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Medical preceptorship: perceptions and perspectives of new family doctors in Brazil

Preceptoria médica: percepções e perspectivas de novos médicos de família no Brasil

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ABSTRACT

Introduction: Learning in practical environments consists in an essential component of medical education. In recent decades, medical schools have sought to immerse their students in professional settings since the early years of studying. In these scenarios, the preceptors, more experienced physicians, are responsible for supporting their students in the development of professional knowledge, skills, and attitudes.

Objective: This study aimed to analyze the perceptions and perspectives of participants of the Preceptorship Training Course (PTC) in Family Medicine - UNA-SUS about preceptorship and medical education.

Methods: The quantitative descriptive study was conducted in two phases: 'Population Outlining' phase, including participants' academic data, and 'Survey Questionnaire' phase, performed by applying a questionnaire through a digital platform.

Results: The 'Population Outlining' identified 2,530 participants in the PTC, with the predominance of females and southeastern residents. The 'Survey Questionnaire' phase constituted of 232 respondents, of whom 73.4% reported acknowledging their preceptors' contributions, and more than 90% expressed interest in teaching activities, valuing their curriculum enhancement and academic acknowledge.

Conclusion: Our findings evidenced positive perceptions about preceptorship and a propensity to engage in teaching activities among the participants, reinforcing the importance of debates about qualification, recruiting and retention of preceptors.

Keywords: Preceptorship; Family Medicine; Internship and Residency; Medical Education.

RESUMO

Introdução: *O aprendizado em ambientes práticos consiste em um componente essencial da educação médica. Nas últimas décadas, as escolas médicas têm procurado imergir os estudantes em ambientes profissionais desde os primeiros anos do curso. Nesses cenários, médicos mais experientes, preceptores, são responsáveis por apoiar seus aprendizes no desenvolvimento de conhecimentos, habilidades e atitudes profissionais.*

Objetivo: *Este estudo teve como objetivo analisar as percepções e perspectivas de participantes do curso de Especialização em Preceptoria em Medicina de Família – UNA-SUS sobre preceptoria e educação médica.*

Método: *O estudo quantitativo descritivo foi realizado em duas fases: "delineamento da população", que incluiu dados acadêmicos dos participantes, e "questionário de pesquisa", em que se aplicou um questionário por meio de uma plataforma digital.*

Resultado: *O "delineamento da população" identificou 2.530 participantes do curso de Especialização, com predominância do sexo feminino e moradores da Região Sudeste. A fase "questionário da pesquisa" foi composta por 232 respondentes, dos quais 73,4% relataram reconhecer as contribuições de seus preceptores, e mais de 90% manifestaram interesse em atividades de ensino, valorizando sua valorização curricular e seu reconhecimento acadêmico.*

Conclusão: *Nossos achados evidenciaram percepções positivas sobre a preceptoria e a propensão ao engajamento em atividades docentes dos participantes, reforçando a importância de debates sobre qualificação, recrutamento e retenção de preceptores.*

Palavras-chave: *Preceptoria; Medicina de Família; Internato e Residência; Educação Médica.*

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INTRODUCTION

Throughout medical education, healthcare settings are considered essential components of the teaching-learning process, providing noteworthy experiences for students and resident physicians regarding the complexity of interactions with patients, their problems, and health professionals[1]. Thus, in recent decades, medical schools aimed to immerse their students in professional settings since the early years of studying, increasing the relationship between theory and practice[2–5].

In professional scenarios, theoretical knowledge is directly applied to patient care, improving technical skills such as anamnesis, physical examination, and reasoning, as well as interpersonal competencies such as communication, teamwork, and professionalism[6,7]complex and often frustrating task, a task many clinicians assume without adequate preparation or orientation. Twelve roles have previously been described for medical teachers, grouped into six major tasks: (1. Considering the complexity of attributes to be gained in practical settings, the role of seasoned professionals emerges as fundamental to provide supervision and guidance to medical students[8-10].

The role of an 'experienced physician' is described under different terms and concepts in literature, including the expressions 'supervisor', 'tutor', 'mentor', and 'preceptor', with the latter being one of the most widespread in medical education[2,8,10]. The construction of a favorable environment for developing student knowledge, skills, and attitudes consistent with the essential characteristics of professional performance are some of the preceptor's attributions[2,8,10].

Traditionally, physicians have their first experience in preceptorship during medical residency, being responsible for the supervision of medical students and first-year residents. These experiences can represent a relevant stimulus for their interest in medical teaching activities[11,12]. This model of teaching, denominated 'Near-peer teaching', can have mutual benefits for supervising residents and supervised undergraduates and residents[11]. From this perspective, preceptorship training programs for residents can contribute to the constitution of pedagogical knowledge and tools, as well as technical and assistance competencies[11,12].

Considering this scenario, the Brazilian Ministry of Health launched the Preceptorship Training Course (PTC) in Family Medicine, which aimed to offer medical education training for resident physicians in Family Medicine (FM), in view of the strategic role of FM for Primary Health Care (PHC)[13-17].

However, understanding the motivations for physicians' engagement in teaching activities and the difficulties and obstacles of such attributions are fundamental aspects for attracting and retaining professionals in teaching and learning scenarios[18]. Thus, this study aimed to analyze the perceptions and perspectives of participants of the Preceptorship Training Course (PTC) in Preceptorship in FM about preceptorship and medical education activities.

MATERIAL AND METHODS

Study scenario and design

This quantitative descriptive study aimed to analyze the perspectives and perceptions of participants of the PTC about preceptorship and medical education activities. This educational initiative consists of a distance training program offered by the *'Universidade Aberta do Sistema Único de Saúde'* (UNA-SUS), under Brazilian federal government funding. Since its launching in 2016, the PTC has offered three editions: First Edition (2016–2018), Second Edition (2018–2020), and Third Edition (2019–2021)[13-17].

The research was conducted from October/2020 to April/2021, being organized into two phases: 'Population Outlining' (Phase 1) and 'Survey Questionnaire' (Phase 2), which began after the approval of the Research Ethics Committee of the Federal University of Health Sciences of Porto Alegre (UFCSPA) - CAAE: 31351920.2.0000.5345 / Report: 4.164.125.

Data collection

In the 'Population Outlining' Phase, the casuistry consisted of the registration data of enrolled and completion PTC participants, from its three editions: First Edition (2016-2018), Second Edition (2018-2020), and Third Edition (2019-2021). We analyzed the sociodemographic variables obtained from the participants' registration data, such as course edition, gender, age, and state and city of origin.

Regarding the Survey Questionnaire Phase, we included enrolled and completion PTC participants, who were invited via e-mail with the support of the UNA-SUS/UFCSPA Academic Secretariat, FM residency programs and medical entities. We applied the questionnaire using the Google Forms® virtual environment.

The questionnaire included three thematic scopes: 'Sociodemographic identification' (gender, age, city and state of origin), 'Academic Medical Profile' (undergraduate institution, residency institution, experience in preceptorship), and 'Interest in medical education' (insertion perspectives, interest in teaching and/or preceptorship). As for the medical schools and FM residency institutions, we categorized these entities according to their administrative spheres into federal, state, municipal, and private/philanthropic.

The questionnaire sections about 'Academic Medical Profile' and 'Interest in medical education' were based on the study by Deutsch *et al*., which addressed experiences and interests in preceptorship activities of German family doctors[19]. Regarding the factors that stimulated one's interest in

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preceptorship activities, we stratified the answers into degrees of stimulation, in order to establish the means that allows comparing the subgroups. Thus, the degrees of stimulation related to one's interest were classified as: 'No interest' (0), 'Low interest' (+1), 'Moderate interest' (+2), 'High interest' (+3) and 'Very high interest' (+4).

Furthermore, we also classified potential difficulties in preceptorship performance in positive and negative degrees according to the presented propositions as: 'Strongly disagree' (-2), 'Partially disagree' (-1), 'Partially agree' (+1), and 'Strongly agree' (+2).

Data Analysis

We performed the statistical analysis using the Pearson's chi-square Test for categorical variables and the Kruskal-Wallis Test for discrete quantitative variables with asymmetrical distribution, considering as a parameter of statistical significance a *p*-value less than or equal to 5% ($p \leq 0.05$) with a 95% confidence interval(95%CI).

The distribution pattern of variables was verified through the Kolmogorov-Smirnov Normality Test, indicated for casuistries with more than 40 subjects, as observed in both phases (Phase 1 with n=2530, Phase 2 with n=232). We submitted the quantitative variables with statistical significance in the Kruskal-Wallis Test ($p= <0.05$) to the Scheffé Post-Hoc Test, adopted as an alternative to the Nemenyi Test, which is unavailable in the IBM software® SPSS® 23.

RESULTS

In the 'Population Outlining' phase, we identified 2,530 participants' registrations in the PTC in FM. The First Edition had the highest number of participants (38.5%), followed by Second and Third Editions with 33.5% and 28%, respectively (Table 1). Regarding the regional distribution, most of the participants were from the Southeast region, while the Midwest region had the lowest participation. The mean age of the participants was 33.1 years, with a predominance of females (Table 1).

In phase 2, 232 participants responded the questionnaires, representing 9.17% of the total registrations in the PTC (n = 2,530). The Second and Third Editions showed the highest participation numbers, with 85 and 87 respondents, respectively, as well as the Southeast (44.4%) and South (24.6%) regions. The gender and age compositions were similar to the 'Population Outlining', with a female predominance (66.8%) and a mean age of 32.43 years (Table 1).

About the satisfaction with FM residency programs, we observed a positive general perspective, with 42.2% of respondents affirming to be 'satisfied' and 22% 'very satisfied'. Municipal and federal institutions demonstrated higher degrees of satisfaction with FM residency programs - 3.92 and 3.95, respectively (Table 2).

Table 1. Profile of the participants of the Preceptorship Training Course in FM — 'Population Outlining' and 'Survey Questionnaire' phases.

Population Outlining - Phase 1		
Course editions	*n*	*%*
First Edition (2016-2018)	974	38.5
Second Edition (2018-2020)	847	33.5
Third Edition (2019-2021)	709	28.0
Age		
Mean	33.21	
SD	5.58	
Minimum	26	
Maximum	77	
Gender	*n*	*%*
Male	875	33.2
Female	1655	66.8
Regions	*n*	*%*
North	225	6.9
Northeast	467	16.4
Midwest	198	6.9
Southeast	1237	45.7
South	403	24.1
Total	2530	100.0
Survey Questionnaire - Phase 2		
Course editions	*n*	*%*
First Edition (2016-2018)	60	25.9
Second Edition (2018-2020)	85	36.6
Third Edition (2019-2021)	87	37.5
Age		
Mean	32.43	
SD	6.40	
Minimum	26	
Maximum	77	
Gender	*n*	*%*
Male	77	33.2
Female	155	66.8
Regions	*n*	*%*
North	16	6.9
Northeast	38	16.4
Midwest	16	6.9
Southeast	106	45.7
South	56	24.1
Total	232	100.0

SD = Standard Deviation
Source: Database of the study.

Table 2. Satisfaction with FM residency programs and perception about the preceptors' contributions — 'Survey Questionnaire' phase.

Satisfaction with FM residency programs						
Scale of satisfaction				*n*	*%*	
Totally dissatisfied		1		12	5.2	
Dissatisfied		2		11	4.7	
Partially satisfied		3		57	24.6	
Satisfied		4		98	42.2	
Very satisfied		5		51	22.0	
Total				229	100.0	
*Regions**	*n*	x̄	*SD*	*CI (95%)*	*H*	*p*
North	15	3.60	0.73	3.20 – 4.0		
Northeast	38	3.29	1.06	2.940 – 3.639		
Midwest	16	3.56	1.15	2.948 – 4.177	13.80	0.008
Southeast	105	3.78	1.07	3.573 – 3.989		
South	55	3.98	0.87	3.746 – 4.217		
*Institutions***	*n*	x̄	*SD*	*CI (95%)*	*H*	*p*
Federal	44	3.95	0.83	3.70 – 4.21		
State	40	3.47	1.03	3.14 – 3.80	13.02	0.005
Municipal	95	3.92	0.93	3.73 – 4.11		
Philanthropic / Private	50	3.32	1.20	2.98 – 3.66		
Total	229	3.72	1.03	3.58 – 3.85		
Perceptions of preceptors' contributions						
Scale of perception				*n*	*%*	
Totally irrelevant		1		5	2.2	
Little relevant		2		17	7.4	
Partially relevant		3		39	17.0	
Sufficiently relevant		4		102	44.3	
Totally relevant		5		67	29.1	
Total				230	100.0	
*Institutions****	*n*	x̄	*SD*	*CI (95%)*	*H*	*p*
Federal	44	4.29	0.70	4.08 – 4.51		
State	40	3.57	1.19	3.19 – 3.95	15.74	0.001*
Municipal	96	4.04w	0.84	3.87 – 4.21		
Philanthropic / Private	50	3.58	1.05	3.28 – 3.88		
Total	230	3.91	0.97	3.78 – 4.03		

SD = Standard Deviation; CI = Confidence Interval; x̄ = Median; H = Kruskal – Wallis Test;

*The Scheffé Post-Hoc Test evidenced a significant difference between the regions regarding the satisfaction with the FM residency programs, demonstrating a higher degree of satisfaction in the South region compared to the Northeast region (p= 0.036; 95%CI = 0.028 – 1.357). The set of regions showed a tendency towards stratification (South > Southeast > Midwest > North > Northeast).

**The Scheffé Post-Hoc Test evidenced a significant difference between the spheres of the institutions regarding the satisfaction with the FM residency programs, demonstrating a higher degree of satisfaction in federal institutions compared to private / philanthropic institutions (p= 0.026; CI 95%: 0.052 – 1.217), being higher in municipal institutions than in private / philanthropic institutions (p= 0.008; 95%CI: 0.114 – 1.099).

***The Scheffé Post-Hoc Test evidenced a significant difference between the spheres of the institutions regarding the perception of the preceptors' contributions, demonstrating a greater degree in federal institutions in comparison to state institutions (p = 0.007; CI 95% = 0.143 – 1.298) and private / philanthropic institutions (p = 0.004; CI 95% = 0.169 – 1.262), and higher in municipal institutions than in private / philanthropic institutions (p = 0.049; CI 95% = 0.001 – 0.923). The spheres of the institutions showed a tendency towards stratification (Federal > Municipal > Philanthropic / Private > State).

Source: Database of the study.

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Regarding the preceptors' contributions, there was a predominance of favorable perceptions among the participants, with the 'totally relevant' (29.1%) and 'sufficiently relevant' (44.3%) classifications standing out, with the highest means in federal and municipal institutions, 4.29 and 4.04, respectively (Table 2). The correlation between satisfaction with the FM residency programs and the preceptors' contribution denoted statistical significance (p=<0.001), although with a weak correlation coefficient.

Regarding the offering of preceptorship training from residency programs, it was reported by 55.4% of participants, with a higher frequency in the First Edition (68.3%). Preceptorship experience with medical students had a high prevalence among the respondents (85.7), as well as experience with beginner residents (54.6%) - Table 3.

The interest in medical education activities is expressed with considerably high frequencies in all regions and course editions. Concerning the influence of preceptorship experiences, we observed that involvement in medical students' supervision positively affected aspiration for teaching activities, increasing six times the propensity to be interested in such attributions (OR = 6.06, p = <0.001). Similarly, the involvement in the supervision of medical students and beginner residents throughout the FM residency can intensify the interest in residency preceptorship by 3 and 6 times, respectively (OR 3.625, p = 0.002; OR = 6.24, p = 0.001) (Table 3).

About medical education positions, the participants stated greater interest in becoming 'undergraduate preceptor' (85%) and 'residency preceptor' (89.5%) - Figure 1. These trends

Table 3. Preceptorship training programs and experiences and their influence on participants' engagement in medical education activities — 'Survey Questionnaire' phase.

Preceptorship training programs and experiences											
		1st edition		*2nd edition*		*3rd edition*		*Total*		X^2	*p**
		%	*n*	%	*n*	%	*n*	%	*n*		
Preceptorship with students	Yes	41	68.3	45	52.9	42	48.8	128	55.4	5.77*	0.056*
	No	19	31.7	40	47.1	44	51.2	103	44.6		
Preceptorship with beginner residents	Yes	51	85.0	74	87.1	73	84.9	198	85.7	0.20*	0.90*
	No	9	15.0	11	12.9	13	15.1	33	14.3		
Preceptorship training programs**	Yes	40	66.7	40	48.2	44	52.4	124	54.6	5.06*	0.08*
	No	20	33.3	43	51.8	40	47.6	103	45.4		
Total								**231**	**100.0**		
Influence of preceptorship experiences											
*Interest in teaching activities**											
		Yes		No		X^2	*p*	OR	*95%CI*		
		%	n	%	n				Minimum	Maximum	
Preceptorship with students	Yes	191	96.5	7	3.5	11.42	< 0.001	6.06	1.89	19.39	
	No	27	81.8	6	18.2						
Preceptorship with beginner residents	Yes	121	97.6	3	2.4	5.53	0.02	4.33	1.16	16.20	
	No	93	90.3	10	9.7						
Preceptorship training programs**	Yes	123	96.1	5	3.9	1.60	0.20	2.07	0.65	6.53	
	No	95	92.2	8	7.8						
*Interest in preceptorship at the undergraduate course**											
		Yes		No		X^2	*p*	OR	*95%CI*		
		%	n	%	n				Minimum	Maximum	
Preceptorship with students	Yes	165	83.3	33	16.7	5.09	0.024	2.50	1.10	5.64	
	No	22	66.7	11	33.3						
Preceptorship with beginner residents	Yes	101	81.5	23	18.5	0.00	0.984	0.99	0.50	1.94	
	No	84	81.6	19	18.4						
Preceptorship training programs**	Yes	105	82.0	23	18.0	0.21	0.642	1.16	0.60	2.25	
	No	82	79.6	21	20.4						

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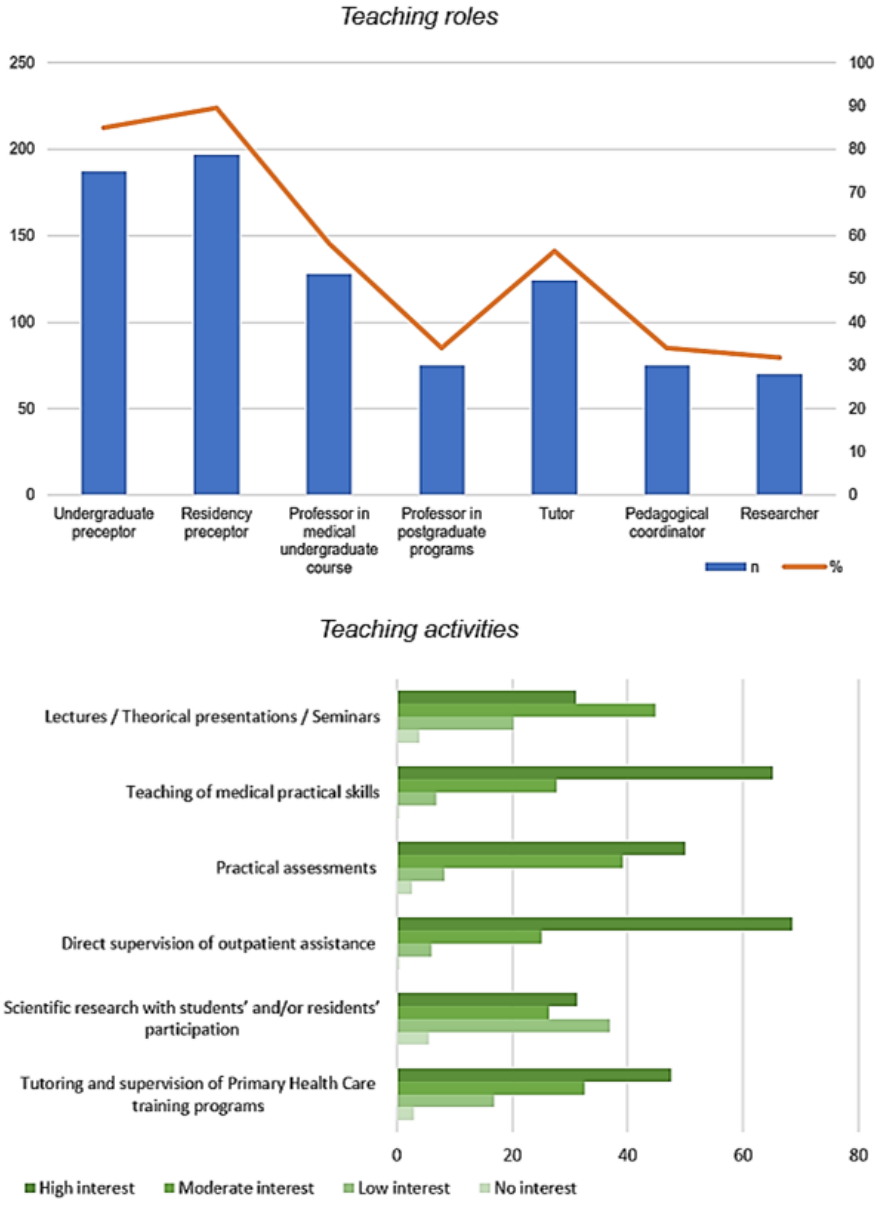
Table 3. Continuation.

Influence of preceptorship experiences										
*Interest in preceptorship at medical residency**										
		Yes		No		X^2	*p*	OR	*95%CI*	
		%	n	%	n				Minimum	Maximum
Preceptorship with students	Yes	174	87.9	24	12.1	9.90	0.002	3.62	1.56	8.40
	No	22	66.7	11	33.3					
Preceptorship with beginner residents	Yes	117	94.4	7	5.6	20.01	< 0.001	6.24	2.59	15.00
	No	75	72.8	28	27.2					
Preceptorship training programs**	Yes	107	83.6	21	16.4	0.35	0.553	0.80	0.38	1.66
	No	89	86.4	14	13.6					

CI = Confidence Interval; OR = Odds Ratio; X^2 = Chi-square Test
* Pearson's Chi-square Test
** Preceptorship training programs offered by FM residency programs.
Source: Database of the study.

Figure 1. Interest in teaching roles and activities - 'Survey Questionnaire' phase.



Source: Database of the study.

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were more significant in the First Edition Course, with 91.2% for 'undergraduate preceptor', and in the Second Edition Course, with 93.6% for 'residency preceptor'.

Considering the spheres of institutions, we did not verify any relevant differences regarding the medical education positions of interest, except for 'Tutor', more frequently identified in State institutions (64.9%), and 'Researcher', more prevalent in federal ones (47.7%). We also emphasize the greater propensity for researcher positions among respondents of the First Edition (50.9%), substantially higher than in the Third Edition (20.0%).

Regarding the types of medical education activities, the respondents demonstrated more interest in practical assistance attributions, such as 'Teaching of practical medical skills' (65.1%), 'Practical assessments' (50.0%), and 'Direct outpatient supervision' (68.3%) – Figure 1. About the factors that stimulated one's interest in preceptorship activities, the participants emphasized as the main motivations: 'Opportunity to enhance one's curriculum through academic degree and/or recognition' ($\bar{x}$ =3.345), 'Official recognition of universities / educational institutions' ($\bar{x}$ =3.26) and 'Access to up-to-date clinical trainings' ($\bar{x}$ =3.25).

On the other hand, the respondents also pointed out their perceptions about the difficulties to perform preceptorship attributions, such as 'Fear of increasing workload' ($\bar{x}$ =0.154) and 'Fear of time consumption by teaching activities' ($\bar{x}$ =0.392). In contrast, 'Fear of patients refusing the presence of undergraduate students' and 'Insecurity about the adequacy of skills and/or professional curriculum' were the least perceived difficulties (Figure 2).

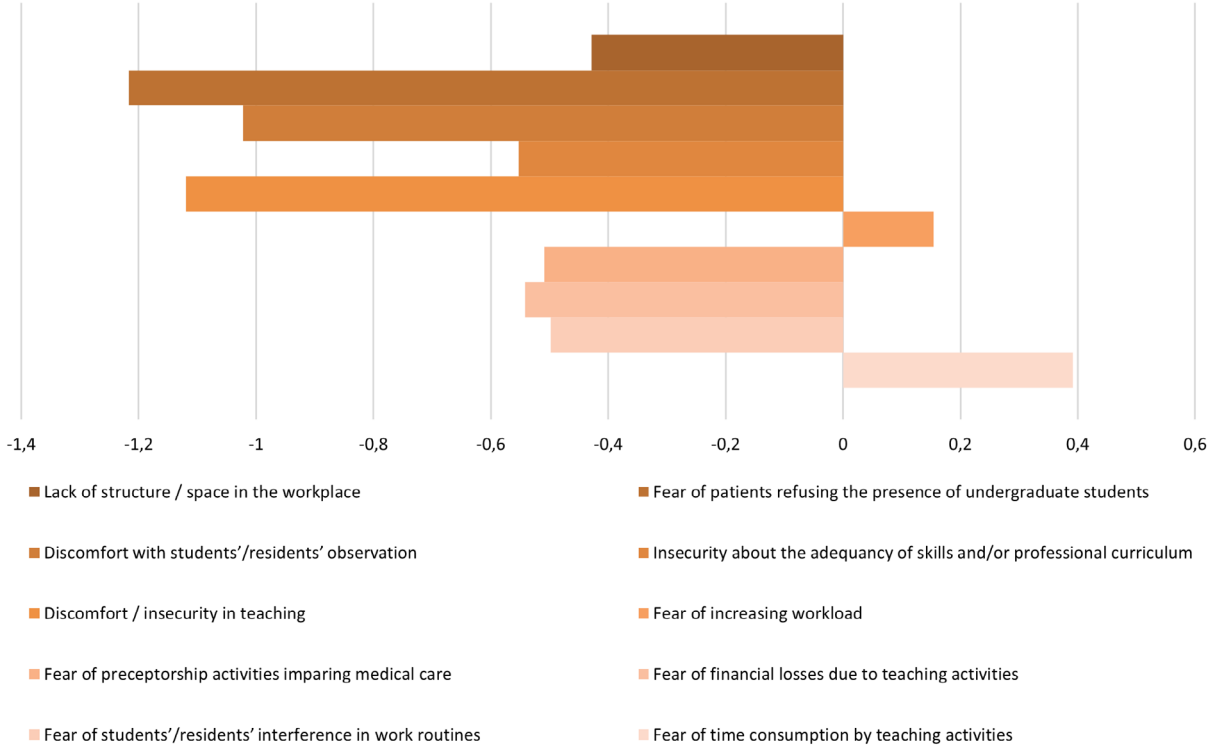
DISCUSSION

The preceptor's role: conceptions, experiences, and contributions

Throughout history, medical education has been based on the master-apprentice paradigm, in which a seasoned physician would conduct the professional training process of his apprentices based on practical experiences[20,21]. The term 'preceptor' is the most established expression in literature, which originated from the Latin word '*praecipio*' and was adopted to refer to the act of giving precepts or instructions during the Middle Ages. Since the 16th century, the term has been associated with the concept of educator, mentor, and instructor[22].

Despite the diversity of terminologies, we can understand the preceptors' role based on their primary attributions: the supervision and guidance of students and residents in professional practice settings[10,23]. According to Botti and Rego, the preceptor performs several roles in medical training, acting as being a reference for professional attitudes, a facilitator of

Figure 2. Difficulties in involvement in preceptorship activities — 'Survey Questionnaire' phase.



* Means of the degrees of agreement or disagreement. Degrees of agreement or disagreement with the difficulties: 'Strongly disagree' (-2), 'Partially disagree' (-1), 'Partially agree' (+1), and 'Strongly agree' (+2).
Source: Database of the study.

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clinical reasoning, a manager of the teaching-learning process, and an evaluator of performance and technical progress[24].

Supporting the relevance of preceptors in medical education, the findings of the 'Survey Questionnaire' phase showed that a significant number of respondents attributed a positive role to preceptorship, stating that the preceptors' contributions were 'relevant' and 'totally relevant' to their professional training. These results are in agreement with a study on a FM residency program in Northeast Brazil, which also identified positive considerations about the effectiveness of the preceptors in the learning process[25].

The preceptors' contributions were positively correlated with the satisfaction with the FM residency programs. This association, although not very significant, may be related to the intense interaction between preceptors and residents during residency training, which determine most of the experiences in practical fields, and, consequently, the perception about the residency programs. However, further research is needed to clarify this trend.

Due to the diversity of Primary Health Care (PHC) settings, the experiences of students and residents may be heterogeneous, being strongly influenced by factors such as the preceptors' technical and pedagogical competencies, conditions of the teaching-learning scenario, as well as the students' personal characteristics[26]. For this reason, the preceptors' training is an essential component of medical education qualification.

The awakening of interest in medical education: the influence of residency experiences

Throughout medical residency, specializing doctors are often exposed to various teaching experiences, resulting from the supervision of students and residents[27]. Therefore, several authors have highlighted the potential of residents' involvement in teaching-learning activities, emphasizing their stimulus to critical reflection, clinical insight and intellectual skills, as well as encouragement to constant study and updating[28].

From this perspective, the substantial majority of the participants reported involvement in preceptorship activities during residency, either with undergraduate students (85.6%) and/or with other residents (54.6%). This tendency is in agreement with a Canadian research with FM residents, which identified about 80% participation in preceptorship activities[29].

According to DiPaula *et al.*, the residents' performance in preceptorship roles can stimulate their desire to become involved in medical education[27]. Thus, considering that some of the current residents will be future preceptors or professors, we should consider stimulating the interest of these beginner professionals[27,30,31].

Considering such aspect, we found a significant interest in medical education among the participants, particularly regarding the roles of preceptor in undergraduate education (85%) and medical residency (89.5%).These findings diverge from a study with general practitioners in Germany, which evidenced a lower frequency of engagement (60.1%)[19]. This discrepancy may be related to the differences in the participants' profiles: residents or newly FM specialists in the Course of Preceptorship and general practitioners in the German research.

The perspectives about medical education activities demonstrated a preference for those related to clinical practice, in agreement with findings reported by Deutsch *et al.*[19], which showed a higher degree of attraction among general practitioners for activities in healthcare settings. However, although to a lesser extension, theorical activities also showed important predilections - 31% of 'High interest' and 44.8% of 'Moderate interest', agreeing with trends of a research with FM specialists in São Paulo - Brazil, which revealed 61.2% of interest in lectures and 48.1% in tutorials[32]. The preference for practical activities may be related to the intrinsic assistance-related characteristics of preceptorship and medical residency, the participants' main experience contexts.

Experiences in preceptorship in the FM residency fostered interest in medical education, with the supervision of medical students increasing one's aspiration to undergraduate preceptorship, whereas the guidance of beginner residents increased the inclination to become a preceptor in residency programs. However, such experiences should be supported by medical education training initiatives, in order to subsidize the 'resident preceptors' practices[28,33].

From this point of view, Hill *et al*[12]. denominated preceptorship training programs during residency as 'Resident-as-Teacher programs', emphasizing their potential contributions to improving pedagogical skills of resident physicians. Nevertheless, only half of the participants declared they had attended any programs or received educational instruction on preceptorship during their residency programs.

In accordance with our findings, Ng *et al.* also indicated that only 60% of FM residents reported receiving educational training in preceptorship[29]. However, diverging from these trends, two North American studies observed preceptorship training initiatives in FM[34] and Emergency Medicine[35] residency programs, with 85% and 70%, respectively.

Regarding the difficulties in implementing 'Resident-as-Teacher programs', Achkar *et al.*[34] highlighted the availability and readiness of residents and teachers, as well as the lack of funding resources. Notwithstanding, further studies are needed to assess the effects and benefits of peer education.

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Motivations and benefits of engaging in medical preceptorship

Understanding the motivations of engaging in medical education is an essential component for the recruiting and retaining of preceptors[36]. Hence, Bentes *et al.*[37] classify the motivational factors as intrinsic, related to professional and educational identities (aspirations, previous experiences, personal satisfaction); and extrinsic, represented by financial rewards, working conditions, recognition by the medical-academic community and professional networking. Considering these aspects, the participants' motivations were shown to be mainly related to extrinsic factors, such as curriculum enhancement, official recognition and academic degrees.

Moreover, it is worth mentioning that, particularly in the FM field, intrinsic motivations such as 'pleasure in teaching' and 'transmission of generalist practice' have also been described in the literature[18,38], although we did not investigate these factors in the present study. Such tendencies emphasize the relevance given by family physicians to the recruitment of new professionals to the specialty[26,39].

Other factor to be considered consists in the knowledge exchange and the encouragement of 'recycling' arising from the preceptor-student relationship[18,22,40,41], as well as the stimulus to critical reflection about work processes and daily behavior due to the students' presence in healthcare settings[23,40].

Financial compensation appears among the main motivations, although with modest prominence in comparison to the other incentives. The offer of financial compensation is not a consensus in the literature, being pointed out sometimes as an important attribute for recruiting preceptors[18,19,30,42,43], and sometimes as a factor of little relevance for these professionals[26,39].

Regardless of its attractiveness, financial incentives for preceptors are unusual in most medical residency programs. Traditionally, educational institutions have relied on altruistic feelings and intrinsic benefits to attract preceptors to PHC, contrary to the professionals' recent propensity to value financial compensation[30,31].

In contrast, educational institutions tend to provide alternative compensations, offering academic resources such as access to electronic libraries and databases, subsidies for attending conferences, seminars and courses, among other conveniences[31,36]. Within this scope, our findings showed a mild interest in gaining access to educational resources and the academic community, in agreement with the tendency identified by Latessa *et al.*[43].

The access to programs of continuing clinical education is a strong motivation among PHC preceptors in Australia[18] and the United States[43], inspiring a feeling of appreciation among the professionals. From another point of view, general practitioners from Germany list adequate organization by the university, long-term planning, and the availability of teaching materials as the main motivations for involvement in medical education activities[19]. In spite of the diversity of the dimensions, the motivations for engaging in medical education are fundamental conditions for the recruitment and retention of professionals.

Difficulties and obstacles of preceptorship: the challenge of integrating medical education and healthcare

The FM practice encompasses a complex set of attributions and competencies that involve clinical, psychosocial, and community dimensions, demanding that family doctors develop certain skills as time management, teamwork and rational use of healthcare resources. Therefore, the involvement with preceptorship activities requires the conciliation of these responsibilities with the teaching-learning processes, which can make professional routines even more difficult[26,36,40].

In general, there was a low perception of difficulties and obstacles to acting as a preceptor among the participants, although they are concerned about time management. The time consumption is frequently reported in literature as a hardship to assume teaching responsibilities, mainly due to the concern of decreasing medical assistance productivity[19,26,36,40].

However, Castells *et al.* ponder that the limitation of healthcare to outpatient-centered care, which privilege biomedical approaches, is focused on the diseases, opposing the person-centered principles that underlie FM practices[44]. Moreover, the pressures of productivity goals and precarious working conditions together with the preceptorship demands may lead to disappointment, frustration, and withdrawal of these physicians[42].

Regarding the medical-assistance scenario, we observed an infrequent perception about the patients' discomfort with the presence of students, reinforcing that the integration between healthcare services and universities can be beneficial, improving the quality of health service as well as the patients' satisfaction, as highlighted in a Brazilian study[45]. According to this research, the patients consider having access to more information about their health situation in consultations with the presence of students, which may be related to the discussions between preceptors and students, where clinical conditions and diseases are explained in more details, frequently in the presence of the patients[45].

Considering these aspects, the relevance of integrating health services and universities becomes evident to ensure the improvement of medical education conditions and the

work environment, as well as the qualification of healthcare assistance.

CONCLUSION

Considering our findings, we can infer that the participants disclosed positive perceptions about preceptors and their contributions to professional qualification, as well as favorable prospects for their involvement in medical education activities. These tendencies reinforce the relevance of preceptorship in the medical training process, requiring suitable pedagogical trainings, especially considering the diversity of preceptor attributions.

Teaching skills do not consist of trivial skills, susceptible to natural or improvised acquisition. On the contrary, they represent a set of traits that make up the identity of the physician educator. Thus, the pedagogical training of preceptors appears as a strategic policy for the qualification of undergraduate medical courses and medical residency programs.

Therefore, in view of these considerations, we highlighted the need for a broad debate among educational institutions, medical entities, health service managers, governments, and academic community about the qualification of preceptorship, and consequently the quality of medical education.

CONTRIBUIÇÃO DOS AUTORES

Iago Gonçalves Ferreira: conception of the study; design of methods; acquisition, analysis, and interpretation of data; draft writing; final manuscript writing and review; final approval of the submitted version. Márcia Rosa da Costa: design of methods; analysis, and interpretation of data; academic and intellectual support; critical review; final manuscript writing and review; final approval of the submitted version. Silvio César Cazella: design of methods; analysis, and interpretation of data; academic and intellectual support; critical review; final manuscript writing and review; final approval of the submitted version.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

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