

World experiences in preceptorship in medical undergraduate education: an integrative review

Experiências mundiais em preceptoria na graduação médica: uma revisão integrativa

Aline Barreto de Almeida Nordi¹ alinenordi@ufscar.br
Renata Giannecchini Bongiovanni Kishi¹ renatagbk@ufscar.br
Beatriz Barea Carvalho¹ biabarea.bbc@gmail.com
Danilo Nogueira Evangelista¹ daniioevangelista1992@gmail.com
João Pedro de Barros Fernandes Gaion¹ joaogaion@gmail.com
Julia Saggin¹ juliasaggin@estudante.ufscar.br
Letícia Bassani Maida¹ leticiabmaida@gmail.com
Majorie Valéria Lopes da Silva¹ majorie@estudante.ufscar.br

ABSTRACT

Introduction: The preceptor, as the physician who facilitates the teaching-learning process in practice settings, is essential for in-service training in the undergraduate medical school. The importance of these professionals in the training of new physicians highlights the need to understand the preceptorship activity from a medical education perspective.

Objective: To verify, in the scientific literature, global experiences in preceptorship in the undergraduate medical school.

Method: Integrative literature review using standardized descriptors in the following databases: LILACS - Latin American and Caribbean Literature in Health Sciences, MEDLINE - Online System for Analysis and Recovery of Medical Literature and SciELO - Scientific Electronic Library Online, between 2009 to 2019. Analysis of the articles was carried out using the thematic category technique.

Results: The search in the databases resulted in 274 studies, of which 23 were analyzed and discussed in full. Detailing of the global experiences in preceptorship was systematized into two categories: intrinsic and extrinsic aspects for the exercise of preceptorship and educational strategies used by the preceptor.

Conclusions: The analysis of the articles indicates the importance of the students' actions together with preceptors for the acquisition of professional skills. A critical factor for the success of monitoring students in professional practice is the preceptor's ability to assume the role of educator, in order to see the students in their uniqueness and in their integral development. Therefore, the significance of the preceptors' qualifications becomes more evident.

Keywords: Medical Education; Education, Medical, Undergraduate; Preceptorship.

RESUMO

Introdução: O preceptor, como médico que facilita o processo ensino-aprendizagem nos cenários de prática, é essencial para o ensino em serviço na graduação em Medicina. A importância desses profissionais na formação de novos médicos expõe a necessidade de compreender a atividade de preceptoria na perspectiva da educação médica.

Objetivo: Este estudo teve como objetivo verificar, na literatura científica, as experiências mundiais em preceptoria na graduação em Medicina.

Método: Trata-se de revisão integrativa da literatura a partir de descritores padronizados nas bases de dados Literatura Latino-Americana e do Caribe em Ciências da Saúde (LILACS), Medical Literature Analysis and Retrieval System Online (MEDLINE) e Scientific Electronic Library Online (SciELO), entre 2009 e 2019. A análise dos artigos foi realizada por meio da técnica de categoria temática.

Resultado: A busca nas bases de dados resultou em 274 estudos, dos quais 23 foram analisados e discutidos na íntegra. O detalhamento das experiências mundiais em preceptoria foi sistematizado em duas categorias: aspectos intrínsecos e extrínsecos para o exercício da preceptoria e estratégias educacionais utilizadas pelo preceptor.

Conclusão: A análise dos artigos indica a importância da atuação dos estudantes em conjunto com os preceptores para aquisição de competências profissionais. Um fator crítico para o sucesso do acompanhamento de estudantes na prática profissional é a capacidade do preceptor em assumir o papel de educador, de modo a enxergar o estudante na sua singularidade e no desenvolvimento integral. Dessa forma, fica mais evidente a relevância da qualificação dos preceptores.

Palavras-chave: Educação Médica; Educação de Graduação em Medicina; Preceptoria.

¹ Universidade Federal de São Carlos, São Carlos, São Paulo, Brazil.

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INTRODUCTION

Updates on the concept of health and its care model have encouraged debates, in Brazil and worldwide, about the changes required to adapt medical education to emerging demands. Evidence in medical education affirms that curricula with a strong inclination towards practice are more effective in training professionals prepared for the needs of their localities¹⁻⁴. In Brazil, the National Curriculum Guidelines (NCG) of the Undergraduate Medical School indicate the need to adapt the curricula to expand the practice scenarios and emphasize primary care⁵⁻⁷.

The preceptor is essential for in-service training in undergraduate medical school. Most studies use the term "preceptor" to designate those who accompany or facilitate the teaching-learning process in practice scenarios⁸⁻¹². However, the inclusion of students in health services alone does not guarantee effective learning^{9,10}. The presence of students in unprepared educational environments can generate negative results for both students and the professionals involved^{11,12}. The scenario of inclusion of students from the early periods into professional practice exposes the importance of the preceptor in the training of new doctors.

To understand how the preceptor works, the aim of this study was to verify in the scientific literature the world experiences in preceptorship in the undergraduate medical school.

METHOD

The methodological choice for the study was the integrative literature review, as it integrates Evidence-Based Medicine and due to the scope amplitude for the analysis. This method allows the inclusion of experimental and non-experimental studies for several purposes, such as defining concepts and reviewing theories and evidence that enhance the understanding of a consistent and understandable panorama^{13,14}.

This review used the following phases in its design¹³: creation of the guiding question; literature search; definition of information extracted from the selected studies; evaluation of included studies and presentation of the integrative review.

The guiding question was: What are the world experiences with preceptorship in undergraduate teaching in Medicine? The literature search was performed using publications indexed in the electronic databases: *Literatura Latino-Americana e Literatura do Caribe em Ciências da Saúde* (LILACS), Medical Literature Analysis and Retrieval System online (MEDLINE) and Scientific Electronic Library Online (SCIELO) arranged according to the standards of the Health Sciences Descriptors (DeCS) in Portuguese, English and Spanish: preceptoria/preceptorship/preceptoría; educação de graduação em medicina/education, medical, undergraduate/

educación de pregrado en medicina and educação médica/medical education/educación médica. The search terms were individually crossed in the aforementioned electronic databases, using the Boolean operator "AND" aiming to restrict the scope of the search and include articles relevant to the topic.

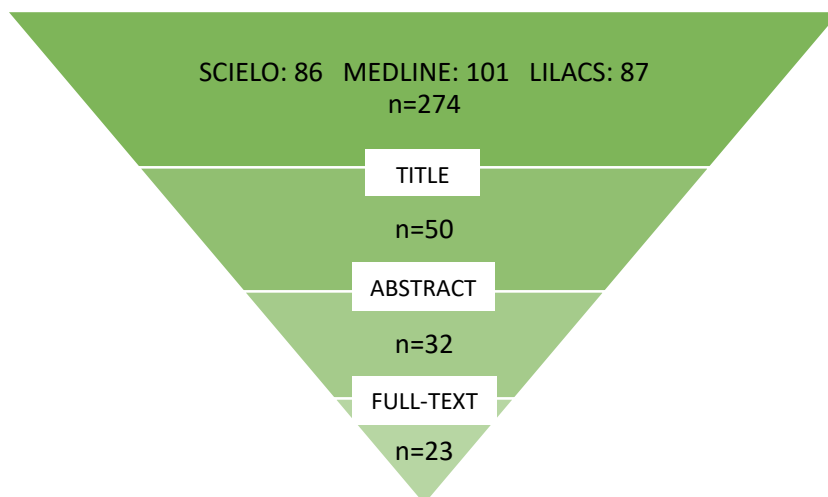
The study inclusion criteria were: original articles that answer the guiding question of this review, published between 2009 and 2019; full texts available in the electronic databases; publications in Portuguese, English and/or Spanish; articles related to the Undergraduate Course in Medicine. The first exclusion criteria were texts in the form of theses, dissertations, monographs, editorials, review articles (narrative, systematic and integrative) and abstracts from events. After the initial corpus was defined, we progressed to the article content stage, starting with the title, abstract and full text. For this process, we used the concept of preceptorship as those professionals who supervise or accompany the teaching-learning process in practice scenarios⁸⁻¹².

After this stage, the identified articles were analyzed using the thematic category technique¹⁵. Working with categories means grouping elements, ideas or expressions around a concept capable of encompassing the classifications, aiming to make extensive contact with the material and allow oneself to be infused by its content. The objective at this point was to have an overview of the articles. After this process, in-depth readings of each article started, in which we sought to detail the essence of the results by separating the excerpts considered relevant for the study. Finally, these excerpts were divided into two thematic categories: a) intrinsic and extrinsic aspects for the exercise of preceptorship b) educational strategies used by the preceptor.

The presentation of the integrative review was divided into results, in which general aspects of the sample appear; and discussion, based on the listed thematic categories.

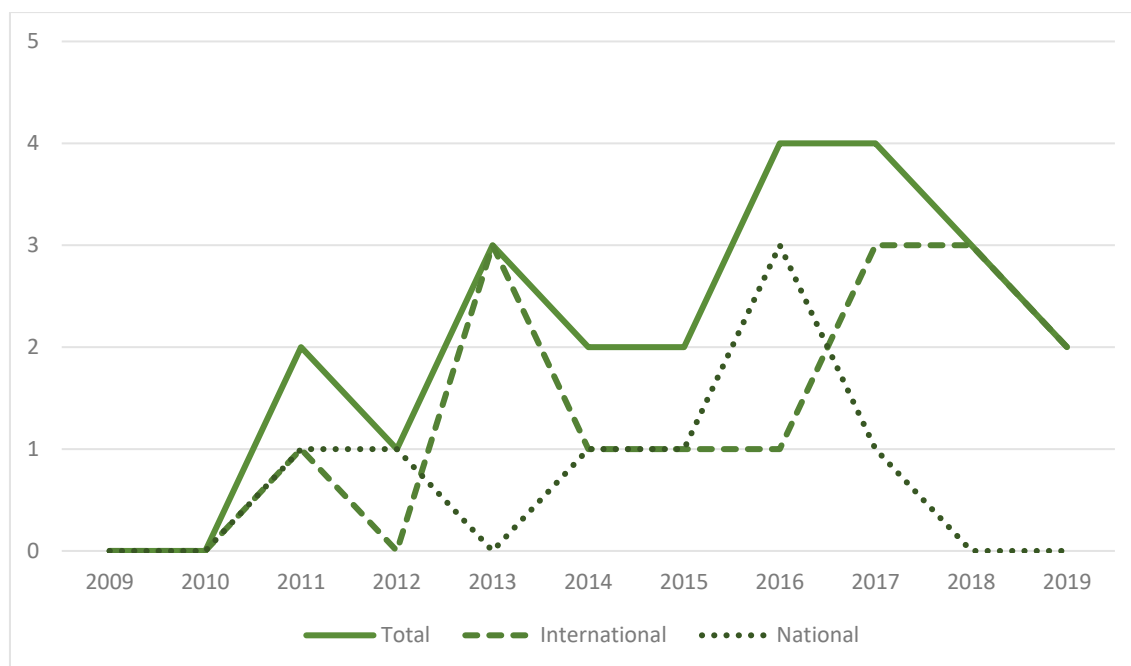
RESULTS

The search in the databases resulted in 274 studies, from the following databases: MEDLINE (n=101), LILACS (n=87) and SciELO (n=86). After reading the titles and excluding the repeated ones, 50 articles were selected for the reading of the abstracts. Eighteen articles were excluded after reading the abstracts, leaving 32 articles for the reading of their content in full. Ultimately, 23 articles were considered eligible for the study, whose results were analyzed and discussed in full (Figure 1). The selected studies, 08 national and 15 international ones, are distributed in 13 different journals (Graph 1). The articles and results selected for the analysis are qualitatively shown in Table 1.

Figure 1. Results of the integrative review.

Source: Created by the authors, 2021.

Notes: N = 274 full articles found for the integrative review. The figure presents a graphical representation of the process carried out in the integrative review, the number of articles in each step of the selection performed by type of reading (title, abstract or full-text).

Graph 1. Publications over time.

Source: Created by the authors, 2021.

Notes: N = 23 articles selected for reading in full. The line graph shows the number of publications on the subject from 2009 to 2019 observed in the survey, both nationally and internationally, and the total sum.

Table 1. Selected articles.

Title	Preceptor's work Scenario	Year/Country/ Database	Type of Study	Results
Visão de preceptores sobre o processo de ensino-aprendizagem no internato	PHC (Primary Health Care) and Hospital	2014/ Brazil/ Scielo	Qualitative Descriptive survey Cross-sectional	Teaching and assessment methodologies centered on the preceptor and the student were verified. The internship teaching plans, in general, do not describe a teaching model or methodologies to be used by preceptors, although the pedagogical project of the course proposes a critical-reflective teaching perspective.

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Table 1. (Continuation) Selected articles.

Title	Preceptor's work Scenario	Year/Country/ Database	Type of Study	Results
Percepção sobre o Internato de Medicina da Universidade Federal do Rio de Janeiro pelos Preceptores do Serviço na Atenção Básica: um Estudo de Caso	PHC	2016/ Brazil/ Scielo	Exploratory Qualitative Case study	The preceptors feel acknowledged and encouraged by the students, but they do not feel valued by the head of the service, which does not provide physical space and time for the activities. The preceptors wish to receive training for the activity, strengthening ties with the University.
Qualificação como Médico Preceptor e a Satisfação de Seus Clientes quanto à Assistência Recebida na UBS de Origem	PHC	2017/ Brazil/ Scielo	Qualitative/ Quantitative Descriptive Cross-sectional	More than 90% of clients assisted by preceptors are satisfied with the assistance received and 80% of the interviewed physicians report the preceptorship as an instrument to qualify their professional activity.
Avaliação Discente de um Internato Médico em Atenção Primária à Saúde	PHC	2016/ Brazil/ Scielo	Qualitative/ Quantitative Descriptive Cross-sectional	Preceptorship was considered excellent (82%) or good (16.1%) in 98.1% of cases. The criticisms were related to structural aspects such as transport/food aid and infrastructure.
Preceptoría Médica em Serviço de Emergência e Urgência Hospitalar na Perspectiva de Médicos	Hospital	2016/ Brazil/ Scielo	Qualitative Case study Descriptive Cross-sectional	Preceptorship contributes a lot to professional training, as well as facing many structural challenges, which shows a reform in working conditions and training.
Curso de formação pedagógica para preceptores do internato médico	Not available	2012/ Brazil/ Scielo	Qualitative Quantitative Descriptive exploratory	The graduates were able to improve their skills and put them into practice in their work routine. Pedagogical training for medical preceptors was considered important, necessary and feasible to achieve desirable changes in medical education.
Uma avaliação do processo de formação pedagógica de preceptores do internato médico	Not available	2011/ Brazil/ Scielo	Qualitative Descriptive Cross-sectional	The importance of the course in their pedagogical training was reported, due to the lack of knowledge about the preceptor's role. It helped in instrumentalization, self-esteem and pedagogical conduct.
Recruitment and Retention of Community Preceptors	Hospital	2018/ USA, Canada/ Medline	Quantitative Descriptive	The principals of medical schools (n=67%) have difficulty maintaining or recruiting preceptors and 51% have difficulty related to the dependence on professionals. There is a competition with other tutoring programs (n=92%). Few principals reported the presence of financial incentives and the feasibility of rewards in their programs.
Implementing a logbook on entrustable professional activities in the final year of undergraduate medical education in Germany-a multicentric pilot study	PHC and Hospital	2019/ Germany/ Medline	Qualitative	Aspects of EPA Implementation: EPA Curriculum Implementation Process and Required Resources; delivery process; feedback sessions with supervisors; perception of the role of students and supervisors; overall impact of EPAs on training conditions in the practical year.
Patient and preceptor attitudes towards teaching medical students in General Practice	PHC	2013/ Austria/ Scielo	Quantitative Descriptive exploratory	The motivation to be a preceptor is driven primarily by personal and professional values rather than economic incentives. Additionally, patients have even more positive attitudes than preceptors regarding the presence of students during the consultation.

Continue...

Table 1. (Continuation) Selected articles.

Title	Preceptor's work Scenario	Year/Country/ Database	Type of Study	Results
Community Preceptor Perspectives on Recruitment and Retention: The CoPPRR Study	PHC	2019/ USA/ Medline	Qualitative	The intrinsic motivations to remain working in preceptorship permeate the opportunity to continue learning, the maintenance of the ability to teach and the satisfaction in giving feedback. Extrinsic reasons for continuing to be a preceptor are related to acknowledgement.
Texting Brief Podcasts to Deliver Faculty Development to Community-Based Preceptors in Longitudinal Integrated Clerkships	PHC	2018/ USA/ Medline	Quantitative, quasi-experimental	There was an increase (not statistically significant) in the use of learned educational strategies. Few have heard all podcasts. Most would recommend them to their colleagues.
Electronic Health Record Impacts on Family Medicine Teachers: Survey of Third-Year Medical Student Clerkship Preceptors at an Academic Medical Center	PHC	2017/ USA/ Medline	Mixed Method: Qualitative/ Quantitative	Among the positive points are a better visualization of patient information, teaching evidence-based Medicine, and student feedback. The raised negative points were reduction of interaction time with the student and with the patient, impairment in the construction of clinical skills by the student.
Utility of an app-based system to improve feedback following workplace-based assessment	PHC and Hospital	2017/ England/ Medline	Mixed Method: Qualitative/ Quantitative	Positive feasibility and acceptance. The preservation of the parts positively influenced the feedback provided. The absence of a clear objective and recipient showed a negative effect. The educational impact was greatest when preceptors detailed the assessments.
It's all about relationships: A qualitative study of family physicians teaching experiences in rural longitudinal clerkships	PHC	2018/ Canada/ Medline	Qualitative	Three aspects were observed: preceptors developed trusting personal and professional relationships with students over time; the approach is based on the relation of the student's individual understanding; preceptors collaboratively define learning goals with the students, integrating them into the learning process.
Desempeño del tutor en la formación del médico general / Performance of course tutors in the training of general doctors	APS	2013/ Cuba/ Scielo	Mixed Method: Qualitative/ Quantitative	The preparation of the preceptor in the process of training general practitioners is characterized by preceptors who have a vast experience as specialists as Grade I in General Integral Medicine. There is a prevalence of instructors, and a significant portion does not have a teaching position.
Aprendizagem Baseada em Problemas no Internato: Há Continuidade do Processo de Ensino e Aprendizagem Ativo?	PHC and Hospital	2015/ Brazil/ Scielo	Qualitative	Need to change the posture. The understanding of the pedagogical process is not occurring gradually in these activities. The preceptors, like the students, are not very active in the teaching and learning process.
Contemporary teaching strategies of exemplary community preceptors--is technology helping?	PHC	2014/ USA/ Medline	Qualitative	Teaching strategies were used, such as adjusting instruction to the student's needs and technological resources to facilitate outpatient teaching. The preceptors enjoyed teaching and found it rewarding.
Teaching points-do they occur and what do they contain? An observation study concerning the general practice rotation	PHC and Hospital	2016/ Germany / Medline	Quantitative	Learning moments occurred in 66.3% of consultations, divided into categories: therapy, clinical history, diagnostic procedures, physical examination, pathophysiology, differential diagnoses, risk factors and case presentation.

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Table 1. (Continuation) Selected articles.

Title	Preceptor's work Scenario	Year/Country/ Database	Type of Study	Results
Student-centred GP ambassadors: Perceptions of experienced clinical tutors in general practice undergraduate training	PHC	2015/ Denmark, Finland, Iceland, Norway and Sweden/ Medline	Qualitative	GPs describe their skills as: complex and diverse; ambassadors to general practice, essential for the process of recruiting a new generation of general practitioners. They understand that they need support, time and resources to facilitate a sustainable tutoring and a good learning environment.
Effective Learning in an Ambulatory Family Medicine Clerkship: A Qualitative Study of Medical Student Midpoint Feedback	PHC	2017/ USA/ Lilacs	Qualitative	The most common characteristic of effective learning identified by the interviewees was autonomy in practice. Other prominent topics included the encouragement of critical thinking and feedback.
Tobacco dependence treatment teaching by medical school clerkship preceptors: Survey responses from more than 1000 US medical students	PHC and Hospital	2013/ USA/ Medline	Quantitative	Creating models and providing clear instructions on ways to provide tobacco counseling was relevant. In contrast, providing clear feedback and goals for the treatment of tobacco dependence was less relevant.
Faculty verbal evaluations reveal strategies used to promote medical student performance	PHC and Hospital	2011/ USA/ Medline	Qualitative	Lack of structure in the history and physical examination commonly hinder progression. The results illustrate how multidisciplinary preceptors can use a common assessment framework to identify strategies aiming to improve performance and longitudinally follow student performance.

Source: Created by the authors, 2021.

Data: N=23 articles selected for reading in full and represented in the table.

DISCUSSION

The term preceptor¹⁶⁻³⁴ was homogeneously used, revealing a wide dissemination of the concept. Other names found in the studies to refer to the preceptor were: internship supervisor³², medical supervisor³⁵, clinical tutor^{27,36} and tutor^{16,27,37}.

The preceptorship activity is crucial for the student's good development in practice scenarios¹⁶⁻¹⁹ and has a positive impact on patients cared for by the student and/or preceptor^{20,21}. Due to the preceptorship, physicians have the opportunity to improve and systematize care, exchange and update medical knowledge, discuss with other colleagues at the university, improve communication and maintain a good physician-patient relationship^{16,22}. Although the patient's perspective in relation to the care provided by preceptors and students has been little explored in the articles, the obtained results conclude that 90% of the patients were satisfied with the care they received²² and most of them reported a better understanding of their health status. Yet, a minority of physicians consider that the presence of the student impairs the doctor-patient relationship²¹.

The details of world experiences in preceptorship were systematized into two categories: intrinsic and extrinsic aspects

for the exercise of preceptorship and educational strategies used by the preceptor.

Intrinsic and extrinsic aspects for the exercise of preceptorship

The motivations that influence the exercise of preceptorship are important analytical factors and it is suggested that they must be considered when proposing or monitoring a preceptorship program. As a merely didactic division, they are presented in two main blocks: a) intrinsic aspects that correspond to the preceptor's personal interests/motivations; b) extrinsic aspects that are related to the environment in which the activity takes place, the associated institution, health service and the workload. Both aspects are interrelated and can affect each other in order to enhance or weaken the preceptorship program.

Personal motivations for preceptorship include the opportunity for professional development through contact with students^{20,21,23,24}, the satisfaction of contributing to the training and education of future doctors^{21,23-25}, the possibility of becoming a professional model in which students can mirror themselves^{20,21,38}, personal fulfillment^{21,24,38}, intellectual

stimulation^{20,38}, one's pleasure in teaching and enthusiasm and appreciation for students²⁰. Other motivators such as a closer approach, good relationships, appreciation and interest of students also have a positive impact on the practice and satisfaction of preceptors^{23,24,26,27}.

The extrinsic issues were more diverse and correspond to three large groups: the relationship between university and preceptor; exercise of the activity and recruitment/retention.

The relationship between the University and the preceptor has a significant influence on the preceptorship activity, including relating to the recruitment and retention of preceptors^{23,24,26,28,38}. The fact of getting closer to the institution is considered an appeal³⁸. Benefits such as awards, access to the database^{20,28}, annual appreciation events²⁸, professional acknowledgement^{23,24}, continuing medical education and issuing certificates and titles^{20,23,24,28} are possibilities for establishing the link between educational institution and preceptor. On the other hand, the distancing between the University and the preceptor, demonstrated by the lack of guidance, support and communication, in addition to the devaluation by the manager,^{24,29,38} weakens the work in preceptorship as it hinders the understanding of the pedagogical process¹⁸, generates insecurity about the didactics^{23,38,26} and assigns roles that do not correspond to the expectations and potentials²⁴ of the preceptor physician. In this context, the training of preceptors emerges as an important tool for professional development and permanent education¹⁷ and as an attraction for the exercise of the activity^{24,26,38}. The lack of continuing education^{18,24,26,38} represents an obstacle to the activity of the preceptorship, as it directly influences the preceptor's performance^{17,26}.

Unfavorable aspects relevant to the exercise of the preceptorship activity include the increase in the daily workload^{20,21,24}, which is directly related to the time dedicated to preceptorship; the demand for productivity by the service to which they are linked²³; and excessive work and bureaucracy^{20,23,24}. In the pedagogical sphere, this reflects in the lack of sufficient time to teach^{20,24,38} and a lot of content to cover²⁰, although there is some flexibility in the pedagogical interaction and the addressed topics²³. Other points that negatively influence the exercise of the activity include lack of physical space and infrastructure such as equipment, medications, and materials^{24,38}.

On the other hand, the diversity of complex clinical cases, if the location is a teaching hospital and if it has residency programs for internal support^{24,28}, can help in the development of the activity. Moreover, a positive impact on the flow of patients and on the collection of information was mentioned²⁷.

Regarding the recruitment and retention of preceptors, internal competition (between undergraduate years) and

external competition (with other programs) for preceptors must be considered²⁸. There are divergences about remuneration as the only determining factor for motivation and appreciation of the performed work^{20,21,23,28}. While three articles indicated that the bonus could improve adherence rates^{20,21,28}, one study pointed out that it does not seem to encourage the activity²³.

Pedagogical Aspects

Preceptorship activities, as a component of medical education, advance to the perspective of the horizontal preceptor-student relationship, in which the student enhances their learning process to learn critically and reflexively through contact with reality under the preceptor's mediation, making learning meaningful. The teaching strategies that delineate the teaching-learning process create a positive environment for this to occur^{27,29,36}.

The relationship developed between preceptors and students deepens over time, regarding both professional and personal aspects. The article by Cuncic C. et al.²⁵ associates the preceptor-student relationship constructed in the longitudinal stage with the expansion of the preceptor's view beyond the academic development of students. The individualization of the preceptor-student interaction makes it possible to identify knowledge gaps and promote actions to overcome these difficulties, such as pointing out specific study points or exercises to students who have deficiencies^{25,30}. Considering the level of knowledge, potential and difficulties of each student helps in the development of a balanced activity^{20,25,30}.

The strategy of decomposing learning into stages is a powerful one, as it sets progressively more difficult goals as students reach some goals^{20,25,30}. Autonomy must be assessed at the level of the students' education trajectory, so that it intensifies over the years²⁹. One of the ways to assess autonomy is through the EPA (Entrustable Professional Activities). The EPAs, a competency-oriented curriculum perspective, are units of professional practice mediated by the attribution of trust at different levels of supervision³⁵.

Another strategy is teaching through the example (role-modeling)^{18,19,25,29,31}, which provides the modeling of behaviors, skills and provides opportunities for students to demonstrate examination techniques²⁹. The examples, both good and bad, suggest reflection on how patients are treated^{18,25,31} and the attitude in the presence of error and lack of knowledge^{20,25}. Co-learning²⁰ appears in this context, characterized by the initiative to learn something together with the student. Generally, the performance of this strategy involves the use of evidence-based clinical decision-making tools as a resource for education²⁰.

Sharing the thinking process and encouraging clinical reasoning, critical thinking and research were also strategies

identified by the studies^{18,20,29}. Other relevant educational strategies are conversation circles and/or tutoring using the problem-based learning model, seminars presented by students after identifying knowledge gaps, and joint development of care protocols³².

Preceptor-centered strategies, such as lectures^{20,29,32,33}, appeared in fewer numbers when compared to student-centered strategies.

Assessment is an indispensable part of the teaching-learning process, and the use of formative and summative assessment instruments is considered essential.

Feedback appears as the most used and validated formative assessment instrument among the assessed experiences^{20,26,29-31,35,36}. Feedback is seen as a way to promote learning and improve skills through sporadic interventions and performance comments^{25,29,30}.

In this context, the Reporter-Interpreter-Manager-Educator (RIME)³⁰ is a reference tool for the continuous assessment of the student's performance, who must attain certain knowledge, skills, and attitudes. The RIME consists of criteria that guide the feedback and interventions necessary for the progression in it.

Given the importance of feedback and the difficulty in carrying it out due to limited time, one experience²⁷ proposed the use of a "work based assessment" application for the production and recording of formal feedback from preceptors to students. Using the application facilitated access to the curriculum, familiarizing the preceptor with the teaching plans.

In addition to scheduled feedbacks, the *mini-Cex* (mini-clinical assessment exam) was also used to assess final-year students in an EPA curriculum. In this experience, the exam provided subsidies to assign tasks to the student, considering the level of autonomy identified and expected for the moment of training³⁵.

Organizational and managerial aspects of preceptorship

The health service to where students are assigned is, at the same time, an environment for the production of care and professional training. Therefore, the elements related to the organization of the activity are also part of the preceptorship exercise^{20,25,32,36}. They are: clarification of the service's regulations³², introduction of the team, organization of the agenda and activity routine³⁶, reserving some time to discuss cases with students^{18,20} and designation of a space for students to study³⁶. Students recognize this role of the preceptor in the structuring of the internship dynamic¹⁸ and how it is capable of providing an educational environment that is not intimidating and accessible²⁹.

In the real scenario of professional practice, the selection of patients who will be assisted was considered an important strategy for the student's teaching-learning process^{20,27,29,30}. The different criteria for choosing the patient considered the triggers that it provides²⁰, the personal interests and difficulties identified by the students themselves²⁵ and greater exposure of a student to a particular issue, in order to reinforce this knowledge³⁰. One of the experiences describes that for the timely use of learning moments, the preceptor discerned which topics could be addressed during the medical consultation and which would be better explored at a moment after the consultation²⁰.

It was observed that the greater the students' exposure to the practice environment, together with the preceptors, the greater the students' safety in clinical practice. This indicates the importance of working with preceptors to acquire professional skills^{19,29,35,33}.

Aspects related to the evaluation of preceptorship

From the student perspective, the articles positively evaluated preceptorship^{16,18,22,29}. The objective of these articles was the evaluation of students about the internships, also including the preceptorship activity.

Positive assessments include: encouragement of critical thinking regarding the patient's case; sharing the thought process; encouragement to take an active role in learning; the opportunity to observe the preceptor performing the physical examination and learn the techniques; the identification of critical issues for student learning in each case; timely feedback²⁹; encouraging the active search for knowledge^{18,22}; availability to teach^{16,18}; the integration of theoretical and practical knowledge; evidence-based practices¹⁶; considering the preceptor as an example of professionalism¹⁸; and clinical effectiveness^{16,18}. The negative evaluations are aimed at unprepared pedagogical action^{16,18} due to the lack of training¹⁸.

Only one study showed the assessment of preceptorship from the patients' point of view. The presence of the figure of the preceptor physician with students was considered to be positive. The main aspects mentioned were the quality of care, the appraisal of the complaint, the time available for the medical consultation, effectiveness and reliable guidance²².

FINAL CONSIDERATIONS

The changes in the medical training model and the evidence found reveal disclose the need and importance of preceptorship in the teaching-learning process. A critical factor for the success of the monitoring of students in professional practice is the preceptor's ability to see the student from the perspective of integral development, beyond the technical-

scientific functions. By knowing and applying teaching strategies, the preceptor becomes more than the medical professional who accompanies the student, and also assumes on the role of educator. Likewise, the individualization of the preceptor-student interaction allows the identification of the teaching moment, the choice of patients, the identification of personal gaps and the opportunity to improve them, as well as timely feedback.

Therefore, the relevance of the preceptors' qualification is highlighted, so they can effectively participate in the teaching-learning process and in the assessment of medical students regarding the acquisition of professional skills in real-life scenarios, with qualification being an open field for constant investigations.

One limitation of the present study is the diversity of educational contexts and curriculum matrices found in different countries. Therefore, it is necessary to take into account that the curricula are distributed in diverse manners, and the student joins the professional practice scenario at different moments and situations, and with different autonomy, which makes generalizations impossible, even if points in common can be observed.

In the Brazilian context, in which the NCG itself encourages professional practice in the initial undergraduate years, it is imperative to understand the preceptorship activity in the beginning of medical training, since the analyzed studies are concentrated on the final years of the course.

Given the importance of comprehensive health care, it is necessary to assimilate the role of preceptors in different health professions from the perspective of interprofessional education in undergraduate medical school.

Finally, we reiterate the importance of knowing the world experiences about preceptorship, the development of more studies on the subject and the critical-reflective training of medical professionals.

AUTHORS' CONTRIBUTION

The authors Aline Barreto de Almeida Nordi and Renata Giannecchini Bongiovanni Kishi were responsible for the methodological planning of the investigation, research project design and data collection. All other steps were performed by all the authors.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

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