

RESEARCH ARTICLE (ORIGINAL) 

## Perceived emotional intelligence among higher education health students

*A inteligência emocional percebida em estudantes do ensino superior de cursos de saúde*

*La inteligencia emocional percibida en los estudiantes de estudios de salud de la enseñanza superior*

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### Abstract

**Background:** Perceived emotional intelligence (PEI) is the ability to understand emotions, which is crucial in academic settings. It is known that students with a higher PEI have better personal and professional performance.

**Objective:** To assess the levels of PEI among health students at a higher education institution in Portugal.

**Methodology:** Descriptive study, with a non-probability convenience sample of 94 students. An on-line questionnaire was applied with sociodemographic questions and the Trait Meta-Mood Scale-24 (TMMS-24).

**Results:** The mean PEI score for students was 85.90 [24,120]. Older students and those in master's programs had the highest PEI scores. Among master's students, those attending the Palliative Care program had the highest PEI scores.

**Conclusion:** Joint projects should be developed between higher education institutions, healthcare institutions, and policymakers to support students in the development of PEI.

**Keywords:** emotional intelligence; students; emotional adjustment; higher education, mental health

### Resumo

**Enquadramento:** A inteligência emocional percebida (IEP) é a habilidade para compreender emoções, aspeto crucial em contextos académicos, pois sabe-se que os estudantes com maior IEP apresentam melhores performances pessoais e profissionais.

**Objetivo:** Avaliar níveis de IEP em estudantes de cursos superiores da área da saúde, numa instituição de ensino superior em Portugal.

**Metodologia:** Estudo descritivo, com uma amostra não probabilística por conveniência com 94 estudantes. Aplicado questionário eletrónico com questões sociodemográficas e a Escala Trait Meta-Mood Scale-24 (TMMS-24).

**Resultados:** Verificou-se que o valor médio de IEP dos estudantes foi de 85,90 [24,120], sendo os estudantes com mais idade e a frequentarem mestrados os que apresentaram valores mais elevados de IEP. Dos mestrados, os estudantes do curso de Cuidados Paliativos, apresentaram valores de IEP mais elevados.

**Conclusão:** Sugere-se o desenvolvimento de projetos conjuntos entre instituições de ensino superior, e de saúde assim como decisores políticos que apoiem os estudantes no desenvolvimento da IEP.

**Palavras-chave:** inteligência emocional; estudantes; ajustamento emocional; ensino superior, saúde mental

### Resumen

**Marco contextual:** La inteligencia emocional percibida (IEP) es la capacidad de comprender las emociones, un aspecto crucial en contextos académicos, ya que se sabe que los estudiantes con mayor IEP tienen un mejor rendimiento personal y profesional.

**Objetivo:** Evaluar los niveles de IEP en estudiantes de cursos superiores en el área de la salud en una institución de enseñanza superior en Portugal.

**Metodología:** Estudio descriptivo con una muestra no probabilística por conveniencia formada por 94 estudiantes. Se aplicó un cuestionario electrónico con preguntas sociodemográficas y la Escala Trait Meta-Mood Scale-24 (TMMS-24).

**Resultados:** Se observó que el valor medio de IPE de los estudiantes era de 85,90 [24,120] y que los estudiantes de más edad y los que cursaban estudios de máster presentaban valores de IPE más elevados. De los estudiantes de máster, aquellos de los estudios de Cuidados Paliativos tenían los valores más altos de IPE.

**Conclusión:** Se sugiere que se desarrollen proyectos conjuntos entre instituciones de enseñanza superior y sanitarias, así como responsables políticos, para apoyar a los estudiantes en el desarrollo de la IPE.

**Palabras clave:** inteligencia emocional; estudiantes; ajuste emocional; enseñanza superior, salud mental



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## Introduction

When students enter higher education, they are faced with the need to adapt to a new reality that may affect their mental health. This new experience can lead to a state of greater vulnerability, which can result in increased psychological distress, poor academic performance (Ferreira et al., 2023; Romeira et al., 2021), and unsatisfactory academic outcomes leading to school dropout (Sun & Lyu, 2022).

This phenomenon is intensified among higher education health students, as they begin their clinical training in practical settings early in their programs, caring for others in emotionally challenging environments where they are regularly confronted with human suffering and death. Moreover, as professionals, society expects them to be able to establish effective interpersonal relationships with staff, patients, and families, and as such, they must be able to effectively manage the emotions inherent in these interactions and provide efficient responses in short periods of time. Therefore, during their undergraduate studies, they should develop specific skills that empower them in this area. It is known that health professionals [former students] who have a better understanding of their own emotions and those of others have higher levels of humanization, satisfaction, and safety in the provision of care (Machado et al., 2021).

This study aimed to assess the levels of PEI among health students at a higher education institution in the central region of Portugal.

## Background

The development of emotional competencies has gained greater interest among researchers in recent years. The concept of emotional intelligence (EI) emerged with Goleman as the basis for emotional management processes. This concept refers to the ability to understand and manage one's emotions and those of others (Lamprea-Raposo et al., 2023). It is divided into four domains: self-awareness, self-management, social awareness, and social management, which feed back into each other, since it is not possible to have social skills without empathy or self-management without self-awareness (Chung et al., 2023). Studies on EI become relevant because it is known that there is an association between high levels of EI and the presence of effective personal skills to overcome obstacles during academic life (Alvi et al., 2023; Hwang & Kim, 2023; Sousa et al., 2022) and later in the challenges that the profession will impose (Rodríguez-Leal et al., 2023; Vidal Barrantes, 2023). It is also known that high levels of EI can be protective agents against anxiety, depression, and stress (Dasor et al., 2023), and that they affect the adaptability and academic performance of higher education students (Soma et al., 2021; Idrogo Zamora, & Asenjo-Alarcón, 2021). When integrated into learning processes, EI enables students to overcome adversity, adapt to imminent changes, and resolve situations of uncertainty and personal challenge

(Telaska & Minho, 2022). Therefore, psychological support programs have been promoted to develop EI in higher education students, contributing to the development of self-confidence, psychological well-being, and better levels of EI (Campos et al., 2023). These programs address the acceptance and validation of emotions and are crucial for positive social relationships among all members of the academy and even academic success (Almegeewly et al., 2022; Campos et al., 2023).

Therefore, students should be able to develop their PEI, which is the ability to understand, clarify, and regulate their emotions (Salovey et al., 1995; Fernandez-Berrocá et al., 2004). This is particularly true for higher education health students due to the challenges they will face in caring for others and the need for emotional self-regulation.

## Research question

What are the levels of PEI among health students at a higher education institution in the central region of Portugal?

## Methodology

A quantitative descriptive study was conducted in a higher education institution in the central region of Portugal using a non-probability convenience sample of 94 students from bachelor's and master's programs in nursing, physiotherapy, speech therapy, occupational therapy (OT), and dietetics and nutrition (DN). Due to the low response rate among OT ( $n = 3$ ) and DN ( $n = 2$ ) students, data from these two programs were combined. The authors designed a two-part online questionnaire using the Google Forms® platform. The first part consisted of sociodemographic data and the second part of 24 questions from the Trait Meta-Mood Scale-24 (TMMS-24; Queirós et al., 2005). This scale measures PEI, which is defined as an individual's ability to understand, clarify, and regulate emotions. It can measure whether students are at greater or lesser risk of transition or maintenance, thus improving their performance and contributing to their success (Sousa, 2019). It consists of 24 items grouped into three factors of eight items each. The three factors are: Attention to feelings, Clarity in Discrimination of Feelings, and Mood Repair. Each item is scored from 1 to 5, where 1 means *strongly disagree*, 2 *disagree*, 3 *neutral*, 4 *agree*, and 5 *strongly agree* (Queirós, 2021). Attention is the ability to feel and express emotions in an appropriate way, that is, the level of attention to feelings that people think they have. Clarity means that people have a good understanding of their emotions, that is, people are aware of and understand their own emotions. Finally, Repair indicates the person's ability to regulate their emotional state correctly, that is, the individual's belief in their ability to stop negative emotional states and prolong positive ones (Queirós et al., 2005).

This scale was validated with higher education students in Portugal, with a Cronbach's alpha value for the total

scale and the three factors above 0.80. The Cronbach's alpha values for each factor were as follows:  $\alpha = 0.87$  for Attention,  $\alpha = 0.89$  for Clarity, and  $\alpha = 0.80$  for Repair (Sousa, 2019). In this study, the total internal consistency value obtained for the three factors was  $\alpha = 0.921$ . The  $\alpha$  values found for each factor were as follows:  $\alpha = 0.890$  for Attention,  $\alpha = 0.902$  for Clarity, and  $\alpha = 0.906$  for Repair. Since these values are between 0.70 and 0.90, they are considered to have good internal consistency (Dixe, 2022).

Data were processed using IBM SPSS Statistics software, version 28, 2021. Descriptive statistics (mean, median, absolute and relative values, standard deviation) and inferential statistics were used. The normality of the variables was assumed using the central limit theorem, since the sample size was 94 students, which is more than the minimum of 30 required. Levene's test was used to check the homogeneity of the variances. The Student's *t*-test was used to compare two independent variables and the ANOVA test to compare three or more independent variables.

This study was approved by the Ethics Committee of the institution where the study was carried out under number CE/IPLEIRIA/06/2023. Intellectual property rights

were respected through a formal request to the author who validated the scale for the Portuguese population. Informed consent was also obtained from each student who voluntarily decided to participate in the study by answering a question before completing the data collection instrument. The rules of the STrengthening the Reporting of OBservational studies in Epidemiology (STROBE) statement checklist were followed.

## Results

This study analyzed 94 responses from students at a higher education institution in central Portugal (Table 1). The minimum age of the sample was 18 years and the maximum was 55 years ( $M = 25 \pm 8.848$ ). All students (100%) were Portuguese, with the majority belonging to the central geographical area (77.7%). In this sample, 20.2% of students were working students. Regarding the cycle of studies, 84% were bachelor's degree students and 16% master's degree students. Among the areas of study at the institution, no responses were obtained from physiotherapy or speech therapy students.

**Table 1**

*Sociodemographic data of the sampled students*

Variables	Min.	Max.	<i>M</i>	<i>SD</i>	<i>n</i>	%
Age	18	55	25.14	8.848	94	100
≤ 19 years					17	18.1
20-25 years					55	58.5
≥ 26 years					22	23.4
Gender						
Female					88	93.6
Male					6	6.4
Nationality						
Portuguese					94	100
Geographical area						
North					5	5.3
Center					73	77.7
Lisbon and Tagus Valley					13	13.8
Algarve					1	1.1
Azores					2	2.1
Working student						
Yes					19	20.2
No					75	79.8
Cycle of studies						
Bachelor's degree					79	84.0
Master's degree					15	16.0
Area of studies						
Nursing					82	87.2
OT/DN					5	5.4
Palliative Care					7	7.4

*Note.* Min. = Minimum; Max. = Maximum; *M* = mean; *SD* = Standard deviation; *n* = Sample size; % = Percentage; OT = Occupational therapy; DN = Dietetics and nutrition.

Table 2 shows the descriptive analysis of the TMMS-24 factors. The mean value for the Attention factor was higher than the values found for the other factors ( $M = 31.16 \pm 6.25$ ). It should be noted that the maximum value for each factor was 40 and the minimum was 8.

The maximum value for the total scale was 120 and the minimum was 24, and the percentage of the mean value of PEI found in the sample ( $M = 85.90$ ) corresponded to 71.58% (Table 2).

**Table 2**

*Descriptive data of the TMMS-24 factors*

Variables	<i>n</i>	Min.	Max.	<i>M</i>	<i>SD</i>
Factors	94	9	40	31.16	6.25
Attention	94	10	40	26.67	6.78
Clarity	94	8	40	28.07	6.36
Repair	94	28	115	85.90	15.09
Total Scale					

*Note.* *n* = Sample size; Min. = Minimum; Max. = Maximum; *M* = Mean; *SD* = Standard deviation.

Table 3 shows that the highest mean scores in the Attention factor, which refers to students' ability feel and express their feelings in an appropriate way, were obtained by female students. As well the older students in all factors and the total scale. It should be noted that master's students also had the highest scores for the Attention factor ( $M = 32.00 \pm 4.00$ ). In the factors related to Clarity, which refers to the understanding of emotional states, and

Repair, which refers to the ability to regulate emotional states correctly, the highest mean scores were obtained by master's students in palliative care programs ( $M = 33.29 \pm 4.49$ ). Master's students had the highest mean PEI scores ( $M = 94.33 \pm 13.47$ ) compared to bachelor's students ( $M = 84.30 \pm 14.92$ ). Regarding age, students aged 26 years or older had the highest PEI scores ( $M = 90.55 \pm 18.85$ ; Table 3).

**Table 3***Descriptive data of the sociodemographic variables by TMMS-24 factors*

Variables	<i>n</i>	Min.	Max.	<i>M</i>	SD	
Attention	Female	88	9	40	31.33	6.19
	Male	6	22	39	28.67	7.06
	≤ 19 years	17	9	39	27.12	8.06
	20-25 years	55	22	40	32.51	4.97
	≥ 26 years	22	10	38	30.91	6.46
	Bachelor's degree	79	9	40	31.00	6.59
	Master's degree	15	23	38	32.00	4.00
	Nursing	82	9	40	31.00	6.53
	OT/DN Palliative Care	5 7	29 23	36 37	32.60 32.00	2.70 4.65
Clarity	Female	88	10	40	26.41	6.80
	Male	6	23	37	30.50	5.50
	≤ 19 years	17	12	35	23.24	6.51
	20-25 years	55	15	40	26.69	5.86
	≥ 26 years	22	10	39	29.27	8.11
	Bachelor's degree	79	10	40	25.72	6.71
	Master's degree	15	26	39	31.67	4.68
	Nursing	82	10	40	26.00	6.82
	OT/DN Palliative Care	5 7	26 29	32 39	28.40 33.29	2.30 4.49
Repair	Female	88	8	40	27.98	6.49
	Male	6	23	33	29.50	3.83
	≤ 19 years	17	9	36	26.12	6.69
	20-25 years	55	17	40	27.76	5.63
	≥ 26 years	22	8	40	30.36	7.37
	Bachelor's degree	79	8	40	27.58	6.32
	Master's degree	15	22	40	30.67	6.05
	Nursing	82	8	40	27.79	6.24
	OT/DN Palliative Care	5 7	17 22	33 40	27.60 <b>31.71</b>	6.95 7.18
Total Scale	Female	88	28	115	85.72	15.15
	Male	6	71	106	88.67	15.13
	≤ 19 years	17	32	102	76.47	17.26
	20-25 years	55	58	115	86.96	11.30
	≥ 26 years	22	28	114	90.55	18.85
	Bachelor's degree	79	28	115	84.30	14.92
	Master's degree	15	74	114	94.33	13.47
	Nursing	82	28	115	84.79	15.15
	OT/DN Palliative Care	5 7	81 74	95 114	88.60 97.00	6.58 15.26

*Note.* *n* = sample size; Min. = minimum; Max. = maximum; *M* = mean; SD = standard deviation; OT = occupational therapy; DN = dietetics and nutrition.

Table 4 shows the difference between sociodemographic variables and the factors using the Student's *t*-test and the ANOVA test. A statistically significant difference was found for age in the Attention ( $p = 0.014$ ), Clarity ( $p = 0.041$ ), and Repair ( $p = 0.026$ ) factors and in the total TMMS-24 ( $p = 0.005$ ). The mean scores in the previous table show that older students had higher mean PEI scores ( $76.47 \pm 17.26$  for younger students and  $90.55 \pm 18.85$  for older students). The statistical difference between the cycles

of studies (bachelor's and master's degrees) and the factors was also calculated. Although Table 3 already shows higher mean scores for master's students, a statistically significant difference was only found for the Clarity factor ( $p = 0.047$ ), indicating that master's students had different PEI scores compared to bachelor's students. It should be noted that the scores obtained by bachelor's students were lower ( $25.72 \pm 6.71$ ) than those obtained by master's students ( $31.67 \pm 4.68$ ). The ANOVA test was used to analyze the difference



between the factors and the type of health degree attended by the students, which revealed a statistically significant difference between the groups and the Clarity factor ( $p = 0.001$ ). A post hoc test (Bonferroni test) was performed to

determine which groups showed this statistically significant difference, revealing a significant difference for palliative care students on the Clarity factor ( $p = 0.037$ ) compared to the other groups.

**Table 4**

*Association between TMMS-24 factors and students' sociodemographic variables, using parametric tests*

Variables		$p$ (student's $t$ -test)	$p$ (ANOVA)	$p$ (Bonferroni test)
Age	Attention		0.014	
	Clarity		0.041	
	Repair		0.026	
	Total Scale		0.005	
Cycle of studies (bachelor; master)	Clarity	0.001		
	Total Scale	0.017	0.047	
Area of studies (nursing; OT; DN; palliative care)	Clarity			0.001
	Total Scale			0.017
Palliative care	Clarity			0.037

*Note.*  $p$  = significance test; OT = occupational therapy; DN = dietetics and nutrition.

## Discussion

Participants were predominantly female (93.6%), which is in line with national statistics on gender representation in health professions. According to data from the 2021 census, they are composed of 40.32% men and 59.68% women (Pordata, 2022). The results also showed that students had a PEI score of 71.58% ( $M = 85.90 [24.120]$ ). Although this is a positive result, it still needs to be improved since the development of soft skills, including EI, is related to interpersonal and socio-emotional skills that are highly sought after in the job market (Sancho-Cantus et. al., 2023; Villán-Vallejo et al., 2022). Thus, the development of this field will boost competitiveness in the job market by enabling better performance and more empowered professionals. To achieve this, it is essential to implement effective interventions, from undergraduate to postgraduate training. EI can be developed by implementing and promoting group work, oral assessments, and dynamic and interactive socio-behavioral activities (Pádua et al., 2021). Through the development of EI, these strategies can empower students to recognize, manage, and control feelings and emotions, thereby improving levels of resilience and perseverance in times of fragility (Goleman, 2016). This study found that this skill should be most developed in undergraduate education ( $M = 84.30 \pm 14.92$ ). These results can be explained by the fact that master's students have academic training in personal development course units, more training in emotional self-awareness and self-management strategies, and are the oldest group. Previous studies (Costa et al., 2021) have shown that age is positively correlated with PEI. With regard to the area of studies, statistically significant differences were found for the Clarity factor ( $p = 0.001$ ), with palliative care students ( $p = 0.037$ ) having the highest PEI scores ( $M = 33.29 \pm 4.499$ ). It is known that EI

is essential in this area of care (Pimenta & Calvalcante, 2022), since professionals are expected to deliver bad news frequently, alleviate suffering, promote comfort, and focus on the other person's wishes, even if they differ from their own. Thus, the development of EI to manage emotions and feelings is essential for the professional's self-care and for the quality of the care provided. EI is acquired with experience, in clinical contexts, where professionals develop individual and team strategies that enable them to carry out the difficult task of accompanying someone in the dying process (Pimenta & Calvalcante, 2022).

The limitations of this study are the size of the sample, when analyzing the groups of students by area of studies. For this reason and the low number of responses (less than 10% of the population of the institution where the study was conducted), the results cannot be generalized. Future studies should be conducted in other higher education institutions with health programs to minimize the constraints inherent in the specific structure of the programs, which may differ from institution to institution, and to explore causes and strategies currently used by students, through mixed studies.

## Conclusion

The development of PEI in higher education students can be considered as an indicator of the quality of their performance and their preparation for entering the job market. The PEI values found suggest the need to develop and update projects in academic contexts that support students in developing this soft skill. The undergraduate training of health professionals is still very focused on know-how and does not adequately prepare future health professionals for the demanding challenges of caring for people, where emotional stability is crucial. The alarm-

ing increase in mental health problems associated with emotional disorders is a matter of growing concern, so healthcare institutions, higher education institutions, and policymakers should collaborate on joint projects that can reverse this situation, which is expected to become a public health problem in the medium term, with economic, professional, social, and political consequences.

### Author contributions

Conceptualization: Almeida, C. M., Almeida, L. S., Jordão, M. G., Pinto, S. S., Costeira, C.

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