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Article in *Revista Internacional de Educação Superior* · July 2020

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Submitted: 20 may 2020

Accepted: 15 jul. 2020

Published: 17 jul. 2020

[doi> 10.20396/riesup.v7i0.8659850](https://doi.org/10.20396/riesup.v7i0.8659850)

e-location: e021026

ISSN 2446-9424

Antiplagiarism Check



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Training and Pedagogical Involvement Among Higher Education Professors in Health: An Analysis of Medical Courses*

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ABSTRACT

Brazilian higher education has undergone significant expansion in recent years. The combination of public policies and the country's socioeconomic development has conditioned a substantial increase in the number of institutions, vacancies, regions attended by medical courses and, consequently, professors. Although mostly post-graduates, these professors have technical training in the specific area of Health without, in general, developing pedagogical skills. Given the importance of Medicine in Brazilian health care, the training of students is a fundamental topic of study and constant improvement. Evaluating the training of professors, one of the main actors involved in this process, is therefore fundamental. The objective of this study was to evaluate the degree of didactic-pedagogical involvement of undergraduate medical professors in the city of Salvador, Bahia. One hundred and eighty registered professors working in medical undergraduate courses at higher education institutions in the city received virtual access to a structured questionnaire with questions related to training and professional performance in higher education, as well as questions related to socio-demographic aspects. Although the majority of medical professors report knowing the National Curricular Guidelines of the course, in general they do not have the teaching activity as their main profession. In addition, a considerable number of them have never done any kind of pedagogical training and base their teaching activities exclusively on practical experience in their field. Conclusion: The present study shows that there is a lot to be developed in the scope of teaching development in medical education and proposes greater investment in didactic-pedagogical training of these professionals.

KEYWORDS

Professor training. Higher education. Medical education.

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Formação e Envolvimento Pedagógico entre Docentes do Ensino Superior em Saúde: Uma Análise dos Cursos Médicos

RESUMO

O ensino superior brasileiro passou por expansão significativa nos últimos anos. A combinação de políticas públicas e desenvolvimento socioeconômico do país condicionou um aumento substancial do número de instituições, de vagas, de regiões atendidas por cursos de Medicina e, conseqüentemente, de professores. Apesar de majoritariamente pós-graduados, esses professores têm treinamento técnico na área específica da Saúde sem, em geral, desenvolverem competências pedagógicas. Dada a importância da Medicina na assistência à saúde brasileira, a formação dos estudantes é tópico fundamental de estudo e de constante melhoria. Avaliar a capacitação do professor, um dos principais atores envolvidos nesse processo, é, portanto, fundamental. O objetivo deste estudo foi avaliar o grau de envolvimento didático-pedagógico dos professores de graduação em Medicina da cidade de Salvador, Bahia. Cento e oitenta professores registrados e atuantes em cursos de graduação de Medicina em instituições de ensino superior da cidade receberam acesso virtual a um questionário estruturado com perguntas referentes à formação e atuação profissional no magistério superior, além de questões de cunho sócio demográfico. Os professores de Medicina, apesar de majoritariamente relatarem conhecer as Diretrizes Curriculares Nacionais do curso, em geral não têm a atividade docente como principal ofício. Além disso, parcela considerável jamais fez nenhum tipo de capacitação pedagógica e baseia sua atuação docente exclusivamente pela experiência prática no seu campo de atuação. O presente estudo demonstra que há muito a ser desenvolvido no âmbito do desenvolvimento docente no ensino médico e propõe maior investimento na capacitação didático-pedagógica desses profissionais.

PALAVRAS-CHAVE

Capacitação de professores. Educação superior. Educação médica.

Formación e Implicación Pedagógica entre los Docentes de Educación Superior em Salud: Un Análisis de los Cursos de Medicina

RESUMEN

Recientemente, la educación superior brasileña ha experimentado una expansión significativa. La combinación de políticas públicas y desarrollo socioeconómico proporcionó un aumento sustancial en el número de instituciones, vacantes, regiones atendidas por cursos de medicina y en el número de profesores. Aunque en su mayoría son graduados, estos maestros tienen capacitación técnica en el área específica de la Salud sin, en general, desarrollar habilidades pedagógicas. Dada la importancia de la medicina en la atención médica brasileña, la capacitación de los estudiantes es un tema fundamental de estudio y de mejora constante. Por lo tanto, es esencial evaluar la capacitación docente, uno de los principales actores involucrados en este proceso. El objetivo de este estudio fue evaluar el grado de participación pedagógica de los profesores de medicina de pregrado en la ciudad de Salvador, Bahía. Ciento ochenta profesores registrados y activos en cursos de pregrado en Medicina en instituciones de educación superior de la ciudad recibieron acceso virtual a un cuestionario estructurado con preguntas sobre capacitación y desempeño profesional en educación superior, además de cuestiones sociodemográficas. Los profesores de medicina, aunque en su mayoría informan que conocen las Pautas Curriculares Nacionales del curso, en general no tienen la actividad docente como su trabajo principal. Además, una parte considerable nunca ha realizado ningún tipo de formación pedagógica y basa su desempeño docente únicamente en la experiencia práctica en su campo. El presente estudio demuestra que hay mucho por desarrollar dentro del alcance del desarrollo docente en educación médica.

PALABRAS CLAVE

Formación del profesorado. Educación universitaria. Educación médica.

Introduction

The policy of expanding access to higher education practiced in the country, resulting from the market opening produced by neoliberal governments, created conditions for the number of institutions and vacancies in higher education to increase considerably (BARROS, 2015; BARROS; BOAVENTURA, 2005). In the area of health, there have been significant expansions in several undergraduate courses such as Medicine (OLIVEIRA *et al.*, 2019). Different government policies contributed to this scenario, among which we can highlight the University for All Program (PROUNI) and the Student Fund for Higher Education (FIES), which expanded the opportunities for university access in the country, and the "More Doctors" program, which contributed to the expansion of the number of vacancies in Medicine (MANCERO; DO VALE; MARTINS, 2015; MINAYO; GUALHANO, 2016).

In the last decade, especially led by the expansion of private higher education, the medical area has achieved substantial increases in the number of educational institutions, in the number of available places and in the regions covered by both. In 2018, for example, 323 courses were active, compared to 179 in 2010, an increase of almost twice (OLIVEIRA *et al.*, 2019). Currently, there are more than 30,000 active medical undergraduate vacancies, with a significant portion created in the last decade.

Following this trend, the number of professionals working as higher education professors has also increased. Of this universe, those working in the health sciences area, including the Medicine course, represent a large portion of these professionals. The great majority of them have post-graduation courses, mostly master's degrees in private institutions and doctorate degrees in public ones, as demonstrated by the last CENSO of higher education (BRAZIL, 2019).

On the other hand, the postgraduate courses in the medical area offered in Brazil, in general, have as their main objective the scientific development of professors, without a well-defined focus on pedagogy. Thus, postgraduate courses do not guarantee the formation of professors capable of pedagogical practice, which ends up potentially damaging the teaching-learning process (MANTOVANI; CANAN, 2016), especially of the generation that currently attends higher education classrooms due to their peculiar characteristics (QUINTANILHA, 2017). In other words, not only the postgraduate courses provide subsidies for the performance in higher education, it is important to promote the continued pedagogical formation of the teaching staff (BATISTA *et al.*, 2015; MACHADO *et al.*, 2017).

The national curricular guidelines (DCN) of the undergraduate medical course foresee the use of methodologies that privilege the active participation of the student, the promotion of interdisciplinarity in coherence with the curricular development axis, the use of different teaching-learning scenarios that encourage, for example, work in multidisciplinary groups (BRAZIL, 2014; PERIM *et al.*, 2009; QUINTANILHA; COSTA; COUTINHO, 2018; SILVA, 2011), all in line with the precepts of the problem-based learning method (PBL, of English Problem Based Learning), currently recommended for this professional training, for its greater adherence to the public health context in which the educational activity is inserted (CEZAR *et al.*, 2010; GOMES *et al.*, 2009). These precepts differ from traditional teaching in which most professors were trained and, therefore, require substantial changes in the way

professors teach, requiring the active participation of professors in this process (DURAN et al., 2013). In this context, preparation, training and perception of changes are essential items of professional adaptation, but studies show that there are many difficulties in paradigmatic change by professors, including those of Medicine (COSTA, 2007).

In addition, the technical work of professors and their index of scientific publications are still privileged, especially in medical schools, and there are, in general, no clear indexes of evaluation and pedagogical performance. There is, therefore, a predilection for professors' technical-scientific skills over didactic-pedagogical skills (MACHADO et al., 2017). Studies show that the quality of the Medicine course is related to the performance of the professors in the sense, mainly, of the broad updating of their didactic-pedagogical procedures (BALZAN; WANDERCIL, 2019).

Thus, given the importance of quality medical training for social development and health care in the country, as well as the importance of professors in this context, this work aimed to investigate the involvement of medical professors in relation to pedagogical theories and practices. In addition, the variables gender, age, teaching time, basic education, and type of institution with the professor's degree of didactic-pedagogical specialization were evaluated.

This article is divided into six distinct parts. This introduction contextualizes the chosen theme and justifies its investigation, the method subsection that details the practical aspects involved in the research, the results subdivision that describes in detail all findings, the discussion subsection that highlights, justifies and discusses in detail the main results of the research, the final considerations where the main conclusions are described and, finally, the theoretical references that underpinned this investigation.

Method

This is a transversal, quantitative and analytical study, which proposed to evaluate the training and pedagogical involvement among professors working in medical undergraduate courses in the city of Salvador, Bahia.

The research was carried out with 180 professors duly registered and working in medical undergraduate courses in public or private accredited institutions of higher education in the city. They received virtual access to a structured questionnaire with personal questions (gender, age, original education, maximum degree, teaching time) regarding their education and professional performance in the Medicine course. This data collection instrument was composed of 14 (fourteen) questions, most of which were multiple choice and using the Likert type measurement scale (ROBINSON, 2014).

For the analysis of the frequencies of responses and for the categorical data, the chi-square test of Pearson (χ^2) was performed to check if there were differences in the pattern of responses given by professors. An alpha error (α) of 5% was considered in the analyses, which corresponds to a value of $p < 0.05$ for statistically significant association. All data were tabulated and analyzed in GraphPad Prism 8.0.

The current norms for Research in Human Beings were respected, according to the resolution of the Ministry of Health and National Health Council, through the National Commission on Ethics in Research (CONEP), Resolution 466/12. The present study obeyed the criteria of the mentioned Resolution and authorization was requested from the participants through the Term of Free and Informed Consent, consisting of a page of clarification about the research, in addition to the request for authorization to use the data. The project was approved by the Ethics in Research Committee (CEP) under number 3,521,451 (CAAE 13468519.3.0000.5033).

Results

The profile of the sample of responding professors pointed to a prevalence of male professors (56.1%), with a majority medical degree (77.8%) and a mean age of 42.4 years (± 10.5). The majority of professors with Master's/PhD degrees (60.0%), with teaching time under 5 years or over 10 years (37.8% each) and main teaching activity in a private educational institution (84.4%) (Table 1).

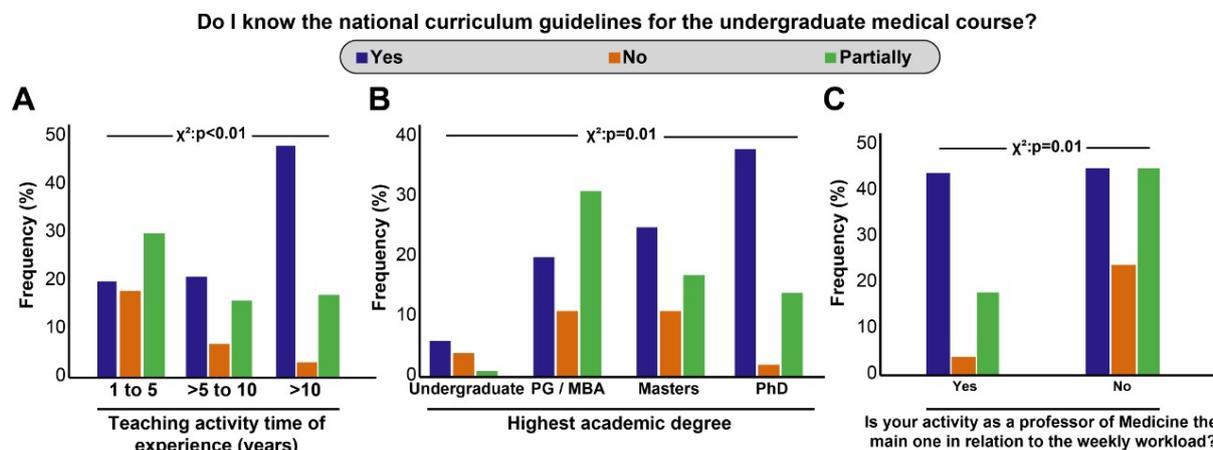
In general, professors stated that they were familiar with the national curricular guidelines (DCN) of the undergraduate medical course (49.2%), which may be associated with greater participation in improvement courses, especially those of short duration (Table 1). A detailed analysis revealed that the longer "teaching time", longer "degree" and "consider your teaching activity as the main one" were positively associated with the knowledge of NCD (Figure 1).

Table 1. Respondent Professor Sample Profile

Gender	Frequency	%
Male	101	56,1
Female	79	43,9
Age	Frequency	%
<30 years	6	3,3
30-39 years	81	45,0
40-49 years	56	31,1
50-59 years	20	11,1
>60 years	17	9,4
Original Training	Frequency	%
Medicine	140	77,8
Others (health)	37	20,6
Other areas of knowledge	3	1,7
Maximum Title	Frequency	%
Graduation	10	5,6
Post-Graduation/MBA	62	34,4
Master	54	30,0
PhD	54	30,0
Teaching Time	Frequency	%
1-5 years	68	37,8
> 5 to 10 years	44	24,4
> 10 years	68	37,8
Main Teaching Performance by Administrative Category of IES	Frequency	%
Private	152	84,4
Public	28	15,6
Are you familiar with DCN Medicine?	Frequency	%
Yes	88	49,2
No	29	16,2
Partially	62	34,6
Have you participated in teaching improvement courses in the pedagogy area?	Frequency	%
Yes, promoted by the institution I work for	56	31,3%
Yes, promoted by external institutions	48	26,8%
No	44	24,6%
Yes, in various locations	31	17,3%
What type(s) of course(s) in the teaching area has (have) been undertaken?	Frequency	%
Short duration	62	46,3%
Miscellaneous	28	20,9%
Master	26	19,4%
Specialization/MBA	18	13,4%

Source: authors themselves

Figure 1. Factors associated with the knowledge of the national curricular guidelines (DCN) of the undergraduate medical course. (A) "Duration of activity in years" (B) "Maximum degree" and (C) "Activity as a professor of medicine is the main one in relation to the weekly professional workload". Comparisons were made using the Chi2 test (X^2).



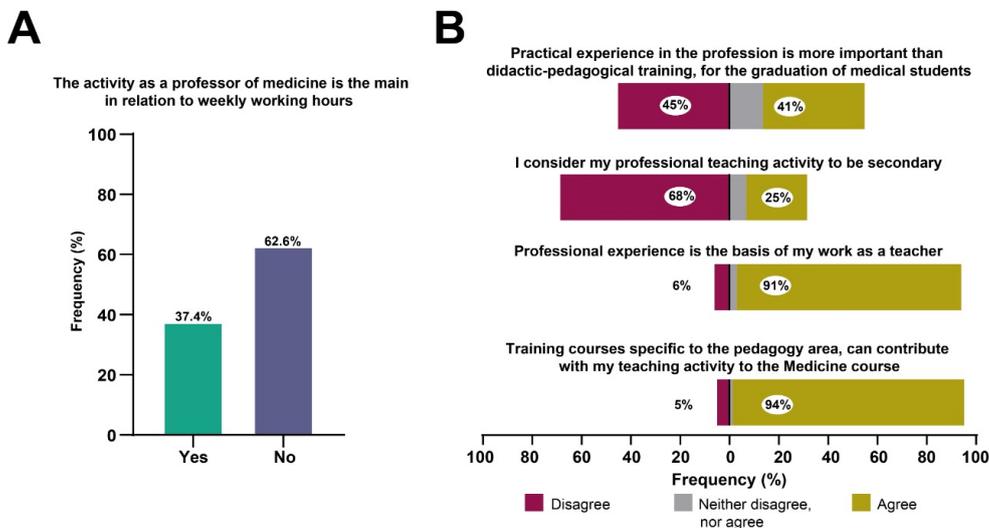
Source: authors themselves

Another representative result found in the investigated sample refers to the fact that 62.6% of the respondents did not consider the activity as a professor of medicine as the main one in relation to the weekly professional workload (Figure 2A). Of this universe, the representation of medical professors is the majority. Among them, about 70% do not consider the teaching activity as the main one. Moreover, approximately one quarter of professors consider the professional teaching activity as secondary, corroborating the observation of the existence of amateurism in the teaching function (Figure 2B).

When assessing whether professors consider that practical experience in the profession is more important than didactic-pedagogical training for medical students, an equity in the pattern of responses was observed. Among medical professors, the pattern was similar, 61 of them (43.6%) disagreed that practical experience is the most important item for the teaching function, while 59 (42.1%) agreed with this statement. Finally, the great majority of the interviewees believe that practical professional experience is the basis for teaching and agree that didactic-pedagogical training courses can contribute to the teaching activity (Figure 2B).

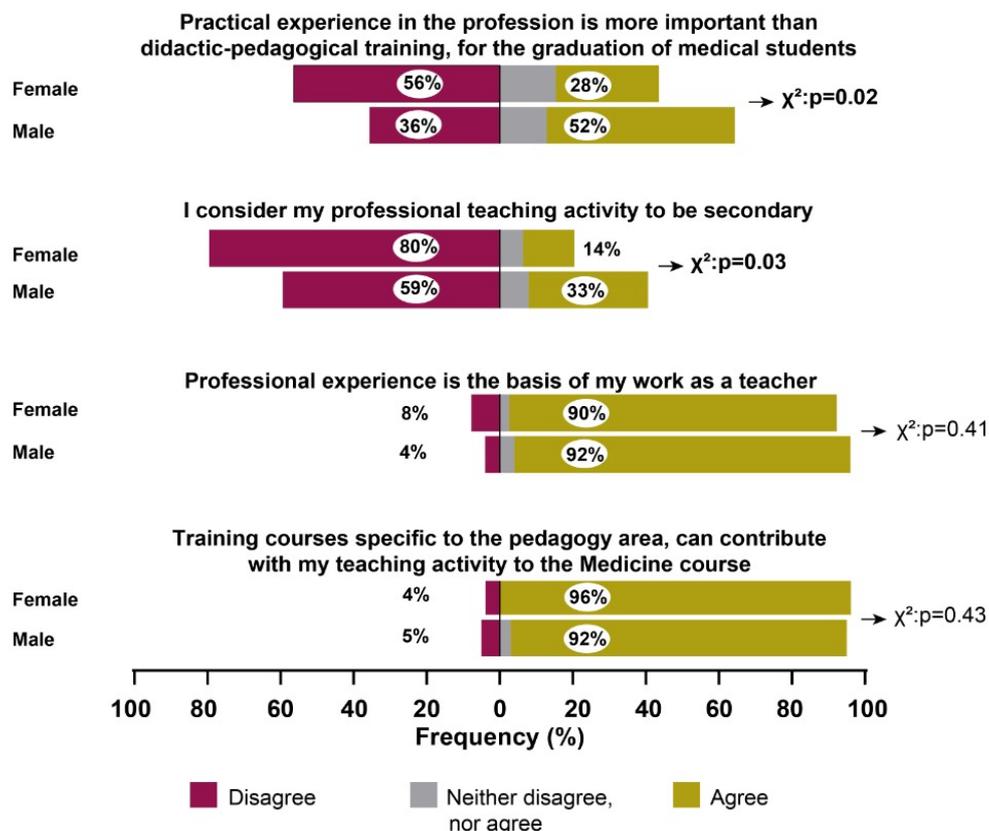
The opinions of professors, when stratified by gender, differed significantly in some aspects. Female professors, unlike their male colleagues, mostly disagreed that practical experience is more important than pedagogical training in medical education. Moreover, although both disagreed with the proposition that teaching activity should be secondary, women were more inclined to consider it a priority (Figure 3).

Figure 2. Profile of professors assessed. (A) Activities as a professor in relation to weekly professional workload. (B) Evaluation of professors according to their experience, professional activities, training courses and professional experience.



Source: authors themselves

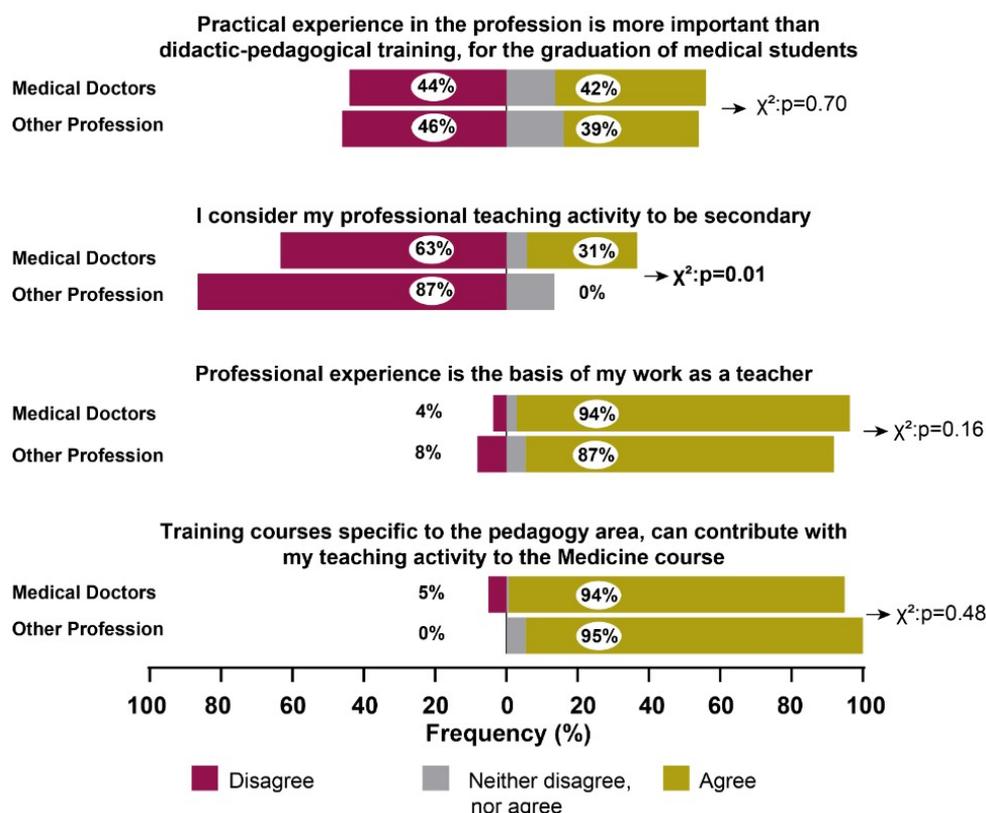
Figure 3. Gender distribution and professional profile among the professors evaluated. Evaluation of professors according to their experience, professional activities, training courses and professional experience compared by gender. Comparisons were made using the Chi2 test (X^2).



Source: authors themselves

Significant differences were evidenced when comparing medical and non-medical professors working in the medical course. Non-medical professors were unanimous in not considering the teaching activity as secondary, while a substantial part of physicians working in higher education considered their professional activity in the classroom as secondary ($p < 0.01$). Professionals from both backgrounds considered their practical basis as fundamental in the teaching profession and agreed on the importance of pedagogical training courses in the construction of their professional activity in HEI (Figure 4). Despite this, an important part of the professors interviewed had never taken improvement courses in the area, these numbers being more expressive among medical professors (26.4%), but without statistically significant differences ($p = 0.24$).

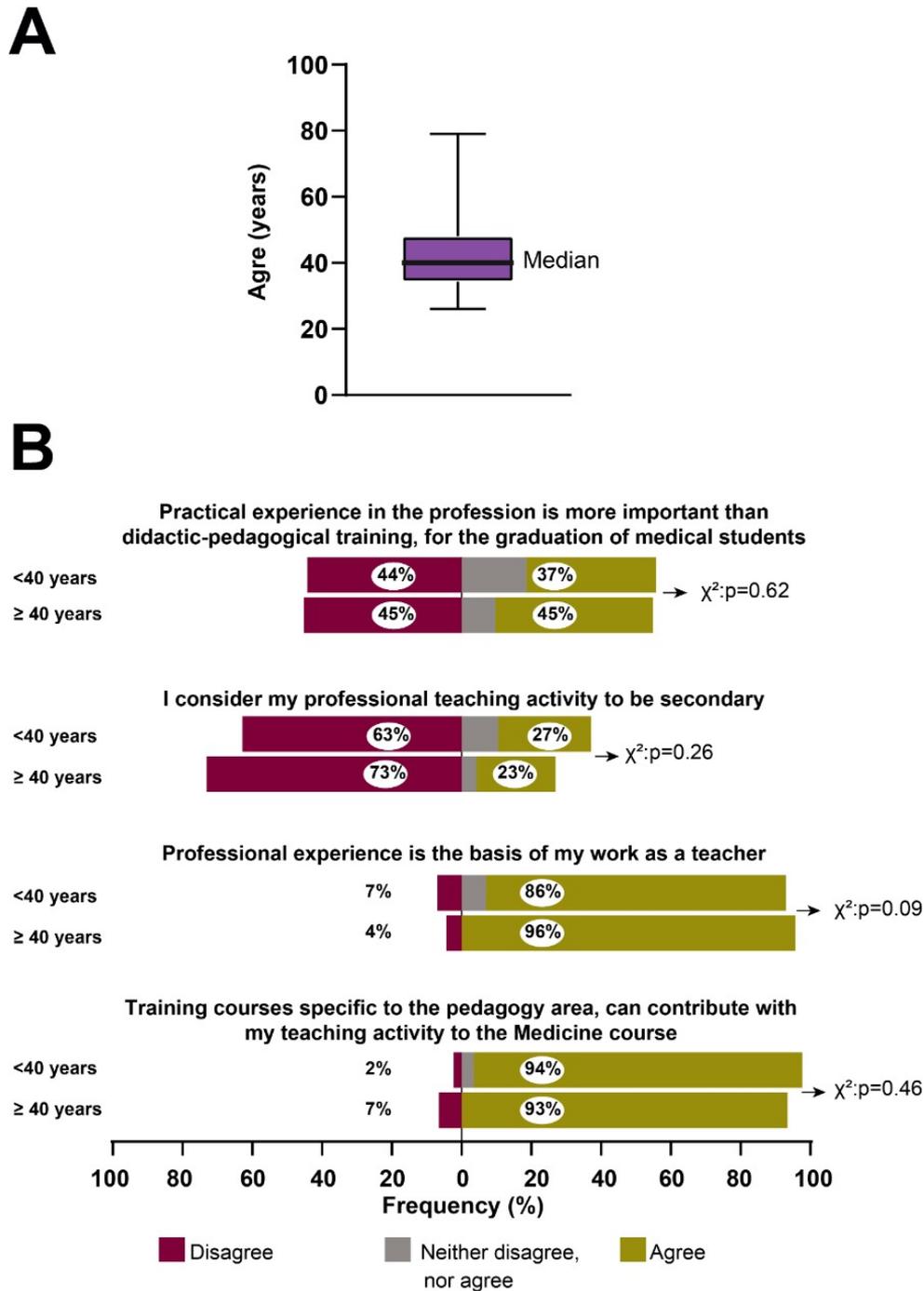
Figure 4. Distribution of profession and professional profile among the professors evaluated. Evaluation of professors according to their experience, professional activities, training courses and professional experience compared by profession (doctor vs. other profession). Comparisons were made using the Chi2 test (X^2).



Source: authors themselves

We also assessed whether age could contribute in any way to the pedagogical involvement of professors. We stratified our sample into two age groups using the median (40 years) as the cut-off point. Interestingly, no significant differences between the two age groups were visualized for any of the proposed questions (Figure 5).

Figure 5. Distribution of age and professional profile among the professors evaluated. (A) Age distribution presented in median and interquartile intervals. (B) Evaluation of professors according to their experience, professional activities, training courses and professional experience compared by age (<40 years vs. ≥40 years). Comparisons were made using the Chi2 test (X^2).



Source: authors themselves

Discussion

Due to curricular changes in the medical undergraduate course and the substantial increase in the number of vacancies in medical education institutions in various regions of the country, it was necessary to increase the number of professors working in these courses. Most of these professionals, despite having postgraduate education, were not trained for teaching activities, since didactic-pedagogical education is not a compulsory attribute in the stricta sensum postgraduate program and, in general, has a derisory workload in the broad sensum modality (BRAZIL, 2007).

In this scenario, it can be observed in higher education courses in general, including that of medicine, that professors do not have a pedagogical basis for higher education, which can be determinant in the fact that they (do not) know how to deal with several specific situations of the teaching profession (SOUZA; PASSALACQUA, 2019). This is a condition already described in the literature that opens up the amateur character, from the pedagogical perspective, of teaching in higher education (MEDEIROS, 2004). In contrast to the more basic levels of formation, in which we truly find professor-professionals, with solid formation in licentiate in the theme in which they will exercise the regency, higher education is prodigal in the figure of professional-professors, who exercise the teaching by dilettantism.

Analyzing our sample, it was found that, despite the feminization of the Medicine course in Brazil (SCHEFFER *et al.*, 2013), most of the professors interviewed are still male. This profile may be related to the fact that, historically, the course of Medicine is mostly male and our sample has a mean age over 40 years. In this context, gender, unlike age, was a variable that showed significant differences in this study. Women showed more recognition of didactic-pedagogical education, besides significantly valuing their work as professors. This observation may be related to the age profile of women, since although regency training is not compulsory at the postgraduate level, in recent decades many programs have begun to admit the aggregation of higher education methodology subjects and teaching activity in their basic curricular structure.

The great majority of the interviewees stated that they are fully or partially familiar with the National Curricular Guidelines (DCN) of the undergraduate medical course, a very relevant aspect with regard to the pedagogical involvement of professors. The DCNs advocate a more general, humane and critical medical education, with teaching focused on the student and no longer on the professor as previously practiced. Therefore, it is of extreme importance that professors are aware of this academic document, which should develop in the student a critical view of reality and an overview of medicine. In this sense, our analysis has shown that such knowledge has a strong association with the teaching time, with its maximum degree, in considering the teaching as its main activity and in conducting courses in the area of higher education didactics, demonstrating that knowing the guidelines is strongly related to professional exercise and involvement with the teaching practice.

On the other hand, a considerable fraction of medical professors considers their teaching activity as secondary. This may be related to several issues such as professor devaluation in Brazil and the financial gains that these professionals can achieve outside the classroom, which are usually much higher than the revenues received in the area of education (GOMES *et al.*, 2013; VARGAS, 2010). On the other hand, administering classes and teaching are much more tied to the issue of personal fulfillment, of transmitting their knowledge to other people and contributing to the formation of future doctors, which may impact the permanence of these doctors in the teaching career. In other traditional fields (Engineering, Law, etc.) the same phenomenon occurs, mainly considering professionals with established careers in the public area, where the difference in income assessment in relation to the regency is quite distinct. In the private area, this logic can be even more acute. Both spheres of professional activity take the regency as a dilettantism, accepting, as a priority, positions as hourly wage earners at night; being, those in the public area, those who most develop dedication to the flexibilizations typical of the segment (MEDEIROS, 2004).

Among physicians, when asked if they consider their practical experience more important than didactic-pedagogical training to collaborate with the training of medical students, there was a variability in the pattern of responses, generating equity among those who agree and disagree with the proposed assertion. This demonstrates the importance of the union between these two aspects, which is confirmed by the observation that the great majority of the interviewees consider that pedagogical training can contribute positively to their performance in the classroom. Recent studies have shown that, in fact, these professionals have skills in their specialties, but without the necessary training to add practical experience and pedagogical knowledge (MACHADO *et al.*, 2017).

However, although the vast majority agree that training courses in the area of higher education didactics can contribute to the teaching activity, an expressive number of professionals, especially physicians, reported never to have taken courses in this sense. It is known that the day-to-day life of a medical professional is troubled, which makes it difficult to carry out training courses, especially for those who consider the teaching activity to be secondary. In this sense, although it is still an insufficient movement and in need of improvement (BATISTA *et al.*, 2015), it is interesting that the medical teaching institutions themselves invest deeply and organizationally in courses focused on the didactic-pedagogical area, since a good part of the professionals reported to do so when there is availability (ALMEIDA; MAIA; BATISTA, 2013).

When analyzing the teaching practice of physicians in the light of the theory of commitment to the career, considering aspects such as resilience, identity and planning, we infer that the professionals researched do not have identification as the activity of a professor, but rather with the medical career. When questioned about the workload dedicated to teaching activities and whether the practical experience in the medical profession was more important than the training to teach, the percentages of denial and agreement obtained a significant difference from the others, which denotes less identification with the teaching career. However, the percentage of masters and doctors in the sample is significant, which allows us

to infer that there is an inclination in the population studied by career planning as medical professionals.

Although a considerable portion of the individuals evaluated report having knowledge of NCDs and also recognize the importance of training courses, these facts are not characterized as an aspect of the planning attribute, which is configured as a search to improve knowledge in a specific area of knowledge related to the profession. It is perceived that there is an inclination for the improvement of the teaching activity which, however, is not configured in practice. As the study was limited to describing the interest in making training courses for the professors investigated, and not the quantity of didactic pedagogical training courses carried out at a given time by the individuals, there is an impossibility of a deeper analysis regarding the career planning criteria.

It was also verified that, related to the resilience aspect, the researched professionals demonstrate interest in remaining as professors, even having to balance the practice of Medicine and medical teaching.

Final Considerations

The improvement of the didactic-pedagogical practices of medical professors should not be neglected and it is of utmost importance that professors incorporate efficient ways of teaching in their professional academic life. It is not intended to overvalue this field of knowledge, but rather to shed light on an issue that has great notoriety for its social impact.

Given the results presented, it is concluded that there is relative pedagogical involvement among medical professors, since most of them report to know the NCDs. On the other hand, most of them do not consider their teaching activity as their main activity and, although they agree that training courses in the area of pedagogy can contribute to the teaching activity, a representative portion of professors do not carry them out.

When mediating theoretical and empirical knowledge that will be used in the practice of Medicine by its disciples, the Medicine professor should try to understand which are the learning objectives that are implicit in the process. The consolidation of learning in the individual passes through the cognitive, affective and psychomotor dimensions and it is through the alignment between these dimensions that the student is able to remember, understand, apply, evaluate, analyze and create through the structuring of all the theoretical content to which he was exposed (FERRAZ; BELHOT, 2010).

There are several ways to train for teaching, as was evident in this study, but the training cannot exist without the adherence of the professor, without the desire of this professional to improve their teaching and pedagogical practices. A relevant finding for the discussion proposed by this study is the fact that it demonstrates that professor training does not depend on the offer of strategies for improving teaching practice on the part of HEIs, but rather on the willingness and availability of the professor to participate in activities

programmed for this purpose. In this context, it is important to highlight the possibility of individual and external search (outside HEI) for ways to improve the way knowledge is transmitted. In this way, investment in teaching practice can come from both the HEI to which the professor is committed, as well as from his or her individual desire to become more qualified for this purpose.

From the above, it is concluded that it is important to invest heavily in the didactic-pedagogical training of teaching professionals in the Medicine course, especially at this time of profound changes in the field of education, so that future doctors can count on better professors based on their training that will certainly reflect on the health care service provided to the population.

When reflecting on the teaching and learning process, it is also necessary that the students' opinions be considered, since it is they who receive the product offered by the professor and, for this reason, their opinions can be of great relevance for reflection. Future research could investigate what implications, in the students' view, the different degrees of pedagogical involvement of their professors may have through research that seeks to compare their perceptions with the teaching variables addressed in this study.

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