

RELATION BETWEEN NEUROTICISM AND EXTRAVERSION AND THEIR EFFECT ON ATHLETIC PERFORMANCE

Kashish Godiyal and Dr. Gagandeep Kaur

Student of B.Sc. (Hons) Sports Science

Assistant Professor

DPSRU

Abstract

The objective of this study is to ascertain how neuroticism and extraversion relate to an athlete's growth and how these traits change in response to high-intensity training adaption in team sports. The study aims (i) to report the correlation between Neuroticism & Extraversion and (ii) to find the effect of above variables on cricket players.

Participants: Total data was obtained from the 30 participants, practicing cricket who have played at the state level and are between the age group of 20-24 years (both male and female included) from different academies. **Method:** Participants filled the Maudsley Personality Inventory questionnaire through online mode according to the instructions provided to the athletes prior filling the questionnaire.

Results: The findings revealed that the mean scores for neuroticism and extraversion were 11.09 and 26.03, with standard deviations of 11.09 and 5.47, respectively. The paired t-test yielded a value of 0.731 which is less than the critical value of 2.045 at 29 degree of freedom and a p-value of 0.471, exceeding the 0.05 significance threshold, indicating no significant relationship between these personality traits.

Conclusions: The results suggest that neuroticism and extraversion operate as independent factors among the players. The effective psychological profiling of athletes, in team sports as well as in individual sports is very important to improve mental and emotional stability and focus in the game.

Keywords: Personality, Neuroticism, Extraversion, State level Cricket players

INTRODUCTION

The personality pattern or psychological characteristics of athletes has often resulted in conflicting findings and to examine the relation between two personality traits (i.e. neuroticism and extraversion) and their effect on athletic performance. Psychology is the scientific study of the human mind and behavior. The "Big 5" personality trait (D. W. Fiske, 1949) [13,14] — agreeableness, conscientiousness, extraversion, neuroticism, and openness to new things. These character attributes reveal an individual's attitudes, emotions, and actions. Conscientiousness is thoughtfulness, openness is creativity and fascination, agreeableness is friendliness, extraversion is sociability, and neuroticism frequently entails melancholy or emotional instability. Eysenck presented the theory of dimension [2] using Wundt's

recommended methodology (H.J. Eysenck, 1903) [5]. Temperament—innate, genetically based personality differences—was the main emphasis of Eysenck's thesis. He considered extroversion vs. introversion and neuroticism vs. stability to be the two main personality aspects, and he thought that biology greatly determines personality. He expanded this concept by include psychoticism vs socialization, a third dimension, after working with his wife and fellow personality theorist Sybil Eysenck. Sports psychology enhances athlete welfare, performance, and team dynamics. It aids in mental skills, arousal control, motivation, goal-setting, leadership, and recovery. Psychologists assist with decision-making, competition preparation, and professional transitions. Pearson's correlation ($r = -0.40$, $p < 0.0001$) revealed a strongly negative relationship between neuroticism and

extraversion, meaning that when one of the two factors increases, the other would decrease [9].

Selection of subjects

The subjects were selected from different academies, aged between 20-24 years, total 30 (both male and female), Cricket state level players were selected by using the purposely method of sampling.

Selection of variables

In the consultation with experts in the field and the literature available or considering the feasibility criteria in mind, specially the availability of equipment.

This study will be evaluating:

- Neuroticism
- Extraversion

Selection of Tests or Questionnaire

For collecting the data for the study, researcher has used Maudsley Personality Inventory (MPI) Questionnaire [3] designed by Hans J Eysenck created in 1959 to gauge extraversion and neuroticism. Further to prepare an online format of questionnaire, the questions and the answering options were copied to google forms. After the questionnaires were filled, the researcher calculated the raw scores of both neuroticism and extraversion. The raw scores were then converted into the sten scores for evaluating on the scale.

Criteria of Measure

The questionnaire was evaluated with help of the scale constructed by Eysenck to evaluate the results of the questionnaire. In each item there are three answers 'yes', 'no' and '?', and the scale provides scores as 2, 1 or 0.

Instrument Reliability

1. Both split-half and Kuder-Richardson reliability for the Neuroticism scale, nearly

2. lie between .85- .90, for the Extraversion scale, they lie between .75 - .85
3. Retest reliabilities are .83 for Neuroticism and .81 for Extraversion.
4. The short scale, split-half reliabilities are .80 for Neuroticism and .72 for Extraversion.

Administration of the Test

M.P.I: THE INVENTORY

- The Maudsley Personality Inventory was built to measure extraversion and neuroticism in a person. [3]
- The questionnaire "Maudsley Personality Inventory" has 48 questions.
(24 questions for Neuroticism Scale + 24 Questions Extraversion Scale)
- We can also use the shorter scale which contains 12 questions.
- It can be used with individual 16 and 16+ age.
- The question should be answered in "yes" if one agrees or "no" if not or "?" undecided answers.
- There is no specified time limit but make sure the subject fills in as soon as he/she can.
- It usually takes around 15 min to do the inventory.
- Preferably it is administered in a comfortable and conducive environment i.e. have basic equipment such as chair, tables, fans and

distractions after he/she agrees to give the test.

Instructions for the subject

- “There are some questions regarding the way you feel, behave and react in the questionnaire.”
- In each item there are three answers ‘yes’, ‘no’ and ‘?’
- There are total 48 items in this test and there are no right or wrong answers.
- Give the first natural answer as it comes to you.
- When in doubt, give the best possible answer.

Do not leave any question and try to complete as soon as possible.

Results, Analysis and Discussion

After collecting responses by the participants and calculating the results, descriptive statistics (i.e. mean, standard deviation, standard error of mean) of the selected psychological variables (Neuroticism and Extraversion) was calculated. t-tests were employed to determine the statistical significance of change. For easy comparison of mean differences and understanding, the line diagrams were incorporated.

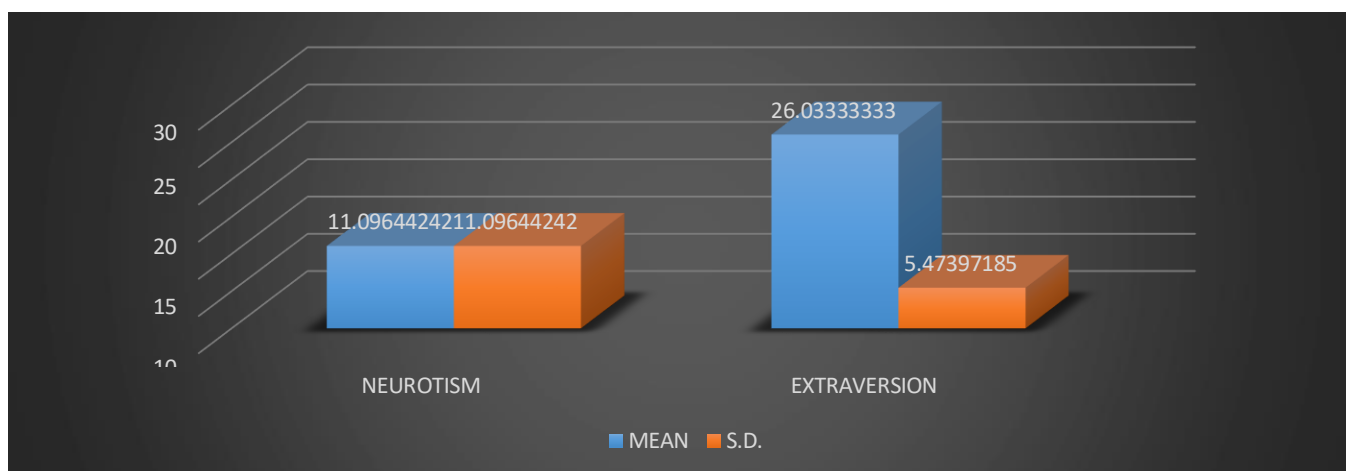
In the above statistical test, the level of significance will be 0.05

Table 1. Represents the descriptive statistics of neuroticism and extraversion responses.

Groups	Mean	Standard deviation	P-value	t-test
Neuroticism	11.09644242	11.09644242	0.4707	0.7309565792
Extraversion	26.03333333	5.47397185		

The table represented the described stats of scores of two personality traits, i.e. neuroticism and extraversion of Cricket players at state level in between age 20-24 years. It indicates the Mean, Standard deviation of Neuroticism which were found to be 11.09 and 11.09 respectively. The values of mean, Standard deviation of Extraversion were found to be 26.03 and 5.47 respectively. Table 1. also indicates the paired sample t-test of personality (Neuroticism & Extraversion). The P-value was found to be 0.4707 at a 29 degree of freedom which is higher than the 0.05 level of significance.

Fig 1. Graphical Representation of mean and standard deviation



The fig 1. shows the graphical representation of mean and S.D values of neuroticism and extraversion in cricket players where the mean of the score of neuroticism and extraversion are 11.09644242 and 26.03333333 and standard deviation of neuroticism and extraversion are 11.09644242 and 5.47397185 respectively.

DISCUSSION OF FINDINGS

The results statistically show a non-significant interconnection between Neuroticism and Extraversion on team game players, as evaluated on Cricket players in the study. The p-values for both personality (Neuroticism and Extraversion - 0.47047) is above the 0.05 significance threshold, confirming that neuroticism and extraversion are individual factors of personality, which doesn't influence each other significantly enough to make a difference. Although these findings do not align with existing literature, which suggests that neuroticism and extraversion are proportional to each other. The research results clearly show that there is a no significant relation between Neuroticism and Extraversion on Cricket players, in terms of both are disproportional to each other. The possible reasons could be lifestyle, sleeping pattern and psychological perceptual differences. Also the sample size was small to validate the findings. Future research should focus on a larger sample size and more controlled environment where the sample's lifestyle can be monitored better.

REFERENCES

1. Angleitner, A., John, O. P., & Löhr, F. J. (1986). It's what you ask and how you ask it: An itemmetri analysis of personality questionnaires. In A. Angleitner & J. S. Wiggins Personality assessment via questionnaires (pp. 61–107). New York: Springer: <https://doi.org/10.1002/per.2410050302>
2. Eysenck, H. J. (1947). Dimensions of personality. London: Kegan Paul: https://hanseysenck.com/wp-content/uploads/2019/12/1960_eysenck_eysenc_k_et_al_dimensions_of_personality_psychiatric_syndr_omes_and_mathematical_models.pdf.
3. Eysenck, H. J. (1978). Superfactors P, E and N in a comprehensive factor space. Multivariate Behavioral Research, 13, 475–481. doi:10.1207/s15327906mbr1304_7
4. Eysenck, H. J., & Eysenck, S. B. G. (1969). Personality structure and measurement. London: Routledge: <https://doi.org/10.4324/9780203766804>
5. Eysenck, H. J., & Eysenck, S. B. G. (1975). Manual of the Eysenck personality questionnaire. London: Hodder and Stoughton
6. Ferrando, P. J. (2001). The measurement of neuroticism using MMQ, MPI, EPI and EPQ items: a psychometric analysis based on item response theory. Personality and Individual Differences, 30, 641–656. doi:10.1016/S0191-8869(00)00062-3.
7. Jaafaru Sani Mohammed, Abdulrahman T Ahmed, Mandeep Singh, Malathi Hanumanthayya, Syeda Wajida Kazmi, Mamata Chahar, Hussein Riyadh Abdul Kareem Al-Hetty, Hanen Mahmod Hulail, Mohammed Qasim Alasheqi, Ahmed Hussein Zwamel, Evaluating the role of bromelain in diabetes management: a systematic review of research evidence and mechanisms of action, Journal of Pharmacy and Pharmacology, Volume 77, Issue 7, July 2025, Pages 884–896, <https://doi.org/10.1093/jpp/rgaf021>
8. Abdalkareem Jasim S, Singh M, Al-Dhalimy AMB, Zwamel AH, Jawad IA, Shalaby NS. The Impact of Chronic Exercise on Cognitive Function: An Overview of Reviews. Iran J Psychiatry. 2024;19(4):463–472. <https://ijps.tums.ac.ir/index.php/ijps/article/view/3895>
9. Alameri AA, Ghanni MU, Ali A, Singh M, Al-Gazally ME, Almulla AF, Alexis Ramírez-Coronel A, Mustafa YF, Gupta R, Obaid RF, Gabr GA, Farhood B. The Effects of Curcumin on Astrocytes in Common Neurodegenerative Conditions. Mini Rev Med Chem. 2023;23(22):2117–2129. doi: 10.2174/1389557523666230502143131. PMID: 37132107.
10. Alameri AA, Ghanni MU, Ali A, Singh M, Al-Gazally ME, Almulla AF, Alexis Ramírez-Coronel A, Mustafa YF, Gupta R, Obaid RF, Gabr GA, Farhood B. The Effects of Curcumin on Astrocytes in Common Neurodegenerative Conditions. Mini Rev Med Chem. 2023;23(22):2117–2129. doi: 10.2174/1389557523666230502143131. PMID: 37132107. <https://pubmed.ncbi.nlm.nih.gov/37132107/>
11. Jaafaru Sani Mohammed, Abdulrahman T Ahmed, Mandeep Singh, Malathi Hanumanthayya, Syeda Wajida Kazmi, Mamata Chahar, Hussein Riyadh Abdul Kareem Al-Hetty, Hanen Mahmod Hulail, Mohammed Qasim Alasheqi, Ahmed Hussein Zwamel, Evaluating the role of bromelain in diabetes management: a systematic review of research evidence and mechanisms of action, Journal of Pharmacy and Pharmacology, Volume 77, Issue 7, July 2025, Pages 884–896, <https://doi.org/10.1093/jpp/rgaf021>
12. Mandeep Singh Nathial, Analysis of set shot in basketball in relation with time to perform the course and displacement of center of gravity, American Journal of Sports Science, Vol.2 Issue.5 pp: 122-126 (2014). Retrieved from <https://www.sciencepublishinggroup.com/journal/paperinfo.aspx?journalid=155&doi=10.11648/j.ajss.20140205.13>
13. Alameri AA, Ghanni MU, Ali A, Singh M, Al-Gazally ME, Almulla AF, Alexis Ramírez-Coronel A, Mustafa YF, Gupta R, Obaid RF, Gabr GA, Farhood B. The Effects of Curcumin on Astrocytes in Common Neurodegenerative Conditions. Mini Rev Med Chem. 2023;23(22):2117–2129. doi: 10.2174/1389557523666230502143131. PMID: 37132107.
14. Singh, M., Kadhim, M.M., Turki Jalil, A. et al. A systematic review of the protective effects of

- silymarin/silibinin against doxorubicin-induced cardiotoxicity. *Cancer Cell Int* 23, 88 (2023).
<https://doi.org/10.1186/s12935-023-02936-4>
<https://cancerbiomedcentral.com/articles/10.1186/s12935-023-02936-4>
15. Singh, M., Kour, R., & Kour, A.,. A collaborative diversified investigation of respective responses of sports person coaches and organizations on criminalization of doping. *International Journal of Health Sciences*, 6(S3), 11295–11310. <https://doi.org/10.53730/ijhs.v6nS3.8641>
16. Singh, A., & Singh, D. M. (2013). PROMOTION OF RESEARCH CULTURE –ENHANCING QUALITY IN HIGHER EDUCATION. *International Journal of Behavioral Social and Movement Sciences*, 2(2), 202–208. Retrieved from <https://ijobsms.org/index.php/ijobsms/article/view/152>
17. SINGH, M., & SINGH SIDHU, A. (2016). A COMPARATIVE STUDY OF BODY COMPOSITION AND RELATIVE HEALTH STATUS AMONG RESIDENT AND NON-RESIDENT STUDENTS IN DIFFERENT SCHOOLS OF J&K. *International Journal of Behavioral Social and Movement Sciences*, 5(3), 08–13. Retrieved from <https://ijobsms.org/index.php/ijobsms/article/view/320>
18. Singh Nathial, D. M. (2012). ANALYZING THE CREDIT BASED SYSTEM IN PHYSICAL EDUCATION. *International Journal of Behavioral Social and Movement Sciences*, 1(3), 172–176. Retrieved from <https://ijobsms.org/index.php/ijobsms/article/view/37>
19. SHARMA, N. P., & SINGH, M. (2014). SENIOR AGE GROUP RELATIVE EXERCISES AND IMPACT ON THEIR LIFESTYLE. *International Journal of Behavioral Social and Movement Sciences*, 3(04), 78–82. Retrieved from <https://ijobsms.org/index.php/ijobsms/article/view/246>
20. CHAND PURI, P., MISHRA, P., JHAJHARIA, B., & SINGH, M. (2014). COORDINATIVE ABILITIES OF VOLLEYBALL IN DIFFERENT AGE GROUPS: A COMPARATIVE STUDY. *International Journal of Behavioral Social and Movement Sciences*, 3(3), 56–68. Retrieved from <https://ijobsms.org/index.php/ijobsms/article/view/228>
21. Yasmin Basheer Ahmed, Saade Abdalkareem Jasim, Yasser Fakri Mustafa, Beneen Hussein, Thoraya Mahbas Diwan, Mandeep Singh, The effects of propolis supplementation on lipid profiles in adults with metabolic syndrome and related disorders: A systematic review and meta-analysis of randomized controlled trials, *Human Nutrition & Metabolism*, Volume 37, 2024, 200276, ISSN 26661497, <https://doi.org/10.1016/j.hnm.2024.200276>. (<https://www.sciencedirect.com/science/article/pii/S266614972400038>)