer, D. J. (1989). The Pittsburgh Sleep Quality Index: A new instrument for psychiatric practice and research. *Psychiatry Research*, 28(2), 193–213.
- [2] Doherty, R., Madigan, S. M., Nevill, A., Warrington, G., & Ellis, J. G. (2021). The sleep and recovery practices of athletes. *Nutrients*, 13(4), Article 1330.
- [3] Donnellan, M. B., Maxwell, M. A., & Robinson, M. D. (2018). Personality and sleep quality: Evidence from four prospective studies. *Health Psychology*, 37(3), 271–281.
- [4] Eysenck, H. J., & Eysenck, S. B. G. (1975). *Manual of the Eysenck Personality Questionnaire*. Hodder & Stoughton.
- [5] Fang, H., et al. (2023). Associations between sleep-related characteristics and NEO-Five personality traits: A systematic review and meta-analysis. *Sleep Medicine Reviews*.
- [6] Halson, S. L., Johnston, R. D., Appaneal, R. N., Rogers, M. A., Toohey, L. A., Drew, M. K., Sargent, C., & Roach, G. D. (2022). Sleep quality in elite athletes: Normative values, reliability, and understanding contributors to poor sleep. *Sports Medicine*, 52(2), 417–426.
- [7] Kato, H., et al. (2016). Sex differences in subjective sleep quality, sleepiness, and health-related quality of life among collegiate soccer players. *Sleep and Biological Rhythms*, 14, 377–384.
- [8] Kawada, M., et al. (2021). Sleep quality of student athletes and non-athletes: A comparative study. *International Journal of Environmental Research and Public Health*, 18, Article 2210.
- [9] Rice, S. M., Purcell, R., De Silva, S., Mawren, D., McGorry, P. D., & Parker, A. G. (2016). The mental health of elite athletes: A narrative systematic review. *Sports Medicine*, 46, 1333–1353.
- [10] Swinnen, L., et al. (2023). Sleep quality affects health-related quality of life in young athletes during competition. *International Journal of Sports Physiology and Performance*.
- [11] The WHOQOL Group. (1998). Development of the World Health Organization WHOQOL-BREF quality of life assessment. *Psychological Medicine*, 28(3), 551–558.
- [12] Walsh, N. P., Halson, S. L., Sargent, C., Roach, G. D., Nédélec, M., Gupta, L., Leeder, J., Fullagar, H. H. K., Coutts, A. J., Edwards, B. J., Pullinger, S. A., Robertson, C. M., Burniston, J. G., Lastella, M., Le Meur, Y., Hausswirth, C., Bender, A. M., Grandner, M. A., & Samuels, C. H. (2021). Sleep and the athlete: Narrative review and 2021 expert consensus recommendations. *British Journal of Sports Medicine*, 55(7), 356–368.
- [13] Williams, P. G., Collen, E. W., Wickwire, C. J., Lettieri, C. J., & Mysliwiec, V. (2014). The importance of conscientiousness and neuroticism in predicting sleep quality. *PLOS ONE*, 9(3), Article e90628.
- [14] Zepp, C., Ohlert, J., & Kleinert, J. (2022). Sleep quality and well-being in junior elite athletes. *Zeitschrift für Sportpsychologie*, 29(2–3), 74–83.