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Article

Translation, cross-cultural adaptation and scale validation to assess professionalism among medical students*

Tradução, adaptação transcultural e validação de escala para avaliar o profissionalismo entre estudantes de medicina

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ABSTRACT: Introduction: the professionalism of the physician should be present not only in the technical attributes, such as decision making and clinical reasoning, but also personal and interpersonal attributes, such as empathy, ethics, commitment, sense of social responsibility, altruism, teamwork and confidentiality. However, these attributes should be worked already during the medical course and includes the need to be assessed. **Objective**: To translate, cross-culturally adapt and validate a scale to assess professionalism in medical students. **Method:** We conducted a methodological validation study of the Professionalism Assessment Scale for Medical Students developed in Slovenia and authorized by the main author. The study was developed in four phases: translation and retranslation phase; cross-cultural adaptation phase; test and retest phase; and final application phase of the scale. The study population in the final phase consisted of a medical student and the sample was of convenience. The questionnaire was developed through the open LimeSurvey software and available via link in social networks. Data analysis was performed in Epi Info 7.2.4.0 and study approved by the institution's Research Ethics Committee. **Results:** 82 students participated, with a mean age of 21 years (SD = 1.8) and predominance of males. Before answering the Professional Assessment Scale (PAS), 73.2% said they knew how to define what professionalism was and 47.3% said they had a medical relative. Participants achieved very high PAS scores, with only 4 participants (4.88%) scoring less than 100. The mean score was 107 on a scale of no more than 110 points. The PAS presented a Cronbach alpha coefficient of 0.7. **Conclusion:** The study revealed that the students of the educational institution have a high degree of professionalism and the validation of the scale in its final stage reached an acceptable level of reliability and can be used in other studies.

KEY WORDS: Professionalism; Medical education; Medical students.

RESUMO: Introdução: o profissionalismo do médico deve estar presente não só nos atributos técnicos, como tomadas de decisão e raciocínio clínico, mas também atributos pessoais e interpessoais, como empatia, ética, compromisso, senso de responsabilidade social, altruísmo, trabalho em equipe e confidencialidade. Contudo, esses atributos devem ser trabalhados já durante o curso médico e inclui a necessidade de serem avaliados. **Objetivo:** Traduzir, adaptar transculturalmente e validar uma escala para avaliar profissionalismo em estudantes de medicina. **Método**: Foi realizado estudo metodológico de validação da *Professionalism Assesment Scale for Medical Students* desenvolvida na Eslovênia e autorizada pela autora principal. O estudo foi desenvolvido em quatro fases: fase de tradução e retradução; fase de adaptação transcultural; fase de teste e reteste; e fase de aplicação final da escala. A população do estudo na fase final foi composta por estudante de medicina e a amostra foi de conveniência. O questionário foi elaborado através do software aberto *LimeSurvey* e disponibilizado via *link* em redes sociais. A análise de dados foi realizada no Epi Info 7.2.4.0 e estudo aprovado pelo Comitê de Ética em Pesquisa da instituição. **Resultados**: Participaram 82 discentes, com idade média de 21 anos (DP = 1,8) e predominância do gênero masculino. Antes de responderem a Escala de Avaliação de Profissionalismo (EAP), 73,2% afirmaram saber definir o que era profissionalismo e 47,3% afirmaram ter parente médico. Os participantes alcançaram pontuações muito altas na EAP, com apenas 4 participantes (4,88%) pontuando menos do que 100. A média de pontuação foi de 107 numa escala de no máximo 110 pontos. A EAP apresentou um coeficiente alfa de Cronbach de 0,7. **Conclusão:** O estudo revelou que os estudantes da instituição de ensino possuem um elevado grau de profissionalismo e a validação da escala em sua etapa final alcançou nível de confiabilidade aceitável, podendo ser usada em outros estudos.

PALAVRAS-CHAVE: Profissionalismo; Educação médica; Estudantes de medicina.

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INTRODUCTION

Given the importance and impact of a physician's role in society, medical school graduates are expected to have developed a professional identity throughout their education, encompassing a range of behavioral and cognitive characteristics necessary for the proper practice of their profession[1,2]. These characteristics include not only technical skills, such as decision-making and clinical reasoning, but also personal and interpersonal attributes, such as empathy, ethics, commitment, social responsibility, altruism, teamwork, confidentiality, among others, which highlight the professionalism of a trained physician[3].

Over the years, there have been several attempts to define professionalism in medicine, with various authors offering different perspectives. However, no single definition has been identified as universally more relevant than others[4, 5]. Medical professionalism can be defined as a set of attitudes, values, behaviors, and interactions that symbolize the relationship between healthcare professionals, patients, and society[6,7]. Professionalism represents the integrity of the professional and directly reflects the trust that patients place in physicians to care for their health and well-being[8].

Furthermore, for a professional to achieve medical professionalism, which is progressively built starting from medical school, it is necessary for the individual to demonstrate a performance that encompasses essential attitudes, skills, and competencies. According to the 2018 National Curriculum Guidelines for Medical Education, medical graduates are expected to have developed general competencies such as healthcare delivery, decision-making, communication, leadership, management, and continuous education[3].

On the other hand, a lack of professionalism during the academic period is a significant concern, as it is closely linked to the perpetuation of unprofessional conduct in professional practice, highlighting the importance of identifying and correcting such behavior early on[1,8,9]. Therefore, it is crucial for medical educators to be aware of the main manifestations of unprofessional behavior among students, such as lack of engagement, dishonest or disrespectful conduct, and lack of self-awareness[10].

Thus, professionalism is increasingly becoming one of the primary requirements for success in a medical career. Early and ongoing faculty supervision has been shown to be essential to achieving this goal, contributing to the progressive reduction of unprofessional behaviors in trained physicians[11,12]. Given this context, the evaluation and monitoring of medical students' professionalism during their education, using reliable and effective instruments, becomes imperative[12-14]. The purpose of this studyt was to translate, adapt, and validate an international scale with these characteristics.

METHOD

A methodological study was conducted to validate an original scale developed in English, carried out between August 2020 and September 2021. The process of cultural translation, adaptation, and validation of the "Professionalism Assessment Scale for Medical Students," authorized by the primary author Dr. Zalika Klemenc-Ketiš, was undertaken.

The Professionalism Assessment Scale (PAS) for medical students was developed in Slovenia by Klemenc-Ketis and Vreck and evaluated students in 2014. The PAS, which contains 22 items, was shown to be reliable and valid in assessing professionalism attitudes in undergraduate medical students. Factor analysis revealed three factors: empathy and humanism (10 items), professional relationship and development (8 items), and responsibility (4 items). The responses are measured using a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The composite PAS score can range from 0 to 100, with higher scores indicating better professionalism attitudes.

The study was carried out in four phases. In the first phase, the PAS underwent translation and cultural adaptation. Initially, the scale was translated and back-translated by two experts in English and Portuguese. In the second phase, the consensus version in Portuguese was reviewed by a committee of six experts—two experts in scientific methodology and instrument validation, two communication experts, and two clinical physicians. This group reviewed the translation and back-translation and assessed the semantic, idiomatic, and cross-cultural equivalence of the scale. In the third phase, a test-retest was conducted with a group of medical students. During the initial administration, students were asked to read the scale, and any doubts were clarified. The students then responded to the scale again after a 10-day interval. Finally, in the fourth phase, after analyzing the results from the previous phase, where the scale demonstrated reliable measurement and good internal validity, the scale was administered to a larger group of students to test the psychometric properties of the final version in Brazilian Portuguese.

As described in the study phases, the population ranged from experts to medical students. The sample sizes were as follows: in the first phase, 2 experts in English and Portuguese; in the second phase, 6 experts; in the third phase, 20 students for the test-retest, and 82 students for the final test.

For the first phase, two professional translators were hired to translate the PAS from English to Portuguese and then back from Portuguese to English. After this process, translation inconsistencies were assessed, and a consensus Portuguese version was finalized.

In the second phase, a meeting with the experts was scheduled to evaluate the semantic, idiomatic, and cross-cultural equivalence of the PAS in Portuguese. Adjustments were made by consensus.

For the third phase, 20 students from the 6th semester of the medical program at the Pernambuco Faculty of Health (FPS) were invited to participate in the test-retest. The survey was administered electronically via a link to the PAS. In this test-retest, the students' understanding of the PAS statements and the equivalence of the Portuguese version with the original version were assessed. After a 10-day interval, the same students responded to the PAS again. With this, it was possible to assess the reliability (minimum 0.7), internal consistency (0.7 to 0.95),

and stability of the Portuguese version of the PAS.

In the fourth and final phase, a final test was conducted with 82 medical students from the FPS. The participants received an electronic link to respond to the data collection instrument, which consisted of three sections covering sociodemographic variables, professionalism attitudes, and the PAS.

For the final test, eligible participants were invited to participate via WhatsApp, where they received a link to access the informed consent process and the research questionnaire. Participant anonymity was ensured. The responses were collected and processed using the open-source Limesurvey software.

The data collection instrument included the following sociodemographic variables: age, gender, race, place of origin, living situation, and partnership status; the following professionalism attitude variables: whether they had parents who were physicians, parents in healthcare, medical relatives, whether they had taken another healthcare course, and whether they could define professionalism in medicine; and finally, their professionalism level.

The data collected from LimeSurvey version 2.00 were automatically exported to an Excel spreadsheet, which was used for data analysis in the Epi-Info version 7.2.5.0 (Centers for Disease Control and Prevention Atlanta, GA, USA) program. For continuous variables, central tendency measures were calculated, including means, standard deviations, medians, and interquartile ranges. For categorical variables, frequency distribution tables were constructed. To assess the association between exposure and outcome variables, the chi-square test was used for categorical variables, and the Student's t-test or Kruskal-Wallis test was used for continuous variables, as appropriate. A significance level of less than 5% was adopted for association verification. For the PAS analysis, the Median Ranking and Cronbach's alpha were calculated.

The study followed the guidelines of Resolution 510/2016 of the National Commission for Ethics in Research (CONEP) and was conducted after approval by the FPS Ethics in Research Committee. Participants were informed of the risks and benefits to which they were exposed during the research and signed the Informed Consent Form, with guarantees of confidentiality for the information collected and the right to withdraw at any time without suffering any harm.

RESULTS

The validation study of the scale was carried out in four phases. The first phase involved translation and cultural adaptation. Initially, translation and back-translation were performed by two experts in English and Portuguese. At the end of this process, translation inconsistencies were evaluated, and a consensus version in Portuguese was defined.

Immediately after, in the second phase, the scale was reviewed and adjusted by a committee of six experts—two experts in scientific methodology and instrument validation, two experts in communication, and two clinical physicians. This group evaluated and adjusted the semantic, idiomatic, and cross-cultural equivalence of all 22 items in the Portuguese version of the PAS.

For the third phase of the study, a test-retest was applied, with a 10-day interval, to a group of 20 medical students, aiming to assess whether the scale provides reliable measurement and good internal validity. With the completion of the test-retest, the following data were obtained in the first application: sample size: 20; mean: 4.96; standard deviation: 0.05. In the second application, the following data were obtained: sample size: 19; mean: 4.93; standard deviation: 0.07. Comparing the data from the two applications, there is a difference between the means of -0.026; standard error of 0.021; significance level P of 0.21.

In the fourth and final phase, 82 students were evaluated, with an average age of 21 years (SD = 1.8), with a predominance of white individuals (66; 80.5%), followed by brown individuals (15; 18.3%) and black individuals (1; 1.2%). Among the participants, 40 were female (48.8%) and 42 were male (51.2%). In terms of origin, 67 students were already residing in the metropolitan area of Recife before entering the university (81.7%). Only 17 students lived alone (20.7%). Regarding the academic period, 40 students were in the 5th to 6th semesters (48.8%), 17 were in the 3rd to 4th semesters (20.7%), 12 were in the 7th to 8th semesters (14.6%), and 13 were in the 1st to 2nd semesters (15.9%) (TABLE 1).

Regarding factors that could influence prior knowledge about professionalism, it was observed that 47 students stated they had relatives working as physicians (57.3%), while 4 said they had a partner working as a physician (4.9%). It was also noted that only 4 students had previously taken another healthcare-related course (4.9%). Finally, it is important to highlight that before responding to the Professionalism Assessment Scale, 60 students stated they could define professionalism (73.2%), 18 said they could not define it (22%), and 4 preferred not to answer (4.9%) (Table 1).

After responding to the questionnaire on sociodemographic variables and variables related to attitudes and degree of professionalism, the students were directed to the Professionalism Assessment Scale. The PAS presented a Cronbach's alpha coefficient of 0.7, which is considered a reliable value and a measure of the internal consistency of the scale. The results indicated that the majority of students agree with all the items on the scale (Table 2).

Table 1 - Final test: sociodemographic characteristics of FPS medical students, 2020-2021

Variables	N	%
Age in years:		
18 a 30	82	100%

continue

continuation

Variables	N	%
Race/ethnicity:		
Black	1	1,22%
White	66	80,50%
Mixed-race	15	18,30%
Gender		
Female	40	48,80%
Male	42	51,20%
Current course uear:		
1º year	13	15,90%
2º year	17	20,70%
3º year	40	48,80%
4º year	12	14,60%
Has relatives who are physicians:		
Yes	47	57,30%
No	35	42,70%
Has a partner who is physician:		
Yes	4	4,90%
No	78	95,10%
Previously studied another health-related course:		
Yes	4	4,90%
No	78	95,10%
Before joining FPS, lived in the Metropolitan Region		
Yes	67	81,70%
No	15	18,30%
Lives alone:		
Yes	17	20,80%
No	65	79,30%
Able to define what professionalism in medicine is:		
Yes	60	73,20%
No	18	22,00%
I prefer not to answer	4	4,90%

Note: SD = Strongly Disagree, D = Disagree, NN = Neither Agree nor Disagree, A = Agree, SA = Strongly Agree, MR = Mean raking, ALPHA = Cronbach's Alpha
Source: The authors.

Table 2 - Professionalism assessment scale for medical students

Dados	DT	DP	NN	CP	CT	RM	ALFA
When attending patients, physicians should put aside their prejudices	1	1	0	4	76	4,86	0,7
The physician's bad mood should not influence patient care	2	1	1	3	75	4,80	0,7
The physician should maintain a respectful relationship with patients	0	0	0	2	80	4,97	0,7

continue

continuation

Dados	DT	DP	NN	CP	CT	RM	ALFA
The physician should have a respectful relationship with colleagues	0	1	0	1	80	4,95	0,6
The physician should continuously strive for professional development	0	0	0	6	76	4,92	0,7
The physician should do their best to assist the patient in each consultation	0	1	0	1	80	4,95	0,6
The physician should not judge patients based on their appearance	0	2	0	5	75	4,86	0,7
The physician should adapt to the patient's level of understanding	0	0	1	1	80	4,96	0,7
Physicians should clearly set limits for patient requests	0	1	2	4	75	4,86	0,7
The physician should be a good role model for students	0	0	1	7	74	4,89	0,6
The physician should be able to separate personal life from professional life	0	0	3	16	63	4,73	0,7
The physician should aim for good professional relationships with the team	0	0	0	1	81	4,98	0,7
Clinical knowledge alone is not sufficient to be a good physician	0	0	3	2	77	4,90	0,7
Communication is the foundation of the physician-patient relationship	0	0	0	7	75	4,91	0,6
The physician should try to understand the patient's context regarding financial difficulties, family relationship issues, and include them in care	0	0	1	5	76	4,91	0,6
Each patient deserves individualized attention	0	0	0	3	79	4,96	0,7
It is the physician's duty to present their professional opinion in a way that patients can understand and accept	0	1	3	7	71	4,80	0,7
The physician may not always know what is best for each patient	2	1	11	11	57	4,46	0,7
The physician has an obligation to protect patient confidentiality	0	0	2	5	75	4,89	0,6
The physician should show interest in their patient	1	0	1	5	75	4,86	0, 7
When there is something the physician does not know, they should clearly communicate it to the patient	0	2	6	9	65	4,67	0,7
The physician is capable of making mistakes	0	1	2	7	72	4,82	0,7

Note: SD = Strongly Disagree, D = Disagree, NN = Neither Agree nor Disagree, A = Agree, SA = Strongly Agree, MR = Mean raking, ALPHA = Cronbach's Alpha
Source: The authors.

DISCUSSION

In the current context, it is extremely important to develop a support instrument to assess the level of professionalism among medical students during their training. The use of efficient and reliable tools can greatly contribute to monitoring these students by the faculty, aiming for better development of the students for future medical practice. This study sought to follow the internationally recommended phases for validating scales developed in another language.

After analyzing the participants' responses to the initial questionnaire, it was found that the majority of the students already knew how to define professionalism (73.2%). Additionally, the students scored high on the Professionalism Assessment Scale (PAS). These results suggest that the students who participated in the study already possess knowledge and opinions about professionalism in medicine. Determining the reason for this high level of knowledge and scoring was not an objective of this study. However, the possibility that having a medical relative influenced the final scores was not evidenced.

It is possible that the academic profile of the students may have influenced the high scores. This may occur because the students are still highly motivated and exhibit strong ethical and moral aspects regarding the medical course. Some studies indicate that these indices tend to decline as students progress through internships and come into contact with various specialties.

There were some issues with the validation stages used in this study. The first two stages occurred without operational or analytical issues. The test-retest stage had a lower number of participants than expected, with a minimum of 30 students estimated, and the response pattern was very uniform, resulting in very low alpha values, despite the lack of statistical differences in the mean scores between the test and retest. In the final stage, student participation was even lower, with a minimum estimate of 150 students. These issues are common and preventable, including the limitations of alpha associated with scale reliability.

Lastly, we believe that the low participation of students in the online survey and its promotion through social media may have been partly due to the large number of surveys in this format. This is especially true for FPS students, who are involved in a Master's program in Health Education that includes many research projects with students.

The implementation of all validation stages was a stimulating and learning process. However, to offer the PAS to the scientific community in a valid form, it will be necessary to conduct another validation study, including the test-retest phase and the final validation phase in the target population.

CONCLUSION

The study revealed that students at the educational institution possess a high level of professionalism, and the scale's final validation stage achieved an acceptable level of reliability, making it suitable for use in other studies.

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