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Cross-cultural adaptation and validation for European Portuguese of the Clance Impostor Phenomenon Scale

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Cross-cultural adaptation and validation for European Portuguese of the Clance Impostor Phenomenon Scale

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LIST OF ABBREVIATIONS AND ACRONYMS

Abbreviation	Explanation
CIPS	Clance Impostor Phenomenon Scale
FMUC	Faculty of Medicine of the University of Coimbra
GAD-2	Generalized Anxiety Disorder-2
IP	Impostor Phenomenon
KMO	Kaiser-Meyer-Olkin test
PCA	Principal components analysis
PHQ-2	Patient Health Questionnaire-2
PHQ-4	Patient Health Questionnaire for Depression and Anxiety
SPSS	Statistical Package for the Social Sciences

ABSTRACT

Background: The Impostor Phenomenon (IP) occurs in individuals who, despite concrete evidence of their academic and/or professional success, are unable to internalize it. IP has harmful consequences for mental health and is more prevalent in women, medical students, and health professionals.

Aim: Determine the prevalence of the IP in Portuguese Medical Students of the Faculty of Medicine of the University of Coimbra (FMUC), from the 1st to the 6th year, in the academic year 2020/2021. It was intended to verify if its prevalence was different due to gender and the year of medical school attendance as well as whether there was a relationship between distress in students and the IP and between this and satisfaction with the curriculum average.

Methods: Cross-cultural adaptation to European Portuguese of the Clance IP Scale (CIPS) by translation, linguistic verification, and back translation. Its internal consistency and reliability were evaluated. The IP´s prevalence was determined through the CIPS, and its results were correlated with the Patient Health Questionnaire for Depression and Anxiety (PHQ-4) scale. The data collection instrument was sent/replied through each year's social network. Descriptive and inferential statistical analysis of the data was performed.

Results: CIPS demonstrated good internal consistency with a *Cronbach´s Alfa* of 0.755. When applying *Mann-Whitney U test*, no significant differences were found between the two response times and between genders. From the 277 participants enrolled in the validation phase, 11.6% experienced few, 29.6% moderate, 42.2% frequent and 16.6% intense impostor feelings. Women had the highest prevalence of the IP (p=0.030) and no significant differences were found between the several years of attendance (p=0.362). CIPS showed a moderate and significant correlation with the PHQ-4 scale (ρ=0.565; p<0.01). Impostor feelings were related to a lower satisfaction with the curriculum average (p<0.001).

Discussion: Recognize and manage IP is fundamental. Further researches are needed to evaluate its impact in mental health, especially regarding Burnout. It will also be worth expanding the CIPS´s application to other Portuguese university students as well as to health professionals.

Conclusion: The CIPS was successfully cross-culturally adapted and validated to the European Portuguese. A prevalence of 83,4% for more than moderate Impostor feelings,

higher in women but not different throughout the clinical years was found. IP showed to be related to a lower satisfaction with the average curriculum mark, as well as with a greater distress.

RESUMO

Introdução: O Fenómeno do Impostor (FI) ocorre em indivíduos que, apesar das evidências concretas do seu sucesso académico e/ou profissional, são incapazes de o interiorizar. Tem consequências nefastas para a saúde mental, sendo mais prevalente em mulheres, estudantes de medicina e profissionais de saúde.

Objetivos: Determinar a prevalência do FI em Estudantes de Medicina Portugueses da Faculdade de Medicina da Universidade de Coimbra (FMUC), do 1º ao 6º ano, no ano letivo 2020/2021. Em particular, pretendeu-se perceber se essa prevalência era diferente em função do sexo e dos anos de frequência bem como se havia relação entre o *distress* nos alunos e o FI e entre este e a satisfação com a média curricular.

Métodos: Adaptação cultural da *Clance IP scale* (CIPS) realizando a tradução, verificação linguística e retrotradução da escala para Português Europeu. Consistência interna e confiabilidade foram avaliadas. Determinou-se a prevalência do FI, através da CIPS e os resultados foram correlacionados com a escala *Patient Health Questionnaire for Depression and Anxiety* (PHQ-4). O instrumento de colheita de dados foi enviado/respondido através da rede social de cada ano. Foi realizada estatística descritiva e inferencial dos dados.

Resultados: A CIPS apresentou um *Cronbach´s Alfa* de 0.755, demonstrando boa consistência interna. Quando aplicado o teste *U de Mann-Whitney,* não foram encontradas diferenças significativas entre os dois tempos de resposta e entre os sexos. Dos 277 participantes envolvidos na fase de validação, 11.6% experienciaram poucos, 29.6% moderados, 42.2% frequentes e 16.6% intensos sentimentos de impostor. As mulheres tiveram a maior prevalência de FI (p=0.030) e não foram encontradas diferenças significativas entre os vários anos de frequência (p=0.362). A CIPS e a escala PHQ-4 apresentaram uma correlação moderada e significativa (ρ=0.565; p<0.01). Sentimentos de impostor foram relacionados com uma menor satisfação com a média curricular (p<0.001).

Discussão: É fundamental reconhecer e controlar o FI. Mais estudos serão necessários para avaliar o seu impacto na saúde mental, especialmente relativamente ao *Burnout.* Deverá expandir-se a aplicação da CIPS a outros estudantes universitários bem como a profissionais de saúde.

Conclusões: Foi realizada a adaptação cultural para Português Europeu da CIPS bem como a sua validação. Verificou-se uma prevalência de sentimentos de impostor

moderados a intensos de 83,4%, sendo esta maior em mulheres, mas não diferindo ao longo dos anos clínicos. O FI mostrou estar relacionado com uma menor satisfação com a média curricular, bem como com um maior *distress psicológico.*

Palavras-Chave: Fenómeno do Impostor; CIPS; Estudantes de Medicina; *Distress psicológico*; PHQ-4; Saúde Mental

BACKGROUND

The Impostor Phenomenon (IP), first described in 1978 by psychologists Pauline Rose Clance and Suzanne Imes, as an "internal experience of intellectual phoniness",[1] occurs in individuals who, despite concrete evidence of their academic and/or professional success, are unable to internalize it. It is estimated that 70% of people will experience IP at least once.[2]

These people attribute their achievements to luck, hard work, faulty judgment of professors/supervisors, personal sacrifice and charm, ability to read and meet other´s expectations and not to their intellectual capacity.[1,3] When compared to other successful people, they are convinced they are "impostors", which causes a constant fear of failure and being exposed as a fraud.[1,2]

The Clance Impostor Phenomenon Scale (CIPS), a measure of 20 items, developed to help identify IP and assess its severity,[2] was published in 1985.[4] This tool includes items which incorporates, among others, the fear of being evaluate, of not being able to repeat success, and of being less capable than peers.[3] The CIPS's standardized factorial solution includes 3 principal components analysis (PCA): *Fake, Luck* and *Discount.*[5] However, other researchers identified one-factor[6] and four-factor[7] models as other favourable factorial solutions. A high level of internal consistency has been reported for the CIPS, with a *Cronbach's alpha* of 0.96.[3]

Despite this phenomenon affects both, men, and women, it appears to be more prevalent and severe in women.[2] In fact, a recent study showed that more females (41% - 52%) experienced clinical levels of IP compared to males (23.7% - 48%).[8] The first studies on this topic appointed a societal sex-role stereotyping of women as less capable than men[3] transmitted through the family at an early age,[1] as a reason. Thus, women had lower expectancies of successful performances than men, and when achieve that, tended to find explanations other than their own intelligence.[1] As highly achieving and independent women can be considered as exhibitionistic, snobbish, or less feminine by society,[1] gender inequality appears to contribute to the IP`s development.

The IP has harmful consequences for mental health, as it causes distress, anxiety and depression, lack of self-confidence and frustration related to the inability to meet self-imposed standards of achievement.[1,2] Previous investigations showed that IP is significantly associated with burnout indices including emotional exhaustion, depersonalization, and reduced personal accomplishment.[9] The Patient Health Questionnaire for Depression and Anxiety (PHQ-4) scale was published in 2009 by

Kroenke and collaborators. Consisting of 4 items only, it is a reliable screening tool for anxiety and depression.[10]

By the demanding and competitive nature of their training, IP is predominant in medical students and health professionals.[2] In fact, a recent study revealed that from 233 medical students, nearly 90% experienced at least moderate levels of IP, with over 40% experiencing frequent or intense IP.[11] Some educators make medical knowledge look intellectually unapproachable. In such cases, IP can arise in students who are invested in learning and tend to simplify the concepts.[12] A fixed mindset of believing that ability cannot be improved can also be a significant constraint on the growth and learning.[2]

On the other hand, the high prevalence of IP appears not to decrease with more years of experience.[2] In research involving American Medical Students from all years of the course, the 4th year was significantly associated with an increase in IP compared with earlier years.[9] Nevertheless, there are still no research on the prevalence of IP in Portuguese Medical Students, so its study is of utmost importance. After all, we are talking about the well-being and mental health of future doctors.

The aim of this work was to determine the prevalence of the Impostor Phenomenon in Portuguese Medical Students of the Faculty of Medicine of the University of Coimbra, from the 1st to the 6th year, in the academic year 2020/2021. To do it, CIPS was cross-culturally adapted to European Portuguese. It was intended to understand if CIPS´s results were different by to gender and the years of attendance as well as whether there was a relationship between distress in students and the Impostor Phenomenon and between this and satisfaction with the curriculum average.

METHODS

1ˢᵗ Phase: cross-cultural adaptation to Portuguese European spoken of the Clance Impostor Phenomenon Scale (CIPS)

After an in-depth bibliographic review, no cross-cultural adaptation or validation of the CIPS for Portuguese European spoken was found. Consequently, CIPS was translated and cross-culturally adapted to European Portuguese with the author's permission (Annex I), for its use, following the ethics approval by the Ethics Committee of the Faculty of Medicine of the University of Coimbra (Annex II).

This was a three steps procedure:

Translation: into European Portuguese of the original English version of the scale (Annex III) by two experts fluent in English.

Linguistic verification: by a team of experts, fluent in both languages, English and European Portuguese. They compared the two translated versions against the original scale version and gave its opinion on the most approximate formulation of English semantic.

Back-translation: into English by two other English experts, fluent in Portuguese who were not aware of the original scale. In this stage, it was intended to perceive if there were no differences of content between the original version versus the back-translated one.

The final translated version of CIPS (Annex IV) was then applied in written self-response, followed by a new oral application, to a convenience sample of 24 medical students of the Faculty of Medicine of the University of Coimbra (FMUC), to confirm its internal consistency, understanding, reliability and time to fill-in. Due to the COVID19 pandemics, the contact was established through a videocall. This set of students consisted of 3 female students and 1 male student from each of the years of medical school attendance, in the academic year 2020/2021, chosen according to each year's course committee. This proportion was chosen to match the 3:1 of the FMUC's population. Consent informed was requested and all participants agreed voluntarily to participate in the study. The time between scale applications was always of at least 10 minutes, to know the consistency.

2nd Phase: Validation of the CIPS and determination of Impostor Phenomenon´s prevalence

Study design and sample

An observational, descriptive, and correlational study was conducted with Portuguese medical students enrolled in the FMUC, from the 1st to 6th year, in the academic year 2020/2021.

A size representative sample was calculated mathematically according to the number of medical students registered in the FMUC, in the academic year 2020/2021 and for an interval of 95% and a margin of error of 5%, as a minimum of n=242 participants.

The invitation to participate in this study was sent, due to the COVID19 pandemics, through each year's social network groups of the 1st to 6th year of the Medical Course of the University of Coimbra. It was made after the Faculty's Ethics Committee approval for data collection (Annex II) and the CIPS´s author permission the Scale´s use (Annex I).

The medical students who agreed to participate accessed an Internet link where the questionnaire was accessed. The questionnaire (Annex V) included, in addition to CIPS and PHQ-4 scale, questions related to gender, year of medical school attendance (from 1st to 6th), satisfaction with the curriculum average numerical grade and the last three digits of each participant´s mobile number (to ensure non-repetition of answers).

Data collection and statistical analysis

The data collection instrument was sent/replied in a google-forms, only one answer per person allowed, with an introduction text where participants were introduced to the study aim. Expressed consent was mandatory to keep filling in. Data collection was automatic after online questionnaire´s conclusion and submission. Anonymity and confidentiality of the participants were guaranteed throughout the procedure.

After data collection process, which occurred between March and June of 2021, descriptive and inferential statistical analysis of the data was performed, parametric for normal distribution data and nonparametric for data without normal distribution or for ordinal variables. For this purpose, the 27th edition of the IBM Statistical Package for the

Social Sciences (SPSS) Statistics was used, setting a p value of <0.05 for statistical significance.

For the cross-cultural adaptation to European Portuguese of CIPS, *Cronbach's alfa if item-excluded; F-test; Kolmogorov-Smirnov test* with *Lilliefors significance correction* were used. Concerning CIPS´s validation, the statistical tests used were *Kaiser-Meyer-Olkin (KMO) test, Bartlett´s test of sphericity* and a *principal components extraction method with varimax factor rotation with Kaiser normalization.*

Chi square test and *Mann-Whitney U test* were applied to understand if the IP´s prevalence among Portuguese Medical Students was different due to gender and satisfaction with the curriculum average. On the other hand, *Kruskal Wallis Tests* was used to find out if the IP´s prevalence was different due to years of medical school attendance.

To determine if Distress in students and the IP were related, *Spearman correlation* and *Pearson correlation* were employed.

A statistical analysis using the 4 factors: Discount, Luck, Fake and Fear was performed. To do so, *t-two-tailed test*, *ANOVA test* and *Pearson correlation* were used.

Data will be kept in form for a minimum period of 5 years, after which it will be deleted.

Tools

- ▪ **CIPS**

CIPS is a *Likert* scale, consisting of 20 items, that was developed to help people determine if they have IP characteristics and, if so, to what extent they are suffering. Each item is assigned a value from 1 to 5: 1-not at all true; 2-rarely; 3-sometimes; 4-often; 5- very true.[4]

Total score can range from 20 to 100 and is obtained from the sum of the 20 items' individual scores. Thus, according to the total score, there are 4 levels in which the IP manifests itself: Few Impostor characteristics (if the total score is 40 or less); Moderate IP experiences (if the score is between 41 and 60); Frequent Impostor feelings (for a score between 61 and 80) and Intense IP experiences (for a score higher than 80). The higher the score, the more frequently and seriously the Impostor Phenomenon interferes in a person´s life.[4]

The CIPS appears to be the instrument of choice for clinical and research purposes.[5]

- **PHQ-4**

The Patient Health Questionnaire for Depression and Anxiety (PHQ-4) is a *Likert* scale as well, consisting of 4 items, which combine the Patient Health Questionnaire-2 (PHQ-2) and Generalized Anxiety Disorder-2 (GAD-2), a two-item measures for depression and anxiety disorders, respectively.[10]

The PHQ-4 scale evaluates the severity of anhedonia, depressed mood, excessive anxiety, and uncontrollable worry over the last two weeks.[13]

Responses are scored as: 0- not at all; 1- several days; 2- more than half the days; 3- nearly every day. Therefore, the total score ranges from 0 to 12 and, according to it, Distress is categorized as none (0-2), mild (3-5), moderate "yellow flag" (6-8), and severe "red flag" (9-12).[10,14]

On the GAD-2 and PHQ-2, subscales of the PHQ-4 scale, scores of ≥ 3 are cut-off points between the normal range and probable case of anxiety or depression, respectively. Scores of 5 or greater are considered "red flags" for these disorders.[10,14]

RESULTS

1st Phase

After the primary process, the final translated version of the "Clance Impostor Phenomenon Scale" (CIPS), consisting of 20 items, was obtained (Annex IV).

A sample of 24 medical students of the Faculty of Medicine of the University of Coimbra was obtained. This set of students consisted of 3 female and 1 male students from each of the six years of medical school attendance.

The 1st application of the CIPS led to a *Cronbach's alpha* of 0.755. The *Cronbach's alpha* in case each item of the scale is excluded ranged from 0.738 (item 15) to 0.751 (item 1 and item 8). The *F-test* has showed a significance (p value) < 0.001 meaning that the *Cronbach's alpha* is an exact value. These data are detailed in Table I.

Table 1 Assessment of the value of each CIPS item if the item is excluded- 1st time

	Average	Scale variance	Corrected Item-Total Correlation	*Cronbach's alpha*
1st Time **CIPS Items**				**0.755**
1. Muitas vezes, tive sucesso num teste ou tarefa apesar de ter medo de não ser capaz de o(a) fazer bem antes da sua realização.	121.5417	783.389	0.413	0.751
2. Consigo dar a impressão de que sou mais competente do que realmente sou.	122.3333	776.145	0.446	0.749
3. Evito avaliações se possível e tenho medo de ser avaliado por outros.	122.2917	759.868	0.489	0.744

Item				
4. Quando alguém me elogia pelos meus sucessos, fico com medo de não conseguir atingir as expectativas que terão de mim no futuro.	121.8750	758.201	0.723	0.742
5. Às vezes, penso que só consegui atingir a minha posição ou os meus sucessos atuais porque tive a sorte de estar no lugar certo no tempo certo ou porque conheci as pessoas certas.	122.2917	761.955	0.574	0.744
6. Tenho medo de que as pessoas que me são chegadas possam descobrir que não sou tão capaz como pensam que sou.	122.3750	751.375	0.769	0.740
7. Tenho tendência a lembrar-me mais dos momentos em que não fiz o meu melhor mais do que dos momentos em que o fiz.	121.9583	763.259	0.617	0.744
8. Eu raramente faço um projeto ou tarefa tão bem como gostaria.	122.0833	779.819	0.334	0.751
9. Às vezes, sinto ou acredito que o sucesso na minha vida ou trabalho é o resultado de algum tipo de erro.	123.4583	766.433	0.627	0.745
10. É-me difícil aceitar louvores ou elogios sobre a minha inteligência ou sucessos.	122.5000	766.261	0.549	0.746
11. Por vezes sinto que o meu sucesso se deve a sorte.	122.3333	764.841	0.733	0.744
12. Por vezes, sinto-me desiludido com os meus sucessos atuais e penso que devia ter conseguido mais.	121.8333	766.145	0.537	0.746

13. Por vezes, tenho medo de que outros descubram quantos conhecimentos ou habilidades me faltam na realidade.	122.1667	747.710	0.741	0.739
14. Muitas vezes, tenho medo de poder falhar numa tarefa ou projeto novo apesar do facto de que geralmente as coisas que faço me correm bem.	121.5417	765.042	0.799	0.744
15. Quando tenho sucesso em algo e sou reconhecido por aquilo que consegui, fico na dúvida sobre se consigo continuar a obter o mesmo sucesso.	121.8750	746.288	0.838	0.738
16. Se receber muitos elogios e louvores por algum sucesso, tenho a tendência a negligenciar a importância daquilo que fiz.	122.1667	763.188	0.632	0.744
17. Muitas vezes, comparo as minhas habilidades com a habilidade das pessoas à minha volta e fico a pensar que eles são mais inteligentes do que eu.	121.5000	748.522	0.790	0.739
18. Muitas vezes, preocupo-me por não ter sucesso nalgum projeto ou avaliação, apesar das pessoas à minha volta terem muita confiança em que vou conseguir.	121.7083	756.216	0.753	0.741
19. Se vou receber uma promoção ou reconhecimento de algum tipo, hesito	121.8333	752.058	0.677	0.740

em dizer a outras pessoas, até ter a certeza do facto.			
20. Sinto me muito mal e desanimado se não sentir que sou "o melhor" ou pelo menos "muito especial" em situações que envolvem sucesso.	122.7083	772.911	0.427	0.748

Using the *Mann-Whitney U test* to compare the answers between the two timepoints, first one written and the second one oral, for all items individually and for the overall response to CIPS, a significance level greater than 0.05 was obtained, as shown in Table 2.

Table 2 *Mann-Whitney U test* used to compare the answers between the two timepoints.

	P value		P value
Item oral versus Item written		**Item oral versus Item written**	
Item 1 oral- Item 1 written	1.000	Item 11 oral- Item 11 written	0.632
Item 2 oral- Item 2 written	0.657	Item 12 oral- Item 12 written	1.000
Item 3 oral- Item 3 written	0.975	Item 13 oral- Item 13 written	0.848
Item 4 oral-Item 4 written	0.611	Item 14 oral-Item 14 written	0.902
Item 5 oral- Item 5 written	0.838	Item 15 oral- Item 15 written	0.693
Item 6 oral- Item 6 written	0.788	Item 16 oral- Item 16 written	0.594
Item 7 oral- Item 7 written	0.661	Item 17 oral- Item 17 written	0.797
Item 8 oral- Item 8 written	0.724	Item 18 oral- Item 18 written	0.923

Item 9 oral-Item 9 written	0.201	Item 19 oral-Item 19 written	0.916
Item 10 oral-Item 10 written	0.346	Item 20 oral-Item 20 written	0.466
CIPS total oral-CIPS total written	**0.877**		

To understand if there were different responses between genders, the *Kolmogorov-Smirnov test* with *Lilliefors significance correction* was first applied to know if the numerical variable had a normal distribution. With a *Kolmogorov-Smirnov test* value of 0.106 and a bilateral simptotic significance with *Lilliefors test* value of 0.200, it was concluded that the distribution was not normal. Nonparametric tests as *Mann-Whitney U test* showed that there are no differences in responses between genders. These data are detailed in Table 3.

Table 3 *Mann-Whitney U test* used to compare the answers between genders.

	P value		P value
Item women versus Item men		**Item women versus Item men**	
Item 1 women- Item 1 men	0.743	Item 11 women- Item 11 men	0.229
Item 2 women- Item 2 men	0.034	Item 12 women- Item 12 men	0.677
Item 3 women- Item 3 men	0.585	Item 13 women- Item 13 men	0.560
Item 4 women-Item 4 men	0.861	Item 14 women-Item 14 men	0.485
Item 5 women- Item 5 men	0.357	Item 15 women- Item 15 men	0.490
Item 6 women- Item 6 men	0.653	Item 16 women- Item 16 men	0.776
Item 7 women- Item 7 men	0.112	Item 17 women- Item 17 men	0.532

Item 8 women- Item 8 men	0.581	Item 18 women- Item 18 men	0.604
Item 9 women-Item 9 men	0.169	Item 19 women-Item 19 men	0.945
Item 10 women-Item 10 men	0.972	Item 20 women-Item 20 men	0.102
CIPS total women-CIPS total men	**0.815**		

2ⁿᵈ Phase

Sample´s characteristics

A convenience size representative sample of 277 medical students was enrolled to be studied. The sample's size calculation was of n=242 minimum size.

From the population, 22.7% (n=63) were male, 17.7% (n=49) were in the 1ˢᵗ year, 12.3% (n=34) in the 2ⁿᵈ, 13.7% (n=38) in the 3ʳᵈ, 17.3% (n=48) in the 4ᵗʰ, 21.3% (n=59) in the 5ᵗʰ and 17.7% (n=49) in the 6ᵗʰ year.

In this sample, 43% (n=119) were satisfied with the curriculum average numerical grade and the majority of these were women (n=90; 32.5%). Of the 158 medical students who were not satisfied with the curriculum average, 124 (44.8%) were women.

There were no statistical differences for gender in relation to the year of medical school attendance (p=0.501) or for satisfaction with the curriculum average numerical grade (p=0.338), as shown in Table 4.

Table 4 Characterisation of the sample

	Gender, n (%)			
Characteristics	**Male** n=63 (22.7)	**Female** n=214 (77.3)	**Sample Total** **n (%)** n=277 (100.0)	**P value**
Year of medical school attendance, n (%) (*)				0.501

1st	10 (3.6)	39 (14.1)	49 (17.7)	
2nd	6 (2.2)	28 (10.1)	34 (12.3)	
3rd	8 (2.9)	30 (10.8)	38 (13.7)	
4th	10 (3.6)	38 (13.7)	48 (17.3)	
5th	21 (7.6)	38 (13.7)	59 (21.3)	
6th	8 (2.9)	41 (14.8)	49 (17.7)	
Satisfaction with the curriculum average numerical grade, n (%) (**)				0.338
Yes	29 (10.5)	90 (32.5)	119 (43.0)	
No	34 (12.2)	124 (44.8)	158 (57.0)	

(*) Mann-Whitney U; (**) χ2

Validation of the CIPS

The tool´s factor structure was examined based on principal components analysis (PCA). The *Kaiser-Meyer-Olkin (KMO) test and Bartlett´s test of sphericity* were used to guarantee that the sample size and the data were sufficient for performing factor analysis.

The *KMO* index of sampling adequacy in the present sample was 0.951 and the *Bartlett´s test* for sphericity was significant, χ2 (190) =3508.583, p<0.001. These results revealed that the data were robust enough to be studied.

A *principal components extraction method with varimax factor rotation with Kaiser normalization* was employed. It yielded four factors for the 20-items of CIPS, accounting for 66.61% of the model's variance, meaning $2/3$ of information`s variance. Factor 1 (Discount) accounted for 50,64%, Factor 2 (Luck) for 6,35%, Factor 3 (Fake) for 4,92% and Factor 4 (Fear) for 4,71% of the Information. Items loading on each factor exceed the 0.4 threshold criterion,[15] as shown in Table 5, with Portuguese translation.

Table 5 Factor loadings with varimax rotation with Kaiser normalization for CIPS items (N=277)

CIPS items	Factor 1 (Discount)	Factor 2 (Luck)	Factor 3 (Fake)	Factor 4 (Fear)
10. É-me difícil aceitar louvores ou elogios sobre a minha inteligência ou sucessos.	0.723			
19. Se vou receber uma promoção ou reconhecimento de algum tipo, hesito em dizer a outras pessoas, até ter a certeza do facto.	0.699			
4. Quando alguém me elogia pelos meus sucessos, fico com medo de não conseguir atingir as expectativas que terão de mim no futuro.	0.689			
16. Se receber muitos elogios e louvores por algum sucesso, tenho a tendência a negligenciar a importância daquilo que fiz.	0.659			
15. Quando tenho sucesso em algo e sou reconhecido por aquilo que consegui, fico na dúvida sobre se consigo continuar a obter o mesmo sucesso.	0.644			
7. Tenho tendência a lembrar-me mais dos momentos em que não fiz o meu melhor mais do que dos momentos em que o fiz.	0.534			
12. Por vezes, sinto-me desiludido com os meus sucessos atuais e penso que devia ter conseguido mais.	0.521			
8. Eu raramente faço um projeto ou tarefa tão bem como gostaria.	0.486			
5. Às vezes, penso que só consegui atingir a minha posição ou os meus sucessos atuais porque tive a sorte de estar no lugar certo no tempo certo ou porque conheci as pessoas certas.		0.831		
11. Por vezes sinto que o meu sucesso se deve a sorte.		0.804		

9. Às vezes, sinto ou acredito que o sucesso na minha vida ou trabalho é o resultado de algum tipo de erro.	0.743		
2. Consigo dar a impressão de que sou mais competente do que realmente sou.		0.739	
13. Por vezes, tenho medo de que outros descubram quantos conhecimentos ou habilidades me faltam na realidade.		0.595	
20. Sinto me muito mal e desanimado se não sentir que sou "o melhor" ou pelo menos "muito especial" em situações que envolvem sucesso.		0.561	
6. Tenho medo de que as pessoas que me são chegadas possam descobrir que não sou tão capaz como pensam que sou.		0.507	
3. Evito avaliações se possível e tenho medo de ser avaliado por outros.		0.470	
1. Muitas vezes, tive sucesso num teste ou tarefa apesar de ter medo de não ser capaz de o(a) fazer bem antes da sua realização.			0.856
18. Muitas vezes, preocupo-me por não ter sucesso nalgum projeto ou avaliação, apesar das pessoas à minha volta terem muita confiança em que vou conseguir.			0.582
14. Muitas vezes, tenho medo de poder falhar numa tarefa ou projeto novo apesar do facto de que geralmente as coisas que faço me correm bem.			0.564
17. Muitas vezes, comparo as minhas habilidades com a habilidade das pessoas à minha volta e fico a pensar que eles são mais inteligentes do que eu.			0.434

PHQ-4 scale and CIPS descriptive statistics based on gender.

According to Table 6:

Based on the responses to the PHQ-4 scale, 60.6% (n=168) of medical students were not affected by anxiety. Of the 109 medical students who had a positive screening for anxiety (39.4%), n=89; 7.2% were women. For depression, 33.6% (n=93) of respondents had a positive screening, not statistically significant for gender (p=0.160 and p=0.797, respectively).

For distress, 31.8% (n=88) of participants were not affected. For 31% (n=86) mild distress was revealed the majority being women (n=72; 26.0%). For 22.7% (n=63) and for 14.4% (n=40) of respondents moderate and severe distress, was found. These results revealed significant gender differences (p=0.015), meaning that females were more affected by this problem than males.

From the application of the CIPS, n=117; 42.2%, had Frequent Impostor Feelings while 29.6% (n=82), 16.6% (n=46) and 11.6% (n=32) revealed Moderate, Intense and Few Impostor Characteristics, respectively. In all categories women were the ones who had the highest prevalence of the IP characteristics. Significant differences (p=0.030) were found for genders, according to Table 6.

Table 6 PHQ-4 scale and CIPS descriptive statistics based on gender.

| | | Gender, n (%) | | Sample Total, n (%) | P value |
	Criterion	Male n=63 (22.7)	Female n=214 (77.3)	n=277 (100.0)	
PHQ-4 Scale					
Anxiety (*)	Sum of items 1 and 2 scores				0.160
No	0 to 2 points	43 (15.5)	125 (45.1)	168 (60.6)	
Yes	≥3 points	20 (32.1)	89 (7.2)	109 (39.4)	

Depression (*)	Sum of items 3 and 4 scores				0.797
No	0 to 2 points	41 (14.8)	143 (51.6)	184 (66.4)	
Yes	≥3 points	22 (7.9)	71 (25.6)	93 (33.6)	
Distress (**)	Sum of the four item scores				0.015
None	0 to 2 points	30 (10.8)	58 (20.9)	88 (31.8)	
Mild	3 to 5 points	14 (5.1)	72 (26.0)	86 (31.0)	
Moderate	6 to 8 points	12 (4.3)	51 (18.4)	63 (22.7)	
Severe	9 to 12 points	7 (2.5)	33 (11.9)	40 (14.4)	
<u>**CIPS (**)**</u>	Sum of the twenty item scores				0.030
Few Impostor Characteristics	≤ 40 points	13 (4.7)	19 (6.9)	32 (11.6)	
Moderate IP Experiences	41 to 60 points	20 (7.2)	62 (22.4)	82 (29.6)	
Frequent Impostor Feelings	61 to 80 points	21 (7.6)	96 (34.7)	117 (42.2)	
Intense IP Experiences	> 80 points	9 (3.2)	37 (13.4)	46 (16.6)	

(*) χ2; (**) Mann-Whitney U

An analysis was also carried out using the 4 factors: Discount, Luck, Fake and Fear. The statistical test used was the *t-two-tailed test*. It revealed significant gender differences for Factor 1 (p=0.016) and Factor 4 (p=0.001), meaning that women have a greater inability to recognize a good performance (Discount) and more fear of failure than men.

PHQ-4 scale and CIPS descriptive statistics based on year of medical school attendance.

Considering PHQ-4 scale`s answers, the most affected medical school attendance years by anxiety were the 1st (n=21; 7.6%), 5th (n=21; 7.6%) and 6th (n=21; 7.6%), 2nd year (n=10; 3.6%) being the least affected one, no statistical differences being found (p=0.994), as shown in Table 7.

Of the 93 medical students who had a positive screening for depression (33.6%), the majority attended 1st year of medical school (n=25; 9.0%) and respondents from the 5th and 6th years were the least affected (n=40; 14.4%). According to Table 7, significant differences (p=0.002) were found for the different Years of medical school attendance.

For distress, participants enrolled at 5th year were the most affected ones by mild distress (n=22; 7.9%), while medical students attending the 6th and the 4th year were the most affected by moderate (n=14; 3.1%) and severe distress (n=10; 3.6%), respectively.

From the application of the CIPS, the year of medical school attendance in which most medical students had frequent Impostor feelings was the 5th (n=28; 10.1%). The 1st year showed a high prevalence of few impostor characteristics (n=9; 3.2%). The 6th year demonstrated a high prevalence of moderate IP experiences (n=23; 8.3%). The year of medical school attendance most often and seriously affected by IP is the 4th with a very high score that refers to intense IP experiences (n=13; 4.7%).

There were no statistical differences for the Year of medical school attendance in relation to distress (p=0.805) or to CIPS classes (p=0.362), according to Table 7.

Table 7 PHQ-4 scale and CIPS descriptive statistics based on Year of medical school attendance.

	Criterion	Year of medical school attendance, n (%)						Sample Total, n (%) n=277 (100.0)	P value
		1st n=49 (17.7)	2nd n=34 (12.3)	3rd n=38 (13.7)	4th n=48 (17.3)	5th n=59 (21.3)	6th n=49 (17.7)		
PHQ-4 Scale									
Anxiety (*)	Sum of items 1 and 2 scores								0.994
No	0 to 2 points	28 (10.1)	24 (8.7)	20 (7.2)	30 (10.8)	38 (13.7)	28 (10.1)	168 (60.6)	
Yes	≥3 points	21 (7.6)	10 (3.6)	18 (6.5)	18 (6.5)	21 (7.6)	21 (7.6)	109 (39.4)	
Depression (*)	Sum of items 3 and 4 scores								0.002
No	0 to 2 points	24 (8.7)	24 (8.7)	22 (7.9)	34 (12.3)	40 (14.4)	40 (14.4)	184 (66.4)	
Yes	≥3 points	25 (9.0)	10 (3.6)	16 (5.8)	14 (5.1)	19 (6.9)	9 (3.2)	93 (33.6)	
Distress (*)	Sum of the four item scores								0.805

None	0 to 2 points	13 (4.7)	14 (5.1)	9 (3.2)	19 (6.9)	18 (6.5)	15 (5.4)	88 (31.8)	
Mild	3 to 5 points	15 (5.4)	8 (2.9)	14 (5.1)	11 (4.0)	22 (7.9)	16 (5.8)	86 (31.0)	
Moderate	6 to 8 points	12 (4.3)	8 (2.9)	10 (3.6)	8 (2.9)	11 (4.0)	14 (3.1)	63 (22.7)	
Severe	9 to 12 points	9 (3.2)	4 (1.4)	5 (1.8)	10 (3.6)	8 (2.9)	4 (1.4)	40 (14.4)	
CIPS (*)	Sum of the twenty item scores								0.362
Few Impostor Characteristics	≤ 40 points	9 (3.2)	2 (0.7)	4 (1.4)	6 (2.2)	8 (2.9)	3 (1.1)	32 (11.6)	
Moderate IP Experiences	41 to 60 points	13 (4.7)	14 (5.1)	8 (2.9)	8 (2.9)	16 (5.8)	23 (8.3)	82 (29.6)	
Frequent Impostor Feelings	61 to 80 points	17 (6.1)	13 (4.7)	21 (7.6)	21 (7.6)	28 (10.1)	17 (6.1)	117 (42.2)	
Intense IP Experiences	> 80 points	10 (3.6)	5 (1.8)	5 (1.8)	13 (4.7)	7 (2.5)	6 (2.2)	46 (16.6)	

(*) Kruskal-Wallis test

The *ANOVA test* was used to verify if there were statistically significant differences based on the year of medical school attendance associated to the 4 factors previously identified: Discount, Luck, Fake and Fear. The results did not reveal statistically significant differences for all the Factors: Factor 1 (p=0.601), Factor 2 (p=0.868), Factor 3 (p=0.201) and Factor 4 (p=0.247).

PHQ-4 scale and CIPS descriptive statistics based on satisfaction with the curriculum average numerical grade.

From the application of the PHQ-4 scale, it was perceived that the majority of medical students who had a positive screening for anxiety, revealed to be dissatisfied with their curriculum average numerical grade (n=76; 27.4%). The same was the case for depression: of the 93 students who had a positive screening for depression (33.6%), the majority was not satisfied with their curriculum average (n=64; 23.1%). These results showed statistical differences (p=0.001 and p=0.005, respectively), according to Table 8.

Regarding distress, for all types of distress (mild, moderate, and severe), the most affected students were the ones who were most dissatisfied with curriculum average (mild distress, n=48, 17.3%; moderate distress, n=43, 15.5%; severe distress, n=31, 11.2%). There were significant statistical differences obtained based on the satisfaction with the curriculum average numerical grade in relation to distress (p<0.001), as shown in Table 8.

Respondents with frequent Impostor feelings and intense IP experiences were more dissatisfied with their curriculum average (n=80; 28.9% and n=35; 12.6%, respectively) than participants who had few Impostor characteristics and moderate IP Experiences (n=6; 2.2% and n=37; 13.4%, respectively). These results revealed statistical differences (p<0.001). More detailed data can be found on Table 8.

Table 8 PHQ-4 scale and CIPS descriptive statistics based on satisfaction with the curriculum average numerical grade.

	Satisfaction with the curriculum average numerical grade, n (%)	Sample Total, n (%)	P value

Criterion		Yes n=119 (43.0)	No n=158 (57.0)	n=277 (100.0)	
PHQ-4 Scale					
Anxiety (*)	Sum of items 1 and 2 scores				0.001
No	0 to 2 points	86 (31.0)	82 (29.6)	168 (60.6)	
Yes	≥3 points	33 (11.9)	76 (27.4)	109 (39.4)	
Depression (*)	Sum of items 3 and 4 scores				0.005
No	0 to 2 points	90 (32.5)	94 (33.9)	184 (66.4)	
Yes	≥3 points	29 (10.5)	64 (23.1)	93 (33.6)	
Distress (**)	Sum of the four item scores				< 0.001
None	0 to 2 points	52 (18.8)	36 (13.0)	88 (31.8)	
Mild	3 to 5 points	38 (13.7)	48 (17.3)	86 (31.0)	
Moderate	6 to 8 points	20 (7.2)	43 (15.5)	63 (22.7)	
Severe	9 to 12 points	9 (3.2)	31 (11.2)	40 (14.4)	
CIPS (**)	Sum of the twenty item scores				<0.001
Few Impostor Characteristics	≤ 40 points	26 (9.4)	6 (2.2)	32 (11.6)	
Moderate IP Experiences	41 to 60 points	45 (16.2)	37 (13.4)	82 (29.6)	
Frequent Impostor Feelings	61 to 80 points	37 (13.4)	80 (28.9)	117 (42.2)	
Intense IP Experiences	> 80 points	11 (4.0)	35 (12.6)	46 (16.6)	

(*) χ2; (**) Mann-Whitney U

Considering the 4 factors, an analysis was performed for Discount, Luck, Fake and Fear. The *t-two-tailed test* shown that the students who revealed a lower satisfaction with the curriculum average were those who had a major inability to recognize a good performance (Discount), those who thought they were lucky instead of able (Luck), those who had more concerns about their own intelligence (Fake) and greater Fear of failure. For all the factors, the p-value was < 0.001.
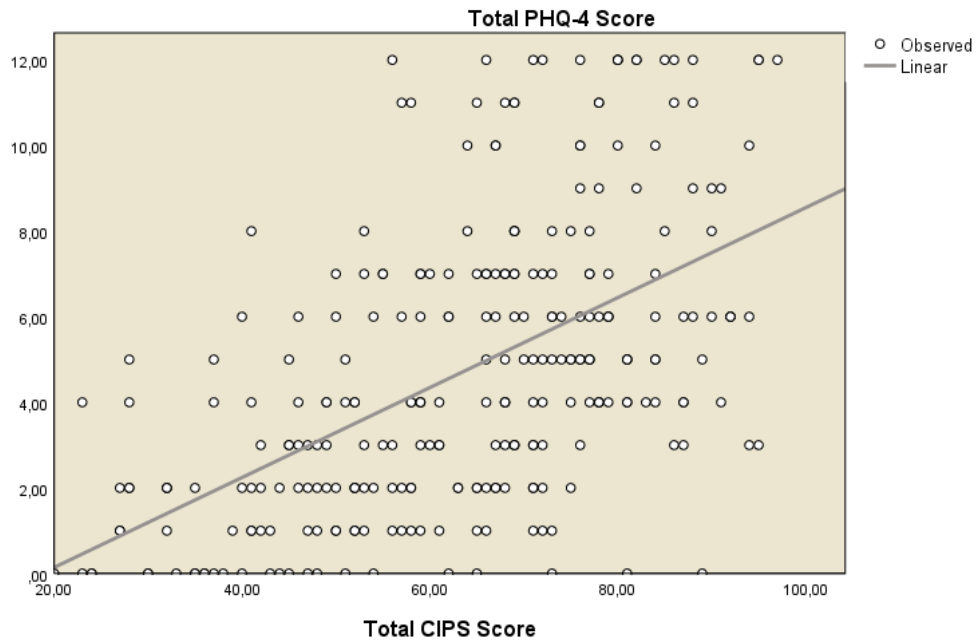
Correlation between the CIPS and PHQ-4

The *Spearman correlation* between the CIPS and the Distress classes and the *Pearson*'s one for CIPS and PHQ-4 scores was determined. According to Table 9, both correlations were moderate and significant (p<0.01).

Table 9 *Spearman correlation* of CIPS and distress classes and *Pearson's correlation* for total CIPS and PHQ-4 scores.

Tool	n	Distress classes	Total Score PHQ-4/Distress
CIPS classes	277	ρ =0.514; p<0.01	-------
Total Score CIPS	277	--------	ρ =0.565; p<0.01

The graphs below (graph 1 and 2) show a correlation between the total scores obtained by PHQ-4 scale and CIPS and a correlation between the Distress classes and CIPS classes, respectively. As Distress increases by both, class and numerical value, the experience of the Impostor Phenomenon also increases either by class or numerical value and is more often significant in women, as shown in Table 6.

Graph 1. Correlation between the total PHQ-4 and CIPS scores.
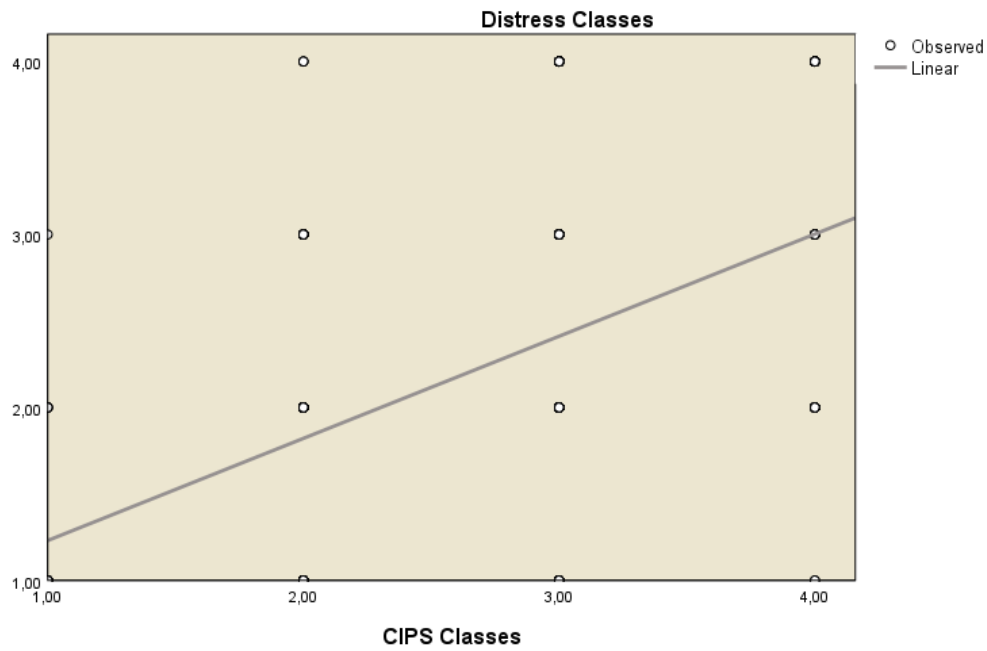
Graph 2. Correlation between the Distress Classes and CIPS Classes.

Correlation **between the PHQ-4 and each of the 4 factors: Discount, Luck, Fake and Fear.**

The *Pearson correlation* between the Total PHQ-4 scores/Distress and each of the four factors was determined. All the correlations were moderate ρ [0.40 and 0.69] and significant (p<0.001). The results are the following: ρ =0.526 for Factor 1 (Discount); ρ =0.441 for Factor 2 (Luck); ρ =0.493 for Factor 3 (Fake) and ρ =0.449 for Factor 4 (Fear). As Distress increases, the inability of recognize a good performance (Discount), the idea of Luck instead of ability, self-doubts about one´s intelligence (Fake) and the Fear of failure also increases.

Correlation between the CIPS and each of the 4 factors: Discount, Luck, Fake and Fear.

The *Pearson correlation* was also performed between the total CIPS scores and each of the four factors. All the correlations were significant (p<0.001) and strong (0.70>ρ<0.89) except two that were very strong (0.90>ρ<1.00). These are the results: ρ =0.950 for Factor 1 (Discount); ρ =0.787 for Factor 2 (Luck); ρ =0.903 for Factor 3 (Fake) and ρ =0.864 for Factor 4 (Fear). Through these results it was perceived that as the experience of the Impostor Phenomenon increases, the idea of Luck and error instead of ability, concerns about one´s ability (Fake), Fear of failure and the inability of recognize a good performance (Discount) also increases.

DISCUSSION

This study's purpose was to determine the prevalence of the IP in Portuguese Medical Students. It was intended to verify if its prevalence was different due to gender and the year of medical school attendance as well as whether there was a relationship between distress in students and the IP and between this and satisfaction with the curriculum average.

1st Phase

At this stage of the study, the goal was to cross-culturally adapt and then validate the CIPS´s to European spoken Portuguese language verifying its internal consistency. To this end, the calculation of the *Cronbach's Alfa* was performed, and it was satisfactory, α=0.755. However, it was lower than that reported in the previous research (α=0.96).[3] The determination of *Cronbach's alpha* in case each item of the scale is excluded confirmed the internal consistency.

The *Mann-Whitney U test* showed no significant differences between the two timepoints' answers for all items individually and for the overall response to CIPS, proving its reliability. It also revealed no significant differences in responses between genders.

2nd Phase

Sample´s characteristics and size

Although the study was conducted with Portuguese medical students, from the 1st to 6th year, enrolled in a single Portuguese medical school, in this case, the FMUC, its characteristics do not seem to differ regarding gender´s proportion from medical students from other colleges in the country.[16] Thus, the results obtained can reflect the Portuguese population of medical students and not only in FMUC's ones. Regarding the sample size, a total of 277 participants was studied, a number higher than the required minimum mathematically calculated (n=242).

Validation of the CIPS

This study´s results are consistent with those of three-factor[5] and four-factor[7] models previously described. In this analysis, although, a four-factor solution appeared to be more favourable than the three-factor model which is the CIPS most common factorial model.[5] Comparing the three first consecutive factors identified in the present study with those found in the three-factor solution, they are different somewhat in size, order and variance explained by the factor.[5] A decision to name them Discount, Luck and Fake, respectively, according to their original definition was made.

Therefore, the first factor, Discount, related to the inability to recognize a good performance accounted for 50.64% of the variance explained by the model. The second factor, Luck, associated to thoughts of chance, error and luck instead of ability to achieve success accounted for 6.35% of the explained variance. Fake, the third factor, was related to items of self-doubt and concerns about one´s intelligence and ability and accounted for 4.92% of the variance. A more detailed analysis, perceived that the three first consecutive factor´s order in the current model (Discount, Luck, Fake) was precisely the inverse of the one described in the standardized three-factor solution (Fake, Luck, Discount).

Regarding the fourth factor, it is consistent with the previously one identified in the four-factor model most recently described in the literature.[7] In fact, the 4 items of both factors are the same (items 1, 14 and 18), except for one item that differs (item 18 in this study and item 12 in the other). Consequently, it was labelled with the same name: Fear. Its items are also associated with fear of failure, and it accounts for 4.71% of the explained variance. Once again, making a more detailed analysis, it is perceived that these items belonged to the first factor, "Fake" factor, in the standardized three-factor model.[7]

The current four-factor model with all CIPS´s items, 20 items in total, differs from the standard three-factor model, a parsimonious one, with only 18 items. For factors 'size, it ranges from 3 to 8 items, while in the three-factor model, it ranges from 3 to 11 items. Concerning the variance explained by the factors, in the four-factor model here described, it ranges from 4.71% to 50.64%, in contrast to the three-factor model, that ranges from 6.1% to 45.2%.

Furthermore, the CIPS showed a moderate and significant correlation with the PHQ-4 scale ($\rho=0.565$; $p<0.01$), proving to be a valid scale. CIPS classes and Distress classes revealed a moderate and significant correlation ($\rho=0.514$; $p<0.01$). These correlations occur in the expected direction: as Distress in Portuguese medical students increases by

class and numerical value, the experience of the IP also increases either by class or numerical value. These outcomes support the successful validation of the CIPS.

IP´s prevalence as a function of gender, year of medical school attendance and satisfaction with the curriculum average

From the 277 participants, 11.6% experienced few, 29.6% moderate, 42.2% frequent and 16.6% intense impostor feelings, which indicates a high prevalence of IP. 88.4% of respondents had moderate to intense impostor experiences, with more than 50% of the sample, experiencing frequent or intense IP. The majority of students have frequent impostor feelings, differing from other studies´ participants who mostly had moderate impostor feelings.[11,17] This reveal a greater severity of IP in Portuguese medical students.

In all categories, women had the highest prevalence of the IP (p=0.030), which is in line with published literature.[2,9] In addition, these results indicate that women have a greater inability to recognize a good performance (Discount) and more fear of failure than men, which may explain the higher prevalence of IP, possibly representing a stressful item.

The year of medical school attendance least affected by IP is the 1st, once most medical students have few Impostor characteristics, while the most seriously affected one is the 4th with a high prevalence of intense IP experiences. The 6th and the 5th years demonstrate a higher prevalence of moderate IP experiences and frequent Impostor feelings, respectively.

The prevalence of IP is higher in students attending the clinical years and, particularly in the 4th year, as described in previous studies.[2,9] Contrary to what is described,[2,9] this work´s results showed no statistically significant differences for the Year of medical school attendance in relation to CIPS classes (p=0.362).

Impostor feelings were related to a lower satisfaction with the curriculum average (p<0.001), the expected supposition. In fact, students with frequent and intense IP experiences (higher total CIPS scores) were more dissatisfied with their curriculum average than participants who had few and moderate IP experiences (lower total CIPS scores). This can be explained by the fact that respondents who had a lower satisfaction with the curriculum average had the following traits: inability to recognize a good performance (Discount), fear of failure, concerns about one´s intelligence (Fake) and the attribution of achievements to luck instead of ability (Luck).

Study´s limitations

The results obtained and its wide acceptability, should be carefully read for in spite of no differences between gender´s proportion of medical students from other colleges in the country, it´s not known if the same is true for social, cultural, and psychological individual characteristics.

Impostor Phenomenon and the future

Impostor Phenomenon affects seriously medical students' wellbeing once it correlates with Distress, limiting them from achieving their maximum potential. Thus, three fundamental actions must be done: recognize, increase awareness, and manage IP.

Firstly, directors and professors of Portuguese Faculties of Medicine, especially from FMUC, should notice their students even the most high-achieving ones, are struggling with impostor feelings despite concrete evidence of their abilities.

Secondly, educational programs, online training modules and group setting that help undergraduates to identify IP, its consequences, and how to handle with it, must be created. These strategies aid them to realize they are not alone and let them to express feelings of liberation and empowerment which are strongly needed.[18] Recent studies reported that an online module about IP helped students to cope with stress and feelings of inadequacy as well as to decrease the intense impostor experiences.[19]

Moreover, it is imperative to modify teaching styles. A supportive and encouraging learning environment disinhibits students with impostor feelings and assists them to shift from a fixed mindset to a growth one.[2] Setbacks and struggle should be presented as an opportunity to stimulate intellectual capacities and not as a reason for shame and embarrassment. This could optimize students 'academic performance and have a positive impact on their well-being.

Regarding mindset interventions, coaching proved to be effective as it reduces IP scores, the tendency to cover up errors and the fear of negative evaluation.[20] Replacing negative thoughts with positive ones and not waiting until an idea is perfect before presenting it are useful methods not only to generate a more uncritical view of one´s ability but also to push one outside its comfort zone, stimulating growth.[2] Psychotherapy[3] and homework assignments like keeping a record of positive feedback about one´s competence[1] and

listing one´s achievements and the skills used to concretize them can contribute to focus shift from weakness to strengths.[2]

Further researches are needed to assess the impact of these interventions on reducing the impostor feelings. Additionally, other studies are essential to understand the reason why IP is more severe in Portuguese medical students and to evaluate its impact in their mental health, especially regarding Burnout.[21] It will also be worth expanding the CIPS´s application to other Portuguese university students as well as to health professionals to determine the IP´s prevalence.

CONCLUSIONS

The Clance Impostor Phenomenon Scale was successfully cross-culturally adapted and validated to European Portuguese. A prevalence of 83,4% greater than moderate Impostor Phenomenon feelings in this Portuguese medical students' sample, higher in women but not different throughout the academic years of college attendance was found. The impostor feelings were related to a lower satisfaction with the average curriculum mark, as well as with greater psychological distress.

ACKNOWLEDGEMENTS

REFERENCES

1. Clance PR, Imes SA. The impostor phenomenon in high achieving women: Dynamics and therapeutic intervention. Psychotherapy: Theory, Research & Practice [Internet]. 1978;15(3):241-7. Available from: https://doi.org/10.1037/h0086006

2. Chandra S, Huebert CA, Crowley E, Das AM. Impostor Syndrome. Chest [Internet]. 2019 Jul;156(1):26-32. Available from: https://doi.org/10.1016/j.chest.2019.02.325

3. Langford J, Clance PR. The imposter phenomenon: Recent research findings regarding dynamics, personality and family patterns and their implications for treatment. Psychotherapy: Theory, Research, Practice, Training [Internet]. 1993;30(3):495-501. Available from: https://doi.org/10.1037/0033-3204.30.3.495

4. Clance PR. The Impostor Phenomenon: When Success Makes You Feel Like a Fake. Toronto: Bantam Books; 1985. p. 20-22

5. Chrisman SM, Pieper WA, Clance PR, Holland CL, Glickauf-Hughes C. Validation of the Clance Imposter Phenomenon Scale. Journal of Personality Assessment [Internet]. 1995 Dec;65(3):456-67. Available from: https://doi.org/10.1207/s15327752jpa6503_6

6. Simon M, Choi YJ. Using factor analysis to validate the Clance Impostor Phenomenon Scale in sample of science, technology, engineering, and mathematics doctoral students. Personality and Individual Differences [Internet]. 2018 Jan;121:173-5. Available from: https://doi.org/10.1016/j.paid.2017.09.039

7. Yaffe Y. Validation of the Clance Impostor Phenomenon Scale with female Hebrew-speaking students. Journal of Experimental Psychopathology [Internet]. 2020 Oct 1;11(4):204380872097434. Available from: https://doi.org/10.1177/2043808720974341

8. Thomas M, Bigatti S. Perfectionism, impostor phenomenon, and mental health in medicine: a literature review. International Journal of Medical Education [Internet]. 2020 Sep 28;11:201-13. Available from: https://doi.org/10.5116/ijme.5f54.c8f8

9. Villwock JA, Sobin LB, Koester LA, Harris TM. Impostor syndrome and burnout among American medical students: a pilot study. International Journal of Medical Education [Internet]. 2016 Oct 31;7:364-9. Available from: https://doi.org/10.5116/ijme.5801.eac4

10. Kroenke K, Spitzer RL, Williams JB, Löwe B. An Ultra-Brief Screening Scale for Anxiety and Depression: The PHQ–4. Psychosomatics [Internet]. 2009

Nov;50(6):613-21. Available from: https://doi.org/10.1016/s0033-3182(09)70864-3

11. Shreffler J, Weingartner L, Huecker M, Shaw MA, Ziegler C, Simms T, Martin L, Sawning S. Association between Characteristics of Impostor Phenomenon in Medical Students and Step 1 Performance. Teaching and Learning in Medicine [Internet]. 2020 Jul 7:1-13. Available from: https://doi.org/10.1080/10401334.2020.1784741

12. Sotiropoulos MG. Impostor syndrome: a calling for a career in medical education? Postgraduate Medical Journal [Internet]. 2020 Jun 14:postgradmedj—2020-138360. Available from: https://doi.org/10.1136/postgradmedj-2020-138360

13. Delahunty F, Johansson R, Arcan M. Passive Diagnosis Incorporating the PHQ-4 for Depression and Anxiety. Proceedings of the Fourth Social Media Mining for Health Applications (#SMM4H) Workshop & Shared Task. 2019: 40-46. [chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/viewer.html?pdfurl=https%3A%2F%2Faclanthology.org%2FW19-3205.pdf&clen=236782&chunk=true] assessed the 26th october 2021.

14. Löwe B, Wahl I, Rose M, Spitzer C, Glaesmer H, Wingenfeld K, et al. A 4-item measure of depression and anxiety: Validation and standardization of the Patient Health Questionnaire-4 (PHQ-4) in the general population. J Affect Disord. 2010 Apr;122(1–2):86–95.

15. Floyd FJ, Widaman KF. Factor analysis in the development and refinement of clinical assessment instruments. Psychological Assessment [Internet]. 1995 Sep;7(3):286-99. Available from: https://doi.org/10.1037/1040-3590.7.3.286

16. Direção-Geral de Estatísticas da Educação e Ciência. Inscritos no Ensino Superior no ano letivo 2019/2020 [document on the Internet]. [Cited 2021 Sep 27]. Available from: https://www.dgeec.mec.pt/np4/235/ [assessed the 20th October 2020]

17. Fassl F, Yanagida T, Kollmayer M. Impostors Dare to Compare: Associations Between the Impostor Phenomenon, Gender Typing, and Social Comparison Orientation in University Students. Frontiers in Psychology [Internet]. 2020 Jun 19;11. Available from: https://doi.org/10.3389/fpsyg.2020.01225

18. Haney TS, Birkholz L, Rutledge C. A Workshop for Addressing the Impact of the Imposter Syndrome on Clinical Nurse Specialists. Clinical Nurse Specialist [Internet]. 2018;32(4):189-94. Available from: https://doi.org/10.1097/nur.0000000000000386

19. Metz CJ, Ballard E, Metz MJ. The stress of success: An online module to help first-year dental students cope with the Impostor Phenomenon. Journal of Dental

Education [Internet]. 2020 May 20;84(9):1016-24. Available from: https://doi.org/10.1002/jdd.12181

20. Zanchetta M, Junker S, Wolf AM, Traut-Mattausch E. "Overcoming the Fear That Haunts Your Success" – The Effectiveness of Interventions for Reducing the Impostor Phenomenon. Frontiers in Psychology [Internet]. 2020 May 15;11. Available from: https://doi.org/10.3389/fpsyg.2020.00405

21. Dinis T, Santiago LM, Caetano IR, Marôco J. Perfectionism, Burnout and Extracurricular Activities Among Medical Students from University of Coimbra. Acta Médica Portuguesa [Internet]. 2020 Jun;33(6):367-375. Available from: https://doi.org/10.20344/amp.12083

ANNEXES

ANNEX I – Consent form requested by Dr. Pauline Rose Clance for research purposes using CIPS.

FMUC FACULDADE DE MEDICINA
UNIVERSIDADE DE COIMBRA

Consent Form

Cross-cultural adaptation and validation for European Portuguese of the Clance Impostor Phenomenon Scale

Researches: Micaela Seabra Ruivo and Luiz Miguel Santiago

I, Micaela Ruivo, has discussed this research project "Cross-cultural adaptation and validation for European Portuguese of the Clance Impostor Phenomenon Scale" with Luiz Miguel Santiago, MD, PhD an associate Professor with Aggregation of Faculty of Medicine of the University of Coimbra. This is part of my Master's Thesis supervised by Professor Luiz Santiago.

We have agreed to obtain the permission printed information for each page of the "Clance Impostor Phenomenon Scale" (CIPS) to be we use/distribute for scientific research purposes.

Note. From The Impostor Phenomenon: When Success Makes You Feel Like A Fake (pp. 20-22), by P.R. Clance, 1985, Toronto: Bantam Books. Copyright 1985 by Pauline Rose Clance, Ph.D., ABPP. Reprinted by permission. Do not reproduce without permission from Pauline Rose Clance, drpaulinerose@comcast.net, www.paulineroseclance.com.

In addition, we commit to send a copy of my Master's Thesis to Dr. Clance for records when we have completed our research work to be added to the citation of the IP reference list.

We understand that for presentation purposes, we will be asked to send a summary of participant and our own feedback about the presentation regarding how the Impostor Phenomenon was received. We may also refer participants to Dr. Clance's website (www.paulineroseclance.com) for any interest in viewing IP articles and for Dr. Clance's contact information.

We agree that once we completed the translation of CIPS into the European Portuguese language, using "back translation" method as that is the gold standard in research for doing scale translation and that we will send to Dr. Clance a copy of the CIPS in the European Portuguese language along with European Portuguese translated CIPS test taking, scoring instructions, and copyright statement. We will as well include statistics related to the development of the translated CIPS, such as alpha reliability, validity, and principal components analysis. In brief we shall send the cross-cultural adaption report.

We understand that for research publication purpose, we must have Dr. Clance's permission to protect the copyright of the CIPS. Indeed, it is our aim to produce a report to be submitted to an international journal with peer review and impact factor and it will be our great honour to have Dr Clance as a co-author, should the deemed conditions for such to be met.

We understand that if we have any enquires, we can contact Dr. Clance (drpaulinerose@comcast.net).

Coimbra, Portugal, the 6th February 2021,

Micaela Seabra Ruivo

RE: Permission for cross-cultural adaptation to Portuguese European spoken of the "Clance IP Scale"

ⓘ   Reencaminhou esta mensagem a sáb, 06/02/2021 16:59

PC   Pauline Rose Clance <drpaulinerose@comcast.net>   ↩   ↞   →
sáb, 06/02/2021 16:57
Para: Você; 'andra gailis'

Thank you so very much.Your research will be a welcome addition and provide much needed research.
Warm Regards, Dr.Clance

From: micaela ruivo [mailto:micaruivo@hotmail.com]
Sent: Saturday, February 6, 2021 11:52 AM
To: andra gailis; drpaulinerose@comcast.net
Subject: RE: Permission for cross-cultural adaptation to Portuguese European spoken of the "Clance IP Scale"

Dear Dra. Clance,
Professor Luiz Santiago and I are very grateful for your permission to perform the cross-cultural adaptation and validation of the CIPS (Clance Impostor Phenomenon Scale) into the European Portuguese language. In brief we shall send the cross-cultural adaptation report.
As requested, I send a consent form, attached.
Sincerely,
Micaela Ruivo.

ANNEX II – Ethics approval and consent to participate.

This study has been approved by the Ethics Committee of the Faculty of Medicine of the University of Coimbra.

Envio parecer CE_Proc. CE-054/2021_Micaela Ruivo

Comissão Ética - FMUC <comissaoetica@fmed.uc.pt>
sex, 19/03/2021 15:43
Para: Você
Cc: lmsantiago@netcabo.pt

Exma. Senhora
Dra. Micaela Seabra Ruivo,

Cumpre-nos informar que o projeto de investigação apresentado por V. Exa. com o título "*Adaptação cultural e validação da escala CIPS para Português Europeu e prevalência do fenómeno do impostor em estudantes de Medicina Portugueses*", foi analisado na reunião da Comissão de Ética da FMUC de 17 de março, tendo merecido o parecer que a seguir se transcreve:

"*Parecer favorável. No entanto, sugere-se a introdução, no texto de Consentimento Informado, de uma estimativa do tempo de resposta aos questionários*".

Cordiais cumprimentos.

Helena Craveiro
Universidade de Coimbra • Faculdade de Medicina • STAG – Secretariado Executivo
Pólo das Ciências da Saúde • Unidade Central Azinhaga de Santa Comba, Celas
3000-354 COIMBRA • PORTUGAL
Tel.: +351 239 857 708 (Ext. 542708) | Fax: +351 239 823 236
E-mail: comissaoetica@fmed.uc.pt | www.fmed.uc.pt

ANNEX III – Clance Impostor Phenomenon Scale (CIPS) in English (original version)

Clance IP Scale

For each question, please circle the number that best indicates how true the statement is of you. It is best to give the first response that enters your mind rather than dwelling on each statement and thinking about it over and over.

1. I have often succeeded on a test or task even though I was afraid that I would not do well before I undertook the task.

1	2	3	4	5
(not at all true)	(rarely)	(sometimes)	(often)	(very true)

2. I can give the impression that I'm more competent than I really am.

1	2	3	4	5
(not at all true)	(rarely)	(sometimes)	(often)	(very true)

3. I avoid evaluations if possible and have a dread of others evaluating me.

1	2	3	4	5
(not at all true)	(rarely)	(sometimes)	(often)	(very true)

4. When people praise me for something I've accomplished, I'm afraid I won't be able to live up to their expectations of me in the future.

1	2	3	4	5
(not at all true)	(rarely)	(sometimes)	(often)	(very true)

5. I sometimes think I obtained my present position or gained my present success because I happened to be in the right place at the right time or knew the right people.

1	2	3	4	5
(not at all true)	(rarely)	(sometimes)	(often)	(very true)

6. I'm afraid people important to me may find out that I'm not as capable as they think I am.

1	2	3	4	5
(not at all true)	(rarely)	(sometimes)	(often)	(very true)

7. I tend to remember the incidents in which I have not done my best more than those times I have done my best.

1	2	3	4	5
(not at all true)	(rarely)	(sometimes)	(often)	(very true)

8. I rarely do a project or task as well as I'd like to do it.

1	2	3	4	5
(not at all true)	(rarely)	(sometimes)	(often)	(very true)

9. Sometimes I feel or believe that my success in my life or in my job has been the result of some kind of error.

1	2	3	4	5
(not at all true)	(rarely)	(sometimes)	(often)	(very true)

10. It's hard for me to accept compliments or praise about my intelligence or accomplishments.

1	2	3	4	5
(not at all true)	(rarely)	(sometimes)	(often)	(very true)

11. At times, I feel my success has been due to some kind of luck.

1	2	3	4	5
(not at all true)	(rarely)	(sometimes)	(often)	(very true)

12. I'm disappointed at times in my present accomplishments and think I should have accomplished much more.

1	2	3	4	5
(not at all true)	(rarely)	(sometimes)	(often)	(very true)

13. Sometimes I'm afraid others will discover how much knowledge or ability I really lack.

1	2	3	4	5
(not at all true)	(rarely)	(sometimes)	(often)	(very true)

14. I'm often afraid that I may fail at a new assignment or undertaking even though I generally do well at what I attempt.

1	2	3	4	5
(not at all true)	(rarely)	(sometimes)	(often)	(very true)

15. When I've succeeded at something and received recognition for my accomplishments, I have doubts that I can keep repeating that success.

1	2	3	4	5
(not at all true)	(rarely)	(sometimes)	(often)	(very true)

16. If I receive a great deal of praise and recognition for something I've accomplished, I tend to discount the importance of what I've done.

1	2	3	4	5
(not at all true)	(rarely)	(sometimes)	(often)	(very true)

17. I often compare my ability to those around me and think they may be more intelligent than I am.

1	2	3	4	5
(not at all true)	(rarely)	(sometimes)	(often)	(very true)

18. I often worry about not succeeding with a project or examination, even though others around me have considerable confidence that I will do well.

1	2	3	4	5
(not at all true)	(rarely)	(sometimes)	(often)	(very true)

19. If I'm going to receive a promotion or gain recognition of some kind, I hesitate to tell others until it is an accomplished fact.

1	2	3	4	5
(not at all true)	(rarely)	(sometimes)	(often)	(very true)

20. I feel bad and discouraged if I'm not "the best" or at least "very special" in situations that involve achievement.

1	2	3	4	5
(not at all true)	(rarely)	(sometimes)	(often)	(very true)

Scoring the Impostor Test

The Impostor Test was developed to help individuals determine whether or not they have IP characteristics and, if so, to what extent they are suffering.

After taking the Impostor Test, add together the numbers of the responses to each statement. If the total score is 40 or less, the respondent has few Impostor characteristics; if the score is between 41 and 60, the respondent has moderate IP experiences; a score between 61 and 80 means the respondent frequently has Impostor feelings; and a score higher than 80 means the respondent often has intense IP experiences. The higher the score, the more frequently and seriously the Impostor Phenomenon interferes in a person's life.

Adaptação cultural e Validação da escala CIPS para Português Europeu e Prevalência do Fenómeno do Impostor em Estudantes de Medicina Portugueses

Caro (a) colega e aluno:

Pretende-se, com este questionário, verificar a consistência interna da CIPS (Clance Impostor Phenomenon Scale). A CIPS foi desenvolvida para ajudar indivíduos a determinar se têm características de "Fenómeno do Impostor" e, se sim, até que ponto eles estão a sofrer.

O Fenómeno do Impostor ocorre em indivíduos que, apesar das evidências concretas do seu sucesso académico e/ou profissional, são incapazes de o interiorizar, atribuindo-o à sorte, ao trabalho árduo e sacrifício pessoal e não à sua capacidade intelectual. Este fenómeno tem consequências nefastas para a saúde mental, visto que gera *distress*, ansiedade e depressão, falta de autoconfiança, frustração e, pode, no limite, conduzir ao *burnout.*

Este questionário destina-se à realização de um estudo no âmbito da Tese de Mestrado da Faculdade de Medicina da Universidade de Coimbra e os participantes irão despender, em média, 10 minutos no seu preenchimento.

Solicito a sua colaboração, garantindo uma participação anónima, confidencial e sigilosa, pelo que pode interromper a realização do inquérito a qualquer momento, sem que com isso saia prejudicado(a). Os dados servirão exclusivamente para fins de investigação científica. Ao submeter a sua resposta está a autorizar a recolha e tratamento de dados para os fins visados por esta investigação.

Caso surja alguma questão no preenchimento do questionário ou necessite de esclarecimentos adicionais, não hesite em contactar micaruivo@hotmail.com .

Agradeço desde já a sua colaboração,

Micaela Ruivo.

Consentimento informado:

Concordo com a afirmação: li e aceito participar de forma voluntária, tendo sido informado(a) acerca dos objetivos e pressupostos do estudo, permitindo o uso das minhas respostas para os fins referidos.

    Sim •   Não •

CIPS (Escala IP de Clance)

Para cada alínea, por favor meta um círculo à volta do número que melhor indica quanto é que a frase se aplica a si. É melhor colocar a primeira escolha que lhe vem à cabeça em vez de ficar concentrado numa só alínea.	1-Não se aplica de todo	2- Raramente	3- Às vezes	4- Frequentemente	5- Aplica-se quase sempre

1. Muitas vezes, tive sucesso num teste ou tarefa apesar de ter medo de não ser capaz de o(a) fazer bem antes da sua realização.					
2. Consigo dar a impressão de que sou mais competente do que realmente sou.					
3. Evito avaliações se possível e tenho medo de ser avaliado por outros.					
4. Quando alguém me elogia pelos meus sucessos, fico com medo de não conseguir atingir as expectativas que terão de mim no futuro.					
5. Às vezes, penso que só consegui atingir a minha posição ou os meus sucessos atuais porque tive a sorte de estar no lugar certo no tempo certo ou porque conheci as pessoas certas.					
6. Tenho medo de que as pessoas que me são chegadas possam descobrir que não sou tão capaz como pensam que sou.					
7. Tenho tendência a lembrar-me mais dos momentos em que não fiz o meu melhor mais do que dos momentos em que o fiz.					
8. Eu raramente faço um projeto ou tarefa tão bem como gostaria.					
9. Às vezes, sinto ou acredito que o sucesso na minha vida ou trabalho é o resultado de algum tipo de erro.					
10. É-me difícil aceitar louvores ou elogios sobre a minha inteligência ou sucessos.					
11. Por vezes sinto que o meu sucesso se deve a sorte.					
12. Por vezes, sinto-me desiludido com os meus sucessos atuais e penso que devia ter conseguido mais.					
13. Por vezes, tenho medo de que outros descubram quantos conhecimentos ou habilidades me faltam na realidade.					
14. Muitas vezes, tenho medo de poder falhar numa tarefa ou projeto novo apesar do facto					

de que geralmente as coisas que faço me correm bem.					
15. Quando tenho sucesso em algo e sou reconhecido por aquilo que consegui, fico na dúvida sobre se consigo continuar a obter o mesmo sucesso.					
16. Se receber muitos elogios e louvores por algum sucesso, tenho a tendência a negligenciar a importância daquilo que fiz.					
17. Muitas vezes, comparo as minhas habilidades com a habilidade das pessoas à minha volta e fico a pensar que eles são mais inteligentes do que eu.					
18. Muitas vezes, preocupo-me por não ter sucesso nalgum projeto ou avaliação, apesar das pessoas à minha volta terem muita confiança em que vou conseguir.					
19. Se vou receber uma promoção ou reconhecimento de algum tipo, hesito em dizer a outras pessoas, até ter a certeza do facto.					
20. Sinto me muito mal e desanimado se não sentir que sou "o melhor" ou pelo menos "muito especial" em situações que envolvem sucesso.					

ANNEX V – 2nd Phase Questionnaire

Adaptação cultural e Validação da escala CIPS para Português Europeu e Prevalência do Fenómeno do Impostor em Estudantes de Medicina Portugueses

Caro (a) colega e aluno:

Pretende-se, com este questionário, determinar a prevalência do Fenómeno do Impostor em estudantes de Medicina Portugueses da Faculdade de Medicina da Universidade de Coimbra, do 1º ao 6º ano, no ano letivo 2020/2021. Em particular, pretende-se perceber se essa prevalência é diferente em função do sexo e dos anos de frequência bem como se há relação entre o *distress* nos alunos e o Fenómeno do Impostor e entre este e a satisfação com a média curricular.

O Fenómeno do Impostor ocorre em indivíduos que, apesar das evidências concretas do seu sucesso académico e/ou profissional, são incapazes de o interiorizar, atribuindo-o à sorte, ao trabalho árduo e sacrifício pessoal e não à sua capacidade intelectual. Este fenómeno tem consequências nefastas para a saúde mental, visto que gera *distress*, ansiedade e depressão, falta de autoconfiança, frustração e, pode, no limite, conduzir ao *burnout*.

Este questionário destina-se à realização de um estudo no âmbito da Tese de Mestrado da Faculdade de Medicina da Universidade de Coimbra e os participantes irão despender, em média, 10 minutos no seu preenchimento.

Solicitamos a sua colaboração, garantindo uma participação anónima, confidencial e sigilosa, pelo que pode interromper a realização do inquérito a qualquer momento, sem que com isso saia prejudicado(a). Os dados obtidos serão objeto de uma análise estatística conjunta, após terem sido colocados em base de dados, sem que haja conhecimento de quem respondeu ou de como respondeu pelo que também lhe solicitamos tal autorização. Os dados servirão exclusivamente para fins de investigação científica. Ao submeter a sua resposta está a autorizar a recolha e tratamento de dados para os fins visados por esta investigação.

Caso surja alguma questão no preenchimento do questionário ou necessite de esclarecimentos adicionais, não hesite em contactar micaruivo@hotmail.com.

Agradecemos a sua participação,

Micaela Seabra Ruivo (Investigadora)

Luiz Miguel Santiago (Investigador e orientador)

Consentimento informado:

Concordo com a afirmação: li e aceito participar de forma voluntária, tendo sido informado(a) acerca dos objetivos e pressupostos do estudo, permitindo o uso das minhas respostas para os fins referidos.

Sim • Não •

<u>Dados Biográficos</u>

Sexo: Feminino • Masculino •

Ano de frequência: 1º ano • 2º ano • 3º ano • 4º ano • 5º ano • 6º ano •

Está satisfeito com a sua média curricular? Sim • Não •

Insira os 3 últimos dígitos do número de telemóvel____

PHQ-4

Durante as duas últimas semanas, com que frequência tem sentido os seguintes problemas? Assinale a sua resposta com um X.	0- Não, de todo	1- Vários dias	2- Mais de metade dos dias	3- Quase todos os dias
Estar nervoso/a, ansioso/a ou "no limite"				
Não ser capaz de parar ou controlar a preocupação				
Ter pouco interesse ou prazer em fazer coisas				
Estar em baixo, deprimido/a, ou sem esperança				

CIPS (Escala IP de Clance)

Para cada alínea, por favor meta um círculo à volta do número que melhor indica quanto é que a frase se aplica a si. É melhor colocar a primeira escolha que lhe vem à cabeça em vez de ficar concentrado numa só alínea.	1-Não se aplica de todo	2- Raramente	3- Às vezes	4- Frequentemente	5- Aplica-se quase sempre
1. Muitas vezes, tive sucesso num teste ou tarefa apesar de ter medo de não ser capaz de o(a) fazer bem antes da sua realização.					
2. Consigo dar a impressão de que sou mais competente do que realmente sou.					
3. Evito avaliações se possível e tenho medo de ser avaliado por outros.					
4. Quando alguém me elogia pelos meus sucessos, fico com medo de não conseguir atingir as expectativas que terão de mim no futuro.					
5. Às vezes, penso que só consegui atingir a minha posição ou os meus sucessos atuais porque tive a sorte de estar no lugar certo no tempo certo ou porque conheci as pessoas certas.					
6. Tenho medo de que as pessoas que me são chegadas possam descobrir que não sou tão capaz como pensam que sou.					

7. Tenho tendência a lembrar-me mais dos momentos em que não fiz o meu melhor mais do que dos momentos em que o fiz.					
8. Eu raramente faço um projeto ou tarefa tão bem como gostaria.					
9. Às vezes, sinto ou acredito que o sucesso na minha vida ou trabalho é o resultado de algum tipo de erro.					
10. É-me difícil aceitar louvores ou elogios sobre a minha inteligência ou sucessos.					
11. Por vezes sinto que o meu sucesso se deve a sorte.					
12. Por vezes, sinto-me desiludido com os meus sucessos atuais e penso que devia ter conseguido mais.					
13. Por vezes, tenho medo de que outros descubram quantos conhecimentos ou habilidades me faltam na realidade.					
14. Muitas vezes, tenho medo de poder falhar numa tarefa ou projeto novo apesar do facto de que geralmente as coisas que faço me correm bem.					
15. Quando tenho sucesso em algo e sou reconhecido por aquilo que consegui, fico na dúvida sobre se consigo continuar a obter o mesmo sucesso.					
16. Se receber muitos elogios e louvores por algum sucesso, tenho a tendência a negligenciar a importância daquilo que fiz.					
17. Muitas vezes, comparo as minhas habilidades com a habilidade das pessoas à minha volta e fico a pensar que eles são mais inteligentes do que eu.					
18. Muitas vezes, preocupo-me por não ter sucesso nalgum projeto ou avaliação, apesar das pessoas à minha volta terem muita confiança em que vou conseguir.					

19. Se vou receber uma promoção ou reconhecimento de algum tipo, hesito em dizer a outras pessoas, até ter a certeza do facto.					
20. Sinto me muito mal e desanimado se não sentir que sou "o melhor" ou pelo menos "muito especial" em situações que envolvem sucesso.					

Nota: Retirado de The Impostor Phenomenon: When Sucess Makes You Feel Like A Fake (pp 20-22), de P.R. CLANCE, 1985, Toronto: Bantam Books. Copyright 1985 de Pauline Rose Clance. Ph. D., ABPP. Reimpresso sob permissão. Não reproduzir sem a permissão de Pauline Rose Clance, drpaulinerose@comcast.net, www.paulineroseclance.com.