Self-efficacy or intelligence to predict academic or professional success?

Autoeficácia ou inteligência para predizer o sucesso acadêmico ou profissional?

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ABSTRACT

Introduction: The growing challenges of medical education have motivated research with medical students and doctors in training. The self-efficacy scale assesses the individual's intrinsic aspects, ability to achieve goals, overcome challenges, and keep motivated to attain results. The perception of physicians' self-efficacy in training can guide learning and teaching strategies.

Objective: The study aimed to evaluate the psychometric properties and, particularly, a factorial structure of the Higher Education Self-Efficacy Scale in medical students and resident in Pediatrics.

Method: The study sample included 269 participants, among them 5th-semester and 6th-year medical students from Universidade Federal de Minas Gerais and 1st and 2nd -year pediatric residents of various institutions in Belo Horizonte. All participants performed self-efficacy assessment using the Higher Education Self-Efficacy Scale.

Result: the data were submitted to Principal Component Analysis with Varimax rotation that revealed seven components. These new domains were named: self-regulating, learning, accomplishing, evaluating, integrating, expanding and participating. Cronbach's alpha coefficient ranged from 0,70 to 0,86 in every dimension. The explained total variance was 63,7%.

Conclusion: The Higher Education Self-Efficacy Scale proved to be appropriate for Medical Education but revealed seven domains rather than the five proposed, probably due to the particularities related to Medical Education.

Keywords: Self-efficacy scales. Medical students. Residents.

RESUMO

Introdução: *Os crescentes desafios do ensino médico têm motivado pesquisas com estudantes de Medicina e médicos em formação. As escalas de autoeficácia avaliam aspectos intrínsecos ao sujeito e a capacidade dele de alcançar metas, superar desafios e se manter motivado a fim de alcançar seus objetivos. A percepção de autoeficácia dos médicos em formação pode orientar estratégias de aprendizagem e ensino.*

Objetivo: *O estudo teve como objetivo avaliar as propriedades psicométricas e, em particular, a estrutura fatorial da Escala de Autoeficácia na Formação Superior (EAEFS) em estudantes de Medicina e residentes de pediatria.*

Método: *A amostra do estudo foi de 269 participantes, entre eles estudantes de Medicina do quinto período (terceiro ano) e do sexto ano da Universidade Federal de Minas Gerais e residentes de pediatria do primeiro e segundo anos de diversas instituições em Belo Horizonte. Todos avaliaram a autoeficácia usando a EAEFS.*

Resultado: *Os dados foram submetidos à análise dos componentes principais com rotação Varimax, que revelou sete componentes. Esses novos domínios foram nomeados: autorregular, aprender, realizar, avaliar, integrar, ampliar e participar. O alfa de Cronbach variou de 0,70 a 0,86 nos fatores encontrados. A variância total explicada foi de 63,7%.*

Conclusão: *A EAEFS mostrou-se adequada ao ensino médico, mas revelou sete domínios em vez dos cinco propostos, provavelmente devido às particularidades que envolvem o ensino médico.*

Palavras-chave: *Escalas de Autoeficácia; Estudantes de Medicina; Residentes.*

INTRODUCTION

The Socio-Cognitive Theory admits the agent's perspective in the pursuit of human development, adaptation, and change[1]. Among the mechanisms of personal agency, none is more central or widespread than people's beliefs about their ability to exert control over events that affect their lives[2].

Self-efficacy is part of the Social-Cognitive Theory that addresses its origin, its beliefs, its structure and functional properties, its various effects, and the processes through which they operate[3]. Self-efficacy beliefs play a central role in the self-regulation of motivation[4]. They influence their choices, aspirations, how much effort they put into a given task and how long they persevere in the face of difficulties and setbacks[5].

This belief is an important determinant of human motivation[6], performance[7], fulfillment[8] and emotional well-being[9]. As self-efficacy influences the level of motivation, it modulates the individual's commitment and persistence in the face of a difficulty, an obstacle or a challenge. Moreover, it is also capable of guiding thought patterns and emotional reactions[10].

Medical students' levels of self-efficacy influence the involvement and adoption of evidence-based medicine-oriented practice after graduation[11]. There is evidence that indicates the existence of a relationship between students' self-efficacy and the willingness to incorporate new digital technologies related to medical education[12]. Self-efficacy has its importance in the new reality of higher education in Brazil regarding the expansion of university admissions and also correlates with students' performance using the problem-based teaching (PBL) method[13]. Self-efficacy also seems to have a protective factor against depressive symptoms in medical students[14].

Students build and modify their beliefs of self-efficacy based on the interpretation of at least four sources that are interrelated, associated with reflective thinking and that are experienced in a particular way[15]. The first of these is the mastery experience, which is a significant personal experience that, when successful, will be translated by the individual as a competence that can be replicated. Thus, personal experiences, called mastery experiences, positively or negatively influence self-efficacy, whether successful or unsuccessful[16].

The second is the vicarious experience: parents, teachers, peers, individuals with whom the observer identifies who have defined courses of action, created strategies and achieved objectives similar to those the observer intends to achieve can play the role of modeling example[17].

The third is the verbal and social persuasion, which concerns advice, guidance, criticism, encouragement, and feedback. Students, especially those who are not able to make accurate self-assessments, rely on others who are committed and involved with their academic life, to provide assessments[18].

Finally, there are emotional and physiological states, which also contribute to self-efficacy. Individuals tend to calibrate themselves based on the emotions experienced in the course of an action[19]. Individuals' responses to their own stress, fear, and anxiety interfere with the self-perception of success and, therefore, of self-efficacy[20].

Individuals who are able to exert control over threatening situations do not evoke disturbing thought patterns, while others who fail to do so experience high levels of anxiety[21]. Self-efficacy in higher education is understood as a student's belief in their ability to organize and perform the required courses of actions and to set objectives related to pertinent academic tasks. The process of building the belief of self-efficacy in higher education, as in other domains, is continuous and may change over time[22].

Using scales of attitudes self-perception was chosen as the most appropriate way to measure the self-efficacy construct. These scales are constructed according to the domain that one intends to study and have questions in the present tense to be answered by the subject themselves, using the Likert-type scale. These scales assess aspects that are intrinsic to the subject. The judgment they make of their own ability to perform actions related to the assessed domain reflects their ability to achieve goals, stay motivated and overcome obstacles[23].

In Brazil, the Self-Efficacy in Higher Education Scale (EAEFS, *Escala de Autoeficácia na Formação Superior*) was developed in 2010, whose objective is to assess university students' beliefs about their ability to face tasks related to academic training in higher education. The instrument development study was carried out with 535 students from courses in the areas of Humanities, Exact Sciences and Biological Sciences. Of these, 62% attended a private higher education institution, located in the metropolitan region of the city of São Paulo, and 38% a public university in the interior of the state of São Paulo, Brazil. Of this sample, 66% were freshmen (convenience sample). The scale has 34 items to be answered on the Likert-type scale, whose points are assigned from one (not very capable) to 10 (very capable). The factorial structure of the scale consists of five latent variables/factors: academic self-efficacy, self-efficacy in the regulation of education, self-efficacy in proactive actions, self-efficacy in social interaction, and self-efficacy in academic management[24].

The present study aimed to evaluate the factorial structure of the Self-Efficacy in Higher Education Scale when applied to undergraduate medical students and medical residents, considering the particularities and specificities of Medical Education, medical students and young physicians.

METHODS

Study design and participants

The study included 269 participants, 80 students attending the fifth semester (third year) of the medical course and 62 students attending the sixth year of the medical course, all enrolled at Universidade Federal de Minas Gerais. The sample also included 64 residents attending the first year of Pediatrics residency and 63 residents attending the second year of Pediatrics residency. These were selected from several hospital institutions in Belo Horizonte, state of Minas Gerais, Brazil. The students were recruited through an invitation letter and the residents were invited in person by their coordinators, who had been previously instructed about the research.

The students took the test in a previously determined room at the Faculty of Medicine (UFMG) and the residents in a room at the hospital where they attended residency.

Ethical aspects

The present study is part of the Project "Educational strategies for the development of clinical competencies in medical education and training", a partnership between Universidade Federal de Minas Gerais and Erasmus University in the Netherlands. The project was approved by the Research Ethics Committee of Universidade Federal de Minas Gerais (COEP/UFMG), Certificate of Presentation for Ethical Appreciation (CAAE) number 0469.1.203.203-11.

Instrument

All participants received the material, the Self-Efficacy Scale in Higher Education (EAEFS), shown in Chart 1. They answered the test containing 34 items using a Likert-type scale from 1 to 10, where 1 means not very capable and 10 means very capable. There was no time restriction for filling out the scale.

Chart 1. Self-Efficacy in Higher Education Scale.

1	How much am I able to learn the contents that are necessary for my training?
2	How much am I able to use cognitive strategies to facilitate learning?
3	How much am I able to demonstrate, at the evaluation moments, what I learned during my course?
4	How much am I able to understand the requirements of my course?
5	How much am I able to express my opinion when another classmate disagrees with me?
6	How much am I able to ask for help, when necessary, from colleagues in the course activities?
7	How much am I able to request extracurricular activities relevant to my education?
8	How much am I able to plan actions to achieve my professional goals?
9	How much am I able to reflect on the achievement of my training goals?
10	How much am I able to select, among the resources offered by the institution, the most appropriate for my training?
11	How much am I able to apply the knowledge learned on the course in practical situations?
12	How much am I able to establish conditions for the development of the work requested by the course?
13	How much am I able to work in a group?
14	How much am I able to understand the content covered in the course?
15	How much am I able to keep up-to-date on new professional trends in my field of training?
16	How much am I able to make decisions related to my education?
17	How much am I able to cooperate with colleagues in the course activities?
18	How much am I able to strive in academic activities?
19	How much am I able to define, with confidence, what I intend to follow among the various possibilities of professional performance that exist in my area of training?
20	How much am I able to seek help from teachers for the development of course activities?
21	How much am I able to motivate myself to do the activities related to the course?
22	How much am I able to establish my professional goals?
23	How much am I able to establish good relationships with my teachers?
24	How much am I able to meet the performance required to pass the course?
25	How much am I able to contribute ideas for the improvement of my course?
26	How much am I able to finish course work within the established deadline?
27	How much am I able to plan the activities requested by the course?

Quadro 1. Continuation.

28	How much am I able to ask when I have doubts?
29	How much am I able to establish friendships with my classmates?
30	How much am I able to update the knowledge acquired in the course?
31	How much am I able to solve unexpected problems related to my education?
32	How much am I able to prepare for the assessments?
33	How much am I able to take advantage of opportunities to participate in extracurricular activities?
34	How much am I able to search for information about the resources or programs offered by my institution?

Source: Self-Efficacy in Higher Education Scale[24].

Statistical analysis

The software used was: SPSS 17.0 for Windows (Software Statistic).

The present study shows the multivariate technique of Principal Component Analysis (PCA) as an instrument to reduce the amount of data, through the reduction in the number of variables without significant loss of information being applied in the results of the 34 questions answered by students and residents who underwent the evaluation using the Self-Efficacy in Higher Education Scale. The objective was to verify the number of components using the principal component analysis method with Varimax rotation. The Kaiser-Meyer-Olkin (KMO) sampling adequacy measure was verified and the Barltlett test evaluated the homogeneity between the studied questions. Cronbach's alpha coefficient was applied to evaluate the internal consistency of each of the factors determined by the factor analysis. All results were considered significant for a probability of significance(p) of less than 5%, p<0.05.

Sample size

In the multivariate analyses, it is recommended to consider a minimum number of 5 sample units per variable. When using the principal component analysis in the survey data, the ratio between the number of study participants (n = 269) and the number of items in the "Self-efficacy" questionnaire (34 items) was approximately 8 sample units per item in the questionnaire. The minimum sample size would be 170 students/residents. In the present study, 269 sample units were surveyed, an adequate number for the research.

RESULTS

The population of this study consisted of a total of 269 participants, including medical students and residents (Table 1).

The age of the students in the fifth semester and sixth year of medical school ranged from 19 to 40 years, with a mean of 23.5 years. The age of pediatric residents in the 1st and 2nd years of residency ranged from 23 to 38 years, with a mean of 27.8 years.

The Kaiser-Meyer-Olkin (KMO) sampling adequacy tests and the convenience test – Bartlett's sphericity test – were satisfactory for the factor analysis performance (0.91, with p < 0.0001), which revealed seven factors in this sample.

The Varimax rotation principal component analysis found seven components/domains, whose eigenvalues were greater than one and with a total explained variance percentage of 63.9% (Table 2). The seven components found were named in Table 3.

Table 1. Distribution of participants according to training stage and gender.

Participants		Sex	
Training Stage	n	female	male
5th-semester students	80	38	42
6th-year students	62	44	18
R1 Pediatric resident	64	55	9
R2 Pediatric resident	63	53	10
Total	269	190	79

Source: Study data. Prepared by the authors. 2024.

Table 2. Result of the number of factors extracted from the self-efficacy questionnaire based on the principal component analysis with Varimax rotation.

COMPONENTS	Sum of squares of loads		
	Factorials with Rotation		
	Eigenvalue	% variance	% Cumulative Variance
A	4.083	12.01	12.01
B	3.502	10.302	22.312
C	3.157	9.286	31.598
D	3.006	8.842	40.44
E	2.794	8.219	48.659
F	2.564	7.542	56.201
G	2.551	7.502	**63.703**
TOTAL	**21.657**	**63.703**	

Source: Study data. Prepared by the authors. 2024.

Table 3. Names of the seven components found in the principal component analysis.

Latent variables	Names
A	Self-regulate
B	Learn
C	Accomplish
D	Evaluate
E	Integrate
F	Expand
G	Participate

Source: Study data. Prepared by the authors. 2024.

The correlation coefficient – item: total that evaluates how much each question contributes to the final score of the factor – ranged between 0.45 and 0.72. The internal consistency of the seven components/domains identified ranged from 0.70 to 0.86 in the seven components found, indicating adequate reliability. Therefore, no questions were removed, because the semantic coherence of the variables was preserved

The factor loadings represent the level of correlation between the components and their questions; high values indicate that the two are closely related (Table 4).

Table 4. Measures of the components (factor loadings) used to express the standardized variables of the seven components generated by the principal component analysis.

Issues	Factor Loading Matrix with Varimax Rotation / Factors						
	A	B	C	D	E	F	G
Q1		0.77					
Q2		0.69					
Q3		0.70					
Q4						0.45	
Q5						0.69	
Q6					0.65		
Q7							0.77
Q8				0.71			
Q9				0.73			
Q10	0.44						
Q11		0.53					
Q12		0.47					
Q13					0.78		
Q14		0.51					
Q15	0.55						
Q16	0.45						
Q17					0.63		
Q18			0.57				
Q19	0.76						
Q20	0.63						
Q21	0.51						
Q22				0.55			
Q23					0.46		
Q24			0.52				
Q25						0.47	
Q26		0.80					
Q27		0.62					
Q28							0.45
Q29					0.57		

Table 4. Continuation.

Issues	Factor Loading Matrix with Varimax Rotation / Factors						
	A	**B**	**C**	**D**	**E**	**F**	**G**
Q30	**0.60**						
Q31						**0.51**	
Q32			**0.72**				
Q33							**0.71**
Q34							**0.49**

Source: Study data. Prepared by the authors. 2024.

The correlation coefficient – item: total that evaluates how much each question contributes to the final score of the component – ranged between 0.45 and 0.72. The internal consistency of the seven components/domains identified ranged from 0.70 to 0.86 in the seven components found, indicating adequate reliability. Therefore, no questions were removed, because the semantic coherence of the variables was preserved (Table 5).

DISCUSSION

In the literature, new studies using self-efficacy scales in medical education have brought new contributions. Some of these studies review and evaluate the applicability of the self-efficacy scales of these instruments in this context[25,26]. The particularities of medical students and residents are known: the robustness of the curriculum, permanent need for updating, stress, among others. Therefore, strategies for learning self-regulation are required. The validation of a specific self-efficacy scale for this group would be of great benefit to understand the enormous challenges imposed on medical education and develop skills that could contribute to their education.

In the present study, the EAEFS showed a multifactorial structure, as in the previous version. However, the results presented herein suggest that in medical students, the principal component analysis (PCA) (number of components/domains) differs from that originally presented by some authors[27]. The EAEFS validation study had 535 participants, 66% of whom were freshmen from various higher education courses, but it did not include medical students. Based on the exploratory factor analysis, five factors were found, while the present study found seven. This difference can be explained by the well-known specificity of the self-efficacy scales and by the significant particularities that involve medical training. Moreover, our sample did not include freshmen students and the less experienced students were attending the fifth semester (third year).

It is worth mentioning that the scale application seems to be subject to changes in its factorial structure, as in the

Table 5. Results of the item-total correlation coefficient, Cronbach's alpha if question was removed and Cronbach's alpha of each factor

Formed factors	Item-total correlation coefficient	Cronbach's alpha if question was removed
COMPONENT A		
Q10	0.60	0.88
Q15	0.66	0.84
Q16	0.64	0.84
Q19	0.64	0.85
Q20	0.66	0.84
Q21	0.62	0.85
Q30	0.67	0.84
Total Cronbach's alpha □ 0.86		
COMPONENT B		
Q1	0.68	0.78
Q2	0.63	0.79
Q3	0.52	0.81
Q11	0.63	0.79
Q12	0.57	0.80
Q14	0.57	0.80
Total Cronbach's alpha □ 0.82		
COMPONENT C		
Q18	0.64	0.75
Q24	0.45	0.80
Q26	0.60	0.76
Q27	0.61	0.76
Q32	0.64	0.74
Total Cronbach's Alpha □ 0.80		
COMPONENT D		
Q8	0.72	0.72
Q9	0.68	0.75
Q22	0.64	0.80
Total Cronbach's alpha □ 0.82		

study conducted in 2015. Aiming to search for psychometric evidence with the participation of 453 high school students from the metropolitan region of São Paulo and the interior of the state of São Paulo, the items went from 34 to 16 and a factorial structure of three domains was found. This indicates the need for psychometric studies of the scale in populations that show peculiarities in terms of age, academic level, and area of training[22].

In the present study, the domains found are aligned with the principles of the Socio-cognitive Theory, are in line with the self-efficacy construct and correlate with the actions necessary for the students' academic success. The first factor corresponds to the ability to self-regulate. Self-regulated learning behaviors can be defined as thoughts, feelings, and actions planned and adapted by an individual to achieve a goal. Self-regulation implies that students become aware of their learning, seek feedback, and make motivational and behavioral adjustments to build knowledge constantly and effectively[28].

Self-regulation is a fundamental skill for all students, especially university ones. During the transition from high school to higher education, students leave a passive learning environment to enter an environment that values independence, especially regarding the capacity to plan and manage their own study[29].

The influence of self-efficacy on the conceptualization and development of self-regulation has shown to be crucial. Over the years, self-efficacy has become one of the most important variables not only in motivation research, but also in self-regulation research[30].

Medicine is a profession in which the capacity to self-regulate is fundamental. For example, it is subject to ethical and social control, which requires conducts that follow established standards. Thus, medical education is a field of study where commitment and the ability to self-regulate are necessary to meet the expected standards of conduct. Therefore, medical students and professionals should voluntarily participate in professional development activities on an ongoing basis, with the aim of maintaining an adequate level of learning and competence[31].

Self-regulation is also directly affected by the learning environment, by the different tasks with the learner's active participation, and in the various forms of learning support, such as tutoring, feedback, and pedagogical resources[32]. Individuals bring to the learning environment a variety of knowledges, beliefs, and emotions that have developed over time from their experiences and that are retrieved in particular contexts. In the academic environment, it is important to recognize those students who have developed self-regulation skills and identify those who are not well adapted, in order to avoid distortions in learning[33].

Table 5. Continuation.

Formed factors	Item-total correlation coefficient	Cronbach's alpha if question was removed
COMPONENT E		
Q6	0.42	0.74
Q13	0.58	0.66
Q17	0.59	0.67
Q23	0.47	0.70
Q29	0.51	0.69
Total Cronbach's alpha 0.74		
COMPONENT F		
Q4	0.43	0.67
Q5	0.50	0.63
Q25	0.47	0.65
Q31	0.56	0.60
Total Cronbach's alpha 0.70		
COMPONENT G		
Q7	0.57	0.67
Q28	0.36	0.79
Q33	0.68	0.60
Q34	0.58	0.67
Total Cronbach's alpha 0.74		

The second component concerns the ability to learn how to learn. Individuals with a high sense of self-efficacy feel more motivated to acquire new knowledges, dedicate more time and effort to activities, and can develop more effective strategies in the face of academic difficulties. Although effective learning is directly related to knowledge and the acquisition of skills, the perception of self-efficacy seems to directly influence performance, even in tasks whose demands are eminently cognitive[34]. Physicians are responsible for recognizing their own learning needs, aiming to keep up to date in an area of growing research in the field of Medical Sciences, and for seeking professional development opportunities capable of promoting their clinical reasoning, which is a fundamental competence of physicians, and which develops from the interaction of different forms of knowledge[35].

The third component refers to the ability to perform. Self-efficacy relates to the accomplishment of tasks and achievement of goals necessary to achieve academic success. The perception of self-efficacy is a predictor of the expectation of results and adequate time management. Students with a high level of performance expectation prefer challenging tasks and have a larger repertoire of learning strategies and therefore have better academic performance. This suggests that educators involved

in medical students' education should be aware of student performance goals, identifying factors capable of promoting levels of expectation and impeding factors[36,37].

The fourth component is related to the ability to self-evaluate. The sense of self-efficacy is a predictor of the individual's ability to self-evaluate, scale their goals, and reorganize their actions in the academic environment. Self-monitoring and the ability to make choices play a fundamental role in academic life, as they promote both adaptation to the context and the modification of strategies when goals are not met. Self-evaluation and reflection make the learning experience more positive[38]. The ability of medical students to decide about their professional future may reflect on the physician's performance and personal satisfaction[39].

The fifth component is the ability to integrate. The success of higher education students also depends on their relationships beyond academic activities: respecting their peers' and faculty's values, being aware of the formal and informal requirements of the institution and the student community, acquiring new attitudes and, finally, feeling integrated into the group[40]. Working together, sharing information and sharing concerns, as in tutoring programs, have been the strategy used in medical education to promote an environment of intellectual cooperation, solidarity and facilitation of adaptation[41]. Being flexible in the face of change, practicing empathy and respecting the perspective of the "other", collaborating productively when working in groups or teams are fundamental skills for medical students and should be promoted throughout their education, due to their importance in clinical practice[42].

The sixth component encompasses the ability to be open to new experiences and was named in the present study as the ability to expand. Medical students and physicians in training must be able to expand their universe of knowledge, such as incorporating new technologies into learning[43] and adopting the practice of evidence-based medicine[44]. Students' self-efficacy beliefs seem to interfere with the adoption of evidence-based medicine practice. In a bidirectional way, the adoption of evidence-based medicine promotes a sense of self-efficacy[45].

Finally, the seventh component is linked to the ability to engage and participate in activities that foster one's own training. Participation in academic activities is essential for medical students' performance. Self-efficacy seems to influence the level of medical students' engagement in curricular and extracurricular activities, positively influencing the level of learning[46]. In residents, self-efficacy plays an important role in the choice of professional activities with which they are involved, the nature of their participation and what they learn in practical activities[47]. Participation also seems to moderate the relationships between motivation, learning and performance strategies, and deep learning[48].

Regarding the study limitations, these are due to the sample characteristics: the medical students do not represent all of the academic moments of the undergraduate course and also come from the same public university, which is known to have particularities in the sample of students. In turn, residents belong to the same medical specialty but belong to different public and private hospital institutions.

CONCLUSION

The results of the research demonstrate that the Self-Efficacy in Higher Education Scale is a reliable and valid instrument, which proved to be adaptable for application in medical students and physicians in training. The use of EAEFS in medical education can guide educational and institutional strategies. Its results reveal the student's self-perception during the undergraduate course regarding their ability to perform different actions related to academic success.

Regarding the implications of the results for the educational practice in Medicine, studies on self-efficacy reveal the impact on the teaching process when students and teachers understand the importance of the student being the protagonist of their own learning. Teachers and preceptors familiar with the Self-Efficacy Scale can guide and contribute to the increase in their students' self-efficacy, by proposing teaching/learning strategies and carrying out periodic evaluations of their self-efficacy and from there considering advances and weaknesses to be worked on.

Sources of self-efficacy, such as personal experience, vicarious experience, and verbal persuasion, can be incorporated into the learning environment in different ways, promoting the student's effective participation in activities in which they can actively experience learning, systematizing the modeling, and promoting feedback.

Future studies with students attending different semesters and with residents from different specialties are necessary to increase the applicability of the scale in medical education. Research on the construct validity of the scale is also necessary, such as correlating its factors to instruments that assess personality. We observed that some of the factors presented herein are conceptually similar to traits such as extroversion, socialization, and openness to new experiences. The relationship between personality traits and self-efficacy can be explored in the future, verifying the possible interactions between these constructs. Studies are needed to assess whether the self-efficacy scale is able to predict variables related to medical students' learning capacity and performance at different stages of training.

AUTHORS' CONTRIBUTIONS

CONFLICTS OF INTEREST

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