



## Original article

## Study of the relationship between myopia and personality<sup>☆,☆☆</sup>



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## ABSTRACT

**Objective:** To study the correlation between the myopic refractive error and certain personality traits, and to determine whether there is a correlation between the degree of myopia and an increased frequency in personality disorders.

**Methods:** Cross-sectional observational multicenter study conducted on 82 subjects (26 men, 56 women) age over 18 years with myopia (spherical defect  $\leq -0.5$  D), with 30 subjects having high myopia ( $<-6$  D). Data collected: age and gender, academic level, result in the Neo PI-R personality test, autorefraction, myopic pathology, and ophthalmological treatment.

**Results:** Correlation (Spearman's) between the magnitude of the spherical defect and the 5 personality traits studied in the total sample was not statistically significant: neuroticism ( $-0.057$ ;  $p = .610$ ), extroversion ( $-0.020$ ;  $p = .857$ ), openness ( $-0.032$ ;  $p = .774$ ), kindness ( $-0.060$ ;  $p = .592$ ), and responsibility ( $-0.034$ ;  $p = .765$ ). By dividing them into subgroups of low and high significance (t-test), a significant ( $p = .002$ ) upward trend of the myopic defect with increasing scores on extraversion was found.

When comparing high myopic subjects to the non-high myopic ones, there were significant differences between the 2 groups in terms of the associated pathology ( $p = .001$ ), received treatment ( $p = .001$ ) and the level of studies ( $p = .013$ ). There were no differences in the variables of personality: neuroticism ( $p = .852$ ), extroversion ( $p = .199$ ), openness ( $p = .560$ ), kindness ( $p = .584$ ), and responsibility ( $p = .722$ ).

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**Conclusions:** A low correlation was found between myopia and personality. There was no difference in the degree of myopia between the groups with different education levels. Subjects with more severe ocular pathology associated with myopia had higher scores in neuroticism, without finding any significant association.

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## Estudio de la relación entre miopía y personalidad

### R E S U M E N

#### Palabras clave:

Extraversión  
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Neuroticismo  
Rasgos de personalidad

**Objetivo:** Estudiar la correlación entre el error refractivo miópico y determinados rasgos de personalidad. Igualmente, se pretende determinar si existe correlación entre el grado de miopía y una mayor frecuencia de trastornos de la personalidad.

**Métodos:** Estudio transversal observacional multicéntrico. La muestra la formaron 82 sujetos (26 hombres, 56 mujeres) mayores de 18 años con miopía (defecto esférico  $\leq -0.5$  D); 30 eran miopes magnos ( $<-6$  D). Datos recogidos: edad y sexo, nivel de formación, resultado en el inventario de personalidad Neo PI-R, autorrefractometría, enfermedad miópica, tratamiento oftalmológico.

**Resultados:** No se encontró correlación (rho de Spearman) estadísticamente significativa entre el defecto esférico y los rasgos de personalidad estudiados en el total de la muestra: neuroticismo ( $-0.057$ ;  $p = 0.610$ ), extraversión ( $-0.020$ ;  $p = 0.857$ ), apertura ( $-0.032$ ;  $p = 0.774$ ), amabilidad ( $-0.060$ ;  $p = 0.592$ ), responsabilidad ( $-0.034$ ;  $p = 0.765$ ). Al agruparlos por subgrupos de alta y baja significación (t-test), se halló una tendencia al aumento del defecto miópico con la extraversión, que resultó significativa ( $p = 0.002$ ).

Al comparar miopes magnos y el resto, se vio que existían diferencias significativas entre ambos grupos en cuanto a la enfermedad asociada ( $p < 0.001$ ), el tratamiento recibido ( $p < 0.001$ ) y el nivel de estudios ( $p = 0.013$ ), no así en las variables de personalidad: neuroticismo ( $p = 0.852$ ), extraversión ( $p = 0.199$ ), apertura ( $p = 0.560$ ), amabilidad ( $p = 0.584$ ), responsabilidad ( $p = 0.722$ ).

**Conclusiones:** Se encontró baja correlación entre miopía y personalidad. El grado de miopía no resultó diferente entre los grupos con diversos niveles de estudios. Los sujetos con enfermedad oftalmológica más grave asociada a la miopía presentaban puntuaciones más altas en neuroticismo, sin asociación significativa.

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## Introduction

Myopia affects approximately 20–25% of people in the Western world, with higher prevalence in some areas of southeast Asia.<sup>1</sup> High myopia is defined as an eye with an axial ocular globe length over 26 mm or a spherical refractive error above 6 diopters (D).<sup>2</sup> It affects approximately 2–6% of the general population and 30% of myopic eyes. High myopia expresses as a complex disease with an etiology involving environmental and genetic factors (multifactorial inheritance). This degenerative or pathological myopia is characterized by a progressive and excessive anteroposterior lengthening of the ocular globe, associated to secondary changes involving the sclera, the retina, the choroids and the optic nerve head. Prevalence is higher in adolescence (in the area of 25%) and incidence increases between 5 and 20 years of age. As regards racial

distribution, it has been determined as having the highest prevalence in the Asian population (50–90% in Chinese) and the lowest in the Eskimo population together with American Indians and ethnic Africans. It is twice as frequent in Caucasians (26%) compared to Africans (12%).<sup>3</sup>

At present, personality is regarded as a complex pattern of deeply rooted psychological characteristics, which are mainly unconscious and difficult to change and express automatically in nearly all areas of people's lives. For decades, some authors have defended that myopes exhibit distinctive personality traits such as introversion and mistrust.<sup>4</sup> However, the psychological implication in myopic subjects is controversial and not well established. Some psychological traits have been considered as typical of myopic Magnus individuals: they tend to be introverts, mistrustful, excessively worried about the condition of the eyesight and eyes, fearful of any alteration, etc. Some authors have even proposed that myopes

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