WELL – BEING, RESILIENCE AND PERSONALITY IN MEDICAL UNIVERSITY STUDENTS: RELATIONSHIP WITH HIGH ABILITY AND ACADEMIC TALENT

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ABSTRACT

Background: In the literature there exist controversy about the concept of giftedness and academic talent. However, in the last decades it has been increasing the interest in it. In some studies, it has been seen that people with high abilities have less well-being, with the consequent life-impact. Also, attempts have been made to establish relationships between personality traits and giftedness, but few studies have managed to establish them.

Objectives: to determine the relationship between intelligence quotient or academic talent with personality traits, resilience, well-being, self-control, and satisfaction with life.

Materials and methods: 42 students in the 4th and 5th year of medicine from the University of Vic - Central University of Catalonia participate in the study. All responded to the following questionnaires: IQ, self-control, resilience, satisfaction with life, personality, and well-being. Data were analyzed by means of Pearson correlations.

Results: IQ has been negatively related to deceit and callousness domains of personality without finding relationships with well-being, resilience, satisfaction with life or self-control. In academic talent it has been possible to observe a positive relationship with persistence, control subdomains of resilience, and intimidation avoidance of personality, without relating to more variables.

Conclusions: IQ has been negatively related to deceit and callousness, suggesting that people with higher IQ are more empathetic and sincere. With the correlations found, we can deduce that people with greater persistence and control obtain better academic results. Other relationships have been observed with certain personality traits and well-being, life satisfaction, resilience, and self-control.

RESUMEN

Antecedentes: En la literatura existe controversia sobre el concepto de superdotación y talento académico. Sin embargo, en las últimas décadas ha ido aumentando el interés por el mismo. En algunos estudios se ha visto que las personas con altas capacidades tienen un menor bienestar, con el consiguiente impacto vital. Asimismo, se han realizado intentos de establecer relaciones entre los rasgos de personalidad y la superdotación, pero pocos estudios han logrado establecerlas.

Objetivos: determinar la relación entre el coeficiente intelectual o talento académico con los rasgos de personalidad, resiliencia, bienestar, autocontrol y satisfacción con la vida.

Materiales y métodos: Participan en el estudio 42 estudiantes de 4º y 5º de Medicina de la Universidad de Vic - Universidad Central de Cataluña. Todos respondieron a los siguientes cuestionarios: QI, autocontrol, resiliencia, satisfacción con la vida, personalidad y bienestar. Los datos fueron analizados por medio de correlaciones de Pearson.

Resultados: El IQ se ha relacionado negativamente con los dominios de engaño e insensibilidad de la personalidad sin encontrar relaciones con el bienestar, la resiliencia, la satisfacción con la vida o el autocontrol. En el talento académico se ha podido observar una relación positiva con los subdominios de persistencia y control de la resiliencia y la evitación de la intimidación de la personalidad, sin relacionarse con más variables.

Conclusiones: El coeficiente intelectual se ha relacionado negativamente con el engaño y la insensibilidad, lo que sugiere que las personas con mayor coeficiente intelectual son más empáticas y sinceras. Con las correlaciones encontradas podemos deducir que las personas con mayor persistencia y control obtienen mejores resultados académicos. Otras relaciones se han observado con ciertos rasgos de personalidad y bienestar, satisfacción con la vida, resiliencia y autocontrol.

RESUM

Antecedents: A la literatura hi ha controvèrsia sobre el concepte de superdotació i talent acadèmic. Tot i això, en les últimes dècades ha anat augmentant l'interès per aquest. En alguns estudis s'ha vist que les persones amb altes capacitats tenen menys benestar, amb el conseqüent impacte vital. Així mateix, s'han fet intents per establir relacions entre els trets de personalitat i la superdotació, però pocs estudis han aconseguit establir-les.

Objectius: determinar la relació entre el coeficient d'intel·ligència o el talent acadèmic amb els trets de personalitat, resiliència, benestar, autocontrol i satisfacció amb la vida.

Materials i mètodes: Hi participen 42 estudiants de 4t i 5è de Medicina de la Universitat de Vic - Universitat Central de Catalunya. Tots van respondre als següents qüestionaris: QI, autocontrol, resiliència, satisfacció amb la vida, personalitat i benestar. Les dades van ser analitzades per mitjà de correlacions de Pearson.

Resultats: L'IQ s'ha relacionat negativament amb els dominis d'engany i d'insensibilitat de la personalitat sense trobar relacions amb el benestar, la resiliència, la satisfacció amb la vida o l'autocontrol. En el talent acadèmic s'ha pogut observar una relació positiva amb els subdominis de persistència i control de la resiliència, i l'evitació de la intimidació de la personalitat, sense relacionar-se amb més variables.

Conclusions: El coeficient intel·lectual s'ha relacionat negativament amb l'engany i la insensibilitat, cosa que suggereix que les persones amb més coeficient intel·lectual són més empàtiques i sinceres. Amb les correlacions trobades podem deduir que les persones amb més persistència i control obtenen millors resultats acadèmics. Altres relacions han estat observades amb certs trets de personalitat i benestar, satisfacció amb la vida, resiliència i autocontrol.

1. INTRODUCTION

The terms "high abilities" and "giftedness" are subject to significant controversy in terms of their precise definitions. However, in recent years, the term "academic talent" and "giftedness" have gained interest due to their potential relationship with psychological aspects. It is still a largely unknown framework that lacks extensive research and literature, especially when focusing on the adolescent and adult population.

In a study conducted in Spain, it was observed that gifted elementary school students experience more bullying compared to their peers, which is associated with higher rates of depression and anxiety [1]. In another Spanish study, the relationship between emotional well-being and having high abilities or not was examined. It is important to keep in mind that subjective well-being is a fundamental component for mental health and can be a useful method for predicting emotional and cognitive behavior, as well as academic outcomes. Emotional well-being can be a protective factor against psychopathology. The study found that children with high abilities have lower subjective well-being compared to children without high abilities, putting them at risk for psychopathology [2]. In the field of childhood age, another study attempted to establish relationships between being perfectionist and having high abilities, but this hypothesis could not be corroborated [3]. Self-esteem is also a factor that has been linked to emotional well-being, and in one of the few studies carried out with adolescents in this field, it was noted that students with high abilities have lower levels of self-esteem than other students [4]. At the level of university participants, further relationships have been attempted to be established regarding personality and emotional well-being, as both can be risk or protective factors for certain psychopathologies. High levels of stress, anxiety, and depression have been associated with

increased comorbidity [5], and suicidal ideation has been correlated with the need for approval, negative affect, and detachment [6]. The clinical-education relationship is complex and not always feasible. It is important to understand the educational institution as a well-being environment where mental health needs to be favored and promoted at all levels of prevention.

In a study, students were divided into four groups: academic talent with high abilities, academic talent without high abilities, no academic talent with high abilities, and no academic talent without high abilities. It was found that students with high abilities but without academic talent can still benefit from their innate abilities [7]. It is important to consider personal and environmental variables that can influence individuals with high abilities and academic talent in reaching their maximum potential. Meaning in life is known as one of the main factors in psychological and emotional well-being. Individuals with high levels of meaning in life perceive higher levels of happiness. This term can be structured into two dimensions: meaning and meaning crisis. Positive evaluation is perceived unconsciously, while a lack of meaning in life emerges in the form of a "meaning crisis." Individuals experiencing a "meaning crisis" tend to perceive their life as empty and frustrating, impacting emotional well-being and mental health in the form of disorientation, depressive experiences, and suicidal ideation. These crises are directly related to low resilience, motivation, satisfaction, hope, self-regulation, and self-efficacy [8]. Previous studies determine that students with high capacities without academic talent have lower self-perception of psychological well-being and meaning in life than students with high capacities and academic talent. Studies show a tendency for high capacity without academic talent individuals to be vulnerable to emotional disorders, identity problems, low coherence, and ambivalent attachment. However, it is important to note that half of the variance in academic success can be explained by cognitive abilities, while the other half consists of personality and socio-psychological factors. In some studies, the personality domain of openness to experience (understood as the fact of being predisposed to new experiences through new actions) has been related to a higher IQ [9].

The main objective of this study is to assess whether academic talent or high abilities are related to personality traits, resilience, well-being, self-control or life satisfaction, and the type of relationships established among medical students. As a secondary objective, the study aims to determine if individuals with high abilities exhibit specific personality characteristics and if there is some kind of relationship between one's own personality characteristics, self-control, life satisfaction and resilience. The initial hypothesis (H1) posits that students with high abilities and academic talent have a higher perception of well-being compared to the other population under study. The second hypothesis (H2)

suggests that students without academic talent experience more losses of meaning compared to the other population.

2. MATERIAL AND METHODS

2.1. Sample

The present study was conducted using a descriptive cross-sectional design. The sample consisted of 4th and 5th-year medical students from the University of Vic - Central University of Catalonia who voluntarily chose to participate in the study. Those students who decided to participate had to sign an informed consent form.

The inclusion criteria to participate in the study were:

- Age between 18 and 27 years.
- Both sexes.
- Study 4th or 5th year of medicine degree at the UViC - UCC.
- Have signed the informed consent.

The exclusion criteria were:

- Language difficulties.
- Not meeting the inclusion criteria.

The total final sample consisted of 42 participants, with 73.8% women (N=31) and 26.9% men (N=11).

2.2. Ethical considerations

To carry out this study, a protocol was created that was approved by the research ethics committee of the Unió Catalana d'Hospitals Foundation with the code CEI 22/70 on September 20, 2022.

All participants had to sign an informed consent to participate in the study, and all the data processed, being personal data, is under the General Data Protection Regulation.

2.3. Instruments and recorded variables

Socio-demographic questionary: A self-designed questionnaire was used. It includes age, living situation, work situation, growth area and residence, adaptative evolution, if they have had psychological disorders, the type of disorder and if it required treatment.

Self-Control: we used the self-control scale of Rosenbaum [10]. It assesses three factors of loss of control: non-reflective impulse control, self-discipline, and impulse control. A numerical score between

10 and 40 is obtained, indicating that the higher the score, the higher the self-control, with the general average score being between 23 and 27.

Resiliency: the test used was the Connor Davidson resilience scale [11]. Consists of 25 items that measure the ability to be resilient looking for different factors. A score is obtained out of 100, where a higher score indicates higher resilience.

Estimated intelligence quotient: to estimate the QI, the Raven Test was used [12]. It is an instrument that measures intelligence, specifically the g factor, the ability to solve logical and mathematical problems and general educational ability.

Life satisfaction (SWLS): A 5-item test that measures individuals' global cognitive judgments of life satisfaction. The result can range from 5 to 35, with a higher score indicating greater life satisfaction [13].

Personality: personality traits were assessed using the PID-5 test (personality inventory for the DSM-5). It is a 100 multiple response items that measures different personality traits (negative affect, detachment, antagonism, disinhibition, and psychoticism). The scores are expressed as averages for each domain and facet, ranging from 0 to 4. Averages above 4 indicate greater "dysfunction" in the facet, while lower scores (close to 0) indicate an adaptive and resilient personality [14, 15, 16].

Well-being: in the case of the well-being evaluation, the WHO-5 Wellbeing index was used. It consists of a 5-item questionnaire that asses psychological and subjective well-being, indicating higher well-being with higher scores over a maximum of 100 points. [17, 18]

Academic talent: academic talent was assessed based on the academic mean of the past academic years that the participants reported. Academic talent was considered in averages above 8.

2.4. General procedure

The study was presented to the students during the academic year of 2022-2023 in classrooms through an informative talk. On the same day, they were provided with a supplementary information sheet, informed consent form, and a sheet where they could provide their email contact. Those students who decided to participate signed the informed consent form at that moment. Subsequently, they received a link via email to access all the questionnaires through the RedCap platform, except for the Raven Tests, which were conducted in person at the university on different days and at different times to facilitate participants' attendance. Once the assessments were completed, the results were provided via email to those participants who desired to receive them.

2.5. Statistic methods

The data was entered into a database through RedCap as participants completed the different questionnaires. Subsequently, the data was analyzed using the statistical program SPSS/PC (v.20.20).

Firstly, descriptive statistics were performed to assess the characteristics of the sample. Nominal qualitative variables (gender, employment status, previous studies, university admission method, academic year, psychological disorder, type of disorder, disorder treatment, and current status of the disorder) were analyzed using absolute and relative frequencies. To complete the descriptive data, the median with standard deviation and range were used for continuous quantitative variables (age, average academic grade, selectivity grade, intelligence quotient, and the results of the following questionnaires: Rosenbaum's self-control scale, Connor Davidson resilience scale, Life satisfaction, PID-5 test, and emotional well-being) to provide a general overview of the participants' results in the different tests.

Since very few results were obtained for an IQ above 130 and an academic average above 8, it was not possible to separate the results into the four planned groups to achieve an optimal distribution for valuable analyses; academic talent and high abilities (N=0), academic talent without high abilities (N=3), non-academic talent with high abilities (N=1), and non-academic talent and non-high abilities (N=38). Therefore, a bivariate analysis of association between different variables was conducted to examine if there were any personality traits related to IQ or academic average, as well as if any personality trait was associated with life satisfaction, emotional well-being, resilience, or self-control. Normality was tested using the Kolmogorov-Smirnov test. Since the variables followed a normal distribution, Pearson's correlation coefficient was calculated. Correlations were analyzed as follows: $|r|<0.30$ indicates weak association, $0.30 \leq |r| \leq 0.70$ indicates moderate association, and $|r|>0.70$ indicates strong association.

All these analyses were performed on the overall data and separately by gender (women and men) to compare if there were significant differences in the results between both groups.

3. RESULTS

3.1. Participants

The initial sample objective in this study was all 4th and 5th-year medical students at the University of Vic-Central University of Catalonia who met the previously specified inclusion criteria. The study was presented to a total of 153 students in the classrooms. Out of the total, only 3 students were excluded

due to being older than the age range included in the study. Among the remaining 150 students who met the inclusion criteria, 111 decided to participate in the study, signed the informed consent, and provided their contact email. Finally, only 42 students responded to all the online questionnaires and completed the Raven test in person. This is the reason why the participation rate in the study was 37%, which is one of the main limitations for data analysis.

3.2. Descriptive data

All descriptive information about the participants is shown in Tables 1 and 2.

The gender distribution within the obtained sample is not very homogeneous, as we have 11 males and 31 females. The age in both groups (males and females) is similar.

In terms of academic data, the results are very similar between genders. We see a predominance of students coming from high school, entering the program through the university entrance exam. Out of the total sample, only 8 participants (19%) are from the 4th academic year, while the remaining 34 are from the 5th academic year. The overall academic average is 6.98.

Focusing on the obtained clinical data, we can observe that 35.7% of the participants have had a psychological disorder at some point in their lives, with 60% of them currently experiencing it. The most frequent disorder overall in the sample is anxiety, but in the female group, the most frequent ones are depression and eating disorders. Out of those who have had a psychological disorder, 46.7% have required medication.

Table 1.

Socio-demographics, academic and clinical characteristics of the sample.

	All (N=42)		Male (N=11)		Female (N=31)	
DEMOGRAPHICS						
Age	22.8 (SD 1.20)	21 – 26	22.8 (SD 0.98)	22 – 25	22.77 (SD 1.28)	21 – 26
Gender						
Female	31 (73.8%)					
Male	11 (26.9%)					
Employment status						
Not Working	35 (83.3%)		10 (90.9%)		25 (80.6%)	
Working	7 (16.7%)		1 (9.1%)		6 (19.4%)	
ACADEMICS						
Previous studies						

High school	39 (92.9%)		10 (90.9%)		29 (93.5%)	
University career	3 (7.1%)		1 (9.1%)		2 (6.5%)	
University access						
Selectivity	30 (71.4%)		6 (54.5%)		24 (77.4%)	
Transfer of file	12 (28.6%)		5 (45.5%)		7 (22.6%)	
Selectivity mark	10.24 (SD 4.15)	11 – 12.15	12.15 (SD 0.0)		10.01 (4.09)	11 – 12.1
Academic year						
4th	8 (19%)		1 (9.1%)		7 (22.6%)	
5th	34 (81%)		10 (90.9%)		24 (77.4%)	
Average academic grade	6.98 (SD 0.75)	6 – 8	6.83 (SD 0.75)	6 – 8	7.16 (SD 0.78)	6 – 8
CLINICAL DATA						
Psychological disorder						
No	27 (64.3%)		5 (45.5%)		22 (71%)	
Yes	15 (35.7%)		6 (54.4%)		9 (29%)	
Type of disorder						
Anxiety	7 (46.7%)		5 (83.3%)		2 (22.2%)	
Depression	3 (20.00%)				3 (33.3%)	
Eating disorder	3 (20.00%)				3 (33.3%)	
Other	2 (13.3%)		1 (16.7%)		1 (11.1%)	
Treatment for the disorder						
No	8 (53.3%)		4 (66.7%)		4 (44.4%)	
Yes	7 (46.7%)		2 (33.3%)		5 (55.6%)	
Current disorder						
No	6 (40.0%)		1 (16.7%)		5 (55.6%)	
Yes	9 (60.0%)		5 (83.3%)		4 (44.4%)	

Data presented as mean (standard deviation) with range, or n (%).

Table 2 shows the results of all tests and questionnaires administered to the participants. In the life satisfaction questionnaire, we observe high results (26.10 ± 5.72). The average estimated intelligence quotient (IQ) through the Raven Test is 112 ± 9.4, which places the participants in the general average. The overall result in the well-being index is 56.58 ± 15.64. Regarding resilience, the overall punctuation is 75.67 ± 14.40, and in self-control 150 ± 14.05. In terms of personality, the domain in which the sample

scored the highest was in all facets of negative affect (emotional lability, anxiety, and separation insecurity). Conversely, they scored lower in the facets of callousness and depression. No differences between genders were found at the overall results.

Table 2.

Results from the different instruments used.

	All (N=42)		Male (N=11)	Female (N=31)
INSTRUMENTS				
Life satisfaction	26.10 (SD 5.72)	10 – 34	25.27 (SD5.76)	26.55 (SD 5.76)
Intelligence quotient (Raven test)	112.02 (SD 9.4)	91 – 130	110.90 (SD 8.77)	112.41 (SD 9.77)
Well – being index	56.48 (SD 15.64)	20 – 80	60.36 (SD 14.80)	55.10 (SD 15.92)
Resilience	75.67 (SD 14.40)	29 – 97	73.55 (SD 9.39)	76.42 (SD 15.86)
Persistence	19.43 (SD 3.83)	10 – 24	18.64 (SD 2.87)	19.71 (SD 4.12)
Pressure	20.40 (SD 4.29)	8 – 28	19.45 (SD 3.04)	20.74 (SD 4.64)
Adaptability	16.21 (SD 3.43)	5 – 20	16.18 (SD 2.44)	16.23 (SD 3.76)
Control	9.10 (SD 2.51)	2 – 12	8.64 (SD 1.86)	9.26 (SD 2.71)
Spirituality	4.67 (SD 1.98)	1 – 8	4.82 (SD 1.94)	4.61 (SD 2.03)
Self-control	150 (SD 14.05)	114 – 181	144.27 (SD 13.68)	152.35 (SD 13.78)
Personality (PID5)	0.73 (SD 0.36)	0 – 2	0.78 (SD 0.36)	0.72 (SD 0.37)
Negative affect	1.03 (SD 0.50)	0 – 2	0.86 (SD 0.44)	1.09 (SD 0.51)
Emotional lability	1.23 (SD 0.76)	0 – 3	0.80 (SD 0.71)	1.39 (SD 0.72)
Anxiety	1.63 (SD 0.88)	0 – 3	1.43 (SD 0.90)	1.70 (SD 0.87)
Separation insecurity	1.10 (SD 0.77)	0 – 3	0.82 (SD 0.54)	1.19 (SD 0.83)
Detachment	0.56 (SD 0.48)	0 – 2	0.77 (SD 0.52)	0.49 (SD 0.46)
Withdrawal	0.49 (SD 0.59)	0 – 2	0.89 (SD 0.71)	0.35 (SD 0.48)
Anhedonia	0.53 (SD 0.69)	0 – 3	0.55 (SD 0.58)	0.52 (SD 0.73)
Intimation avoidance	0.42 (SD 0.51)	0 – 2	0.48 (SD 0.60)	0.40 (SD 0.48)
Antagonism	0.57 (SD 0.49)	0 – 2	0.76 (SD 0.61)	0.50 (SD 0.43)
Handling	0.74 (SD 0.78)	0 – 3	1.23 (SD 0.93)	0.57 (SD 0.66)
Deceit	0.72 (SD 0.70)	0 – 3	0.95 (SD 0.84)	0.64 (SD 0.63)

Grandiosity	0.41 (SD 0.62)	0 – 2	0.68 (SD 0.45)	0.31 (SD 0.52)
Disinhibition	0.72 (SD 0.45)	0 – 2	0.85 (SD 0.53)	0.68 (SD 0.42)
Irresponsibility	0.54 (SD 0.53)	0 – 2	0.86 (SD 0.72)	0.43 (SD 0.40)
Impulsiveness	0.54 (SD 0.64)	0 – 2	0.45 (SD 0.60)	0.56 (SD 0.66)
Distraction	1.29 (SD 0.83)	0 – 3	1.34 (SD 0.84)	1.27 (SD 0.83)
Psychotism	0.52 (SD 0.58)	0 – 2	0.60 (SD 0.51)	0.49 (SD 0.61)
Unusual beliefs and experiences	0.49 (SD 0.66)	0 – 3	0.61 (SD 0.64)	0.45 (SD 0.68)
Eccentricity	0.73 (SD 0.85)	0 – 3	0.95 (SD 0.95)	0.65 (SD 0.82)
Perceptual dysregulation	0.34 (SD 0.55)	0 – 2	0.23 (SD 0.36)	0.38 (SD 0.60)
Others				
Hostility	0.79 (SD 0.63)	0 – 2	0.84 (SD 0.64)	0.77 (SD 0.63)
Perseverance	1.10 (SD 0.70)	0 – 3	0.95 (SD 0.72)	1.15 (SD 0.70)
Submission	0.77 (SD 0.71)	0 – 2	0.66 (SD 0.70)	0.82 (SD 0.72)
Affective restriction	0.80 (SD 0.75)	0 – 3	1.16 (SD 0.78)	0.67 (SD 0.71)
Depression	0.32 (SD 0.52)	0 – 2	0.30 (SD 0.40)	0.32 (SD 0.56)
Suspicious	0.74 (0.SD 63)	0 – 2	0.66 (SD 0.45)	0.77 (SD 0.69)
Atten seek	0.83 (SD 0.74)	0 – 3	0.68 (SD 0.77)	0.88 (SD 0.74)
Callousness	0.14 (SD 0.35)	0 – 2	0.27 (SD 0.54)	0.09 (SD 0.25)
Risk taking	0.53 (SD 0.56)	0 – 2	0.75 (SD 0.58)	0.45 (SD 0.54)
Rigidity and perfectionism	1.33 (SD 0.83)	0 – 3	1.07 (SD 0.91)	1.42 (SD 0.79)

3.3. Intelligence quotient

In order to analyze whether there are some personality traits, well-being factors, or resilience factors related to intelligence quotient, correlations were performed. The corresponding correlations can be seen in Table 3. Significant correlations were found in a negative direction with two domains of the personality scale: the deceit (r=-0.31) and callousness (r=-0.38). No significant relationships were found between intelligence quotient and academic average, life satisfaction, well-being, resilience, or self-control. Analyzing the two genders separately, in women, the intelligence quotient (IQ) only correlates negatively with the deceit (r=-0.37, p-value=0.04) personality domain, while in men, it correlates negatively with callousness (r=-0.76, p-value=0.01) and eccentricity (r=-0.68, p-value=0.02) of the

personality scale and it correlates positively with the pressure subscale (r=0.64, p-value=0.04) of the resilience scale.

Table 3.

Intelligence quotient Pearson's Correlations.

	INTELLIGENCE QUOTIENT	
	r	p-value
Average academic grade	-0.36	0.27
Selectivity mark	0.04	0.92
Life satisfaction	-0.01	0.96
Well-being index	0..12	0.46
Self - Control	0.02	0.88
Resilience	-0.15	0.34
Persistence	-0.18	0.25
Adaptability	-0.15	0.35
Pressure	-0.08	0.63
Control	-0.13	0.41
Spirituality	-0.04	0.78
Personality (PID5)	-0.17	0.29
Negative affect	-0.03	0.85
Emotional lability	-0.01	0.95
Anxiety	-0.08	0.62
Separation insecurity	0.02	0.91
Detachment	-0.17	0.27
Withdrawal	-0.21	0.17
Anhedonia	-0.02	0.91
Intimation avoidance	-0.19	0.24
Antagonism	-0.24	0.13
Handling	-0.16	0.31
Deceit	**-0.31**	**0.05**
Grandiosity	-0.04	0.78
Disinhibition	-0.10	0.53
Irresponsibility	-0.16	0.31
Impulsiveness	-0.05	0.74

Distraction	0.07	0.63
Psychotism	-0.16	0.32
Unusual beliefs and experiences	-0.13	0.43
Eccentricity	-0.27	0.09
Perceptual dysregulation	0.06	0.70
Others		
Hostility	-0.13	0.42
Perseverance	0.00	0.99
Submission	0.23	0.15
Affective restriction	-0.14	0.38
Depression	-0.04	0.80
Suspicious	-0.04	0.23
Atten seek	-0.11	0.49
Callousness	**-0.38**	**0.02**
Risk taking	-0.23	0.15
Rigidity and perfectionism	0.08	0.60

3.4. Academic talent

In Table 4, the correlation coefficients between all the studied questionnaires and the academic average are presented. The significant results obtained showed a positive correlation with the persistence domain (r=0.74) and the control domain (r=0.78) of the resilience scale. Additionally, a positive correlation was found with intimidation avoidance (r=0.65). No significant correlation is observed with the total resilience scale, but it can be affirmed that it shows a tendency towards significance (r=0.08). No other significant correlations were found. If we focus on women, we can see that their academic average correlates positively with the persistence subscale (r=0.99, p-value=0.01) of the resilience scale and with withdrawal (r=0.88, p-value=0.04) of the personality scale, while maintaining a negative correlation with the following personality domains: perseverance (r=-0.94, p-value=0.02), distraction (r=-0.93, p-value=0.02), and disinhibition (r=-0.92, p-value=0.03). In the case of men, there is a positive association with the control subscale (r=0.83 , p-value=0.04) of the resilience scale, and with the personality domains of manipulation (r=0.86, p-value=0.03), grandiosity (r=0.87, p-value=0.03), irresponsibility (r=0.86, p-value=0.03), and antagonism (r=0.89, p-value= 0.01), while establishing a negative correlation with spirituality subscale (r=-0.82, p-value=0.04) of the resilience scale.

Table 4.

Academic grade Pearson's correlations.

	AVERAGE ACADEMIC GRADE	
	r	p-value
Selectivity mark	0.99	0.06
Life satisfaction	0.29	0.39
Well-being index	-0.14	0.69
Self - Control	0.03	0.93
Resilience	0.55	0.08
Persistence	**0.74**	**0.01**
Adaptability	0.20	0.55
Pressure	0.47	0.14
Control	**0.78**	**0.01**
Spirituality	-0.58	0.06
Personality (PID5)	0.25	0.45
Negative affect	0.08	0.81
Emotional lability	-0.11	0.76
Anxiety	-0.10	0.77
Separation insecurity	0.40	0.22
Detachment	0.48	0.13
Withdrawal	0.47	0.15
Anhedonia	-0.14	0.69
Intimation avoidance	**0.65**	**0.03**
Antagonism	0.49	0.13
Handling	0.46	0.15
Deceit	0.5	0.12
Grandiosity	0.51	0.12
Disinhibition	-0.26	0.44
Irresponsibility	0.29	0.38
Impulsiveness	-0.29	0.38
Distraction	-0.57	0.70
Psychotism	0.13	0.70
Unusual beliefs and experiences	0.09	0.79
Eccentricity	0.27	0.43

Perceptual dysregulation	-0.23	0.49
Others		
Hostility	0.06	0.86
Perseverance	-0.16	0.65
Submission	-0.27	0.42
Affective restriction	0.49	0.13
Depression	0.03	0.94
Suspicious	-0.00	0.99
Atten seek	-0.06	0.87
Callousness	0.44	0.18
Risk taking	0.17	0.62
Rigidity and perfectionism	0.37	0.27

3.5. Other correlations

Table 5 presents the correlations between the different questionnaires used in this study.

<u>Life satisfaction</u>

Significant results include a positive correlation between life satisfaction and the well-being index, as well as with resilience (both the total score and all its subscales). In terms of personality, there is a negative correlation between life satisfaction and negative affect (including its three subdomains: emotional lability, anxiety, and separation insecurity), detachment (specifically with the subdomain of withdrawal and anhedonia), disinhibition, psychotism (including the subdomains of unusual experiences and thoughts, eccentricity, and perceptual dysregulation), hostility, perseverance, submission, and depression domains of the personality scale. When doing the gender analysis, different correlations were observed. Focusing on women, we saw some of the correlations mentioned earlier: positive with well-being index (r=0.60, p-value=<0.001) and resilience (r=0.52, p-value=0.002) and it's subscales [persistency (r=0.42, p-value=0.02), pressure (r=0.37, p-value=0.04), adaptability (r=0.46, p-value=0.01), control (r=0.66, p-value=<0.001) and spirituality (r=0.42, p-value=0.02)] and negative correlation with personality traits of negative affect (r=-0.56, p-value=0.001) [emotional lability (r=-0.46, p-value=0.01), anxiety (r=-0.48, p-value=0.01), separation insecurity (r=-0.41, p-value=0.02)], detachment (r=-0.48, p-value=0.01) [only with anhedonia (r=-0.79, p-value=<0.001)], psychotism (r=-0.55, p-value=0.001), perseverance (r=-0.56, p-value=0.001), submission (r=-0.51, p-value=0.004) and depression (r=-0.74, p-value=<0.001). However, it is noteworthy that when analyzing male cases separately, life satisfaction is only positively correlated with the well-being index (r=0.75, p-value=0.01) and the resilience control scale (r=0.64, p-value=0.04), while negatively correlated with

anhedonia (r=-0.80, p-value=0.80), depression (r=-0.92, p-value=<0.001), and distraction (r=-0.61, p-value=0.04) of the personality scale.

Well-being index

The well-being index correlates positively with resilience and all subscales, while at the personality scale, a negative correlation was found with negative affect (and its subdimensions), detachment (specifically with the withdrawal and anhedonia subdomain), disinhibition, hostility, perseverance, submission, depression, and suspicious. As differences between genders were found, we will first focus on women. In women, the previously explained correlations were found except for disinhibition and anxiety; positive correlation with resilience scale and its subdomains (r=0.69, p-value=<0.001) [persistency (r=0.70, p-value=<0.001), pressure (r=0.55, p-value=0.001), adaptability (r=0.52, p-value=0.003), control (r=0.70, p-value=<0.001) and spirituality (r=0.39, p-value=0.03)], and negative with the subdomains of personality of negative affect (r=-0.57, p-value=<0.001) [emotional lability (r=-0.52, p-value=0.003) and separation insecurity (r=-0.47, p-value=0.01)], detachment (r=-0.39, p-value=0.03) [withdrawal (r=-0.48, p-value=0.01) and anhedonia (r=-0.61, p-value=<0.01)], hostility (r=-0.39, p-value=0.03), perseverance (r=-0.56, p-value=0.001), submission (r=-0.65, p-value=<0.001), depression (r=-0.66, p-value=<0.001) and suspicious (r=-0.45, p-value=0.01). Some correlation that have been found only in woman are: a negative correlation with attention-seeking (r=-0.36, p-value=0.04) and psychopathy (r=-0.44, p-value=0.01) [specifically, with the subdomains of unusual thoughts (r=-0.37, p-value=0.04), eccentricity (r=-0.39, p-value=0.03), and perceptual dysregulation (r=-0.41, p-value=0.02)] domains of personality scale. In the case of men, there was no correlation with resilience scale score, but there was a negative correlation with the following domains of personality scale: hostility (r=-0.69, p-value=0.02), perseverance (r=-0.61, p-value=0.04), affective restriction (r=-0.66, p-value=0.03), negative affect (r=-0.69, p-value=0.02) [with withdrawal (r=-0.7, p-value=0.02) and anhedonia (r=-0.83, p-value=0.01)], depression, (r=-0.78, p-value=0.01) and detachment (r=-0.73, p-value=0.01)].

Self-control

Self-control shows a positive correlation with resilience and all its subscales except for spirituality, with which there is no significant correlation. In the case of women the correlation with resilience (r=0,05, p-value=0.003) and its subscales [persistency (r=0.51, p-value=0.003), pressure (r=0.51, p-value=0.004), adaptability (r=0.39, p-value=0.03) and control (r=0.39, p-value=0,003)] is present, and a negative relationship is also established with the personality subdomain of depression (r=-0.37, p-

value=0.04). In the case of men, self-control is only positively correlated with anxiety (r=0.62, p-value=0.04).

Resilience

Resilience exhibits a negative correlation with negative affect (and separation insecurity), detachment (specifically with anhedonia), disinhibition, eccentricity, perceptual dysregulation, perseverance, submission, depression, and suspicion. In women, a negative correlation was found with all of the following items of personality: negative affect (r=-0.53, p-value=0.002) [and the subdomains of emotional lability (r=-0.58, p-value=0.04), anxiety (r=-0.42, p-value=0.20) and separation insecurity (r=-0.45, p-value=0.01)], detachment (r=0.38, p-value=0.04) [with the subdomain of anhedonia (r=-0.51, p-value=0.004)], disinhibition (r=-0.42, p-value=0.02) [with the subdomain of impulsiveness (r=-0.36, p-value=0.04)], perseverance (r=-0.49, p-value=0.01), submission (r=-0.70, p-value<0.001), depression (r=-0.63, p-value<0.001), suspicious (r=-0.44, p-value=0.01) and perceptual dysregulation (r=-0.45, p-value=0.02). Individually in men, no significant correlations can be established between resilience and any personality domain.

Table 5.

Life satisfaction, well-being index, self-control, resilience, and personality Pearson's Correlations.

	LIFE SATISFACTION		WELL-BEING INDEX		SELF - CONTROL		RESILIENCE	
	r	p-value	r	p-value	r	p-value	r	P-value
Well-being index	**0.61**	**<0.001**	-	-				
Resilience	**0.51**	**<0.001**	**0.59**	**<0.001**	**0.46**	**0.002**	-	-
Persistence	**0.43**	**0.01**	**0.56**	**<0.001**	**0.38**	**0.01**	-	-
Adaptability	**0.37**	**0.02**	**0.41**	**0.01**	**0.34**	**0.03**	-	-
Pressure	**0.37**	**0.02**	**0.46**	**0.002**	**0.48**	**0.001**	-	-
Control	**0.65**	**<0.001**	**0.59**	**<0.001**	**0.31**	**0.04**	-	-
Spirituality	**0.34**	**0.03**	**0.38**	**0.01**	0.26	0.095	-	-
Personality (PID5)	**-0.51**	**<0.001**	**-0.53**	**<0.001**	0.02	0.87	**-0.37**	**0.02**
Negative affect	**-0.51**	**<0.001**	**-0.61**	**<0.001**	0.02	0.89	**-0.41**	**0.01**
Emotional lability	**-0.35**	**0.03**	**-0.44**	**0.003**	0.11	0.48	-0.20	0.18
Anxiety	**-0.46**	**0.002**	**-0.41**	**0.01**	0.09	0.54	-0.29	0.07
Separation insecurity	**-0.35**	**0.02**	**-0.46**	**0.002**	-0.05	0.77	**-0.39**	**0.01**
Detachment	**-0.48**	**0.001**	**-0.42**	**0.01**	-0.18	0.25	**-0.36**	**0.02**

Withdrawal	**-0.33**	**0.03**	**-0.42**	**0.01**	-0.23	0.14	-0.29	0.06
Anhedonia	**-0.79**	**<0.001**	**-0.65**	**<0.001**	-0.11	0.51	**-0.45**	**0.003**
Intimation avoidance	-0.05	0.75	0.02	0.87	0.05	0.74	-0.03	0.84
Antagonism	0.02	0.90	-0.01	0.93	0.14	0.38	0.13	0.42
Handling	0.09	0.57	0.19	0.22	0.07	0.68	0.17	0.29
Deceit	-0.04	0.80	-0.14	0.36	0.16	0.31	0.08	0.62
Grandiosity	0.15	0.34	0.21	0.19	0.08	0.59	0.19	0.22
Disinhibition	**-0.35**	**0.03**	**-0.35**	**0.02**	-0.06	0.71	**-0.31**	**0.05**
Irresponsibility	-0.08	0.58	-0.25	0.11	-0.19	0.23	-0.20	0.21
Impulsiveness	-0.25	0.1	-0.25	0.10	0.00	0.99	-0.26	0.09
Distraction	**-0.39**	**0.01**	**-0.35**	**0.02**	0.05	0.78	-0.28	0.07
Psychotism	**-0.47**	**0.002**	**-0.37**	**0.02**	-0.07	0.65	**-0.33**	**0.03**
Unusual beliefs and experiences	**-0.33**	**0.03**	-0.25	0.11	0.03	0.84	-0.14	0.37
Eccentricity	**-0.47**	**0.002**	**-0.36**	**0.02**	-0.08	0.62	**-0.31**	**0.05**
Perceptual dysregulation	**-0.36**	**0.02**	**-0.31**	**0.04**	-0.15	0.34	**-0.41**	**0.01**
Others								
Hostility	**-0.32**	**0.04**	**-0.45**	**0.003**	-0.17	0.29	-0.24	0.12
Perseverance	**-0.50**	**<0.001**	**-0.58**	**<0.001**	0.03	0.86	**-0.40**	**0.01**
Submission	**-0.50**	**<0.001**	**-0.59**	**<0.001**	0.06	0.71	**-0.56**	**<0.001**
Affective restriction	-0.21	0.18	-0.18	0.25	-0.23	0.15	-0.27	0.09
Depression	**-0.76**	**<0.001**	**-0.68**	**<0.001**	-0.23	0.15	**-0.59**	**<0.001**
Suspicious	-0.21	0.19	**-0.43**	**0.004**	-0.05	0.76	**-0.38**	**0.01**
Atten seek	-0.10	0.52	-0.21	0.19	0.21	0.18	0.03	0.83
Callousness	-0.37	0.81	-0.18	0.25	-0.09	0.55	-0.06	0.71
Risk taking	-0.18	0.27	-0.08	0.62	-0.08	0.60	-0.09	0.56
Rigidity and perfectionism	0.01	0.93	-0.07	0.66	0.22	0.16	0.09	0.57

4. DISCUSSION

This study aimed to establish relationships between intelligence quotient (IQ) and academic talent with personality traits, resilience, well-being, and self-control in medical students at the University of Vic - Central University of Catalonia. In our study, no significant relationship could be established between IQ and academic talent. Considering the obtained results, we can observe that the students reflected an overall high level of self-control while displaying a high frequency of negative affect. In Italy, a study

was conducted that observed how the COVID-19 confinement greatly affected the mental health of students, significantly increasing their negative affect [19]. This is an important point to consider as it highlights the influence of external factors. However, a negative correlation was observed with deceit and callousness, suggesting that individuals who are more sincere and empathetic tend to have higher IQ. Regarding academic talent, our sample revealed that students with higher levels of the domains of persistence and control of the resilience scale, and intimidation avoidance of personality, achieve better academic results. Based on these findings, the initial hypotheses formulated could not be validated.

Like other studies, important correlations were found between personality traits, self-control, emotional well-being, as well as considerable gender differences. We found a relationship where greater life satisfaction was associated with better well-being and resilience, but we can't stablish a relationship with the intelligence quotient. Life satisfaction has also been negatively related to negative affect, anhedonia, withdrawal, as well as psychotism and disinhibition. This is complemented by the findings of a study where participants with lower emotional intelligence experienced higher levels of stress and depression, and a positive relationship between stress and depression was observed [20]. Focusing on well-being, it has been found that higher well-being is associated with a greater degree of resilience. Conversely, participants with higher levels of negative affect, anhedonia, disinhibition, submission, depression, and hostility had lower levels of well-being. For women, it was found that higher levels of psychotism were associated with lower emotional well-being, which aligns with the results of a study that observed higher levels of neuroticism in women compared to men [21]. A study conducted during the COVID-19 pandemic in university students found that better mood was associated with lower levels of neuroticism, as well as higher levels of extraversion and openness to experience [22]. It should be noted that the personality test administered to our students does not directly assess openness to experience, but this personality dimension has been negatively correlated with the PID-5 subdomains of negative affect, detachment, and disinhibition, and positively correlated with antagonism [23]. Self-control has been associated with higher levels of resilience, but in the case of women, it has been observed that they have lower levels of self-control at lower levels of depression, while men showed higher levels of self-control at higher levels of anxiety. Gender differences are also controversial, as different studies yield different results. A systematic review found that men have higher levels of extraversion and openness to experience compared to women [24], while a study with medical students found that women exhibit more negative affect and men exhibit more antagonism [25]. In contrast, a study conducted with university students observed that men have higher levels of negative affect and women have higher levels of detachment [6]. In our sample, women present a higher frequency of depression compared to men, who present more anxiety. At the level of

personality traits, it has not been possible to observe significant differences between genders that support the literature found, but this could be due to the size of the sample. Given the sample size of the study and the specific population studied (medical students in the 4th and 5th academic year at UVIC-UCC), a larger sample with greater variability and more representation of high abilities and academic talent would be needed to verify the proposed hypotheses.

Limitation

Based on the results obtained in this study, several considerations should be taken into account. First and foremost, the main limitation is the sample. This study was conducted on a very specific sample, and the low participation rate is its main limitation, making the results less generalizable to the general population. Another limitation is the study design, as it is a cross-sectional study that does not allow for tracking the participants' progression in the observed variables. Finally, the third limitation impacts the comparison of genders in the results, as the percentage of women is much higher than that of men.

Conflict of interest

The authors report no conflicts of interest.

CONCLUSION

In summary, this study aimed to establish relationships between high abilities and academic talent with various psychological variables. Few relationships were found between intelligence quotient and academic talent, but associations were observed between certain personality traits and well-being, life satisfaction, self-control, and resilience. In the participants studied, it has not been possible to verify that those with high capacities have a better perception of well-being, nor has it been possible to verify that those without academic talent have a lower sense of life. With the results obtained, we can affirm that those people with higher IQ are more sincere and empathetic, while those with higher academic results are more persistent and have more control. On the other hand, the results obtained suggest that well-being is related to many different factors, such as satisfaction with life, resilience, and different personality traits, so it is intuited that personality has considerable effect on well-being and life satisfaction as well as vice versa. This field still requires further studies and research, particularly in individuals with high abilities and adolescents, to assess whether they truly have specific characteristics and whether it is associated with a higher risk of psychopathology to establish preventive measures.

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