

# The impact of mentoring on the training of dentistry academics at the Federal University of Paraná

O impacto da mentoria na formação de acadêmicos de odontologia na Universidade Federal do Paraná

Yasmine Mendes PUPO<sup>a\*</sup> , Eduarda FAGHERAZZI<sup>b</sup> , Luiza Iazzo MAGALHÃES<sup>b</sup> ,  
Isadora ALVES<sup>b</sup> , Thainá Larsen RODRIGUES<sup>b</sup> , Alana Silveira ROCHA<sup>b</sup> ,  
Júlio César TAFFAREL<sup>b</sup>

<sup>a</sup>UFPR – Universidade Federal do Paraná, Departamento de Odontologia Restauradora, Curitiba, PR, Brasil

<sup>b</sup>UFPR – Universidade Federal do Paraná, Curitiba, PR, Brasil

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## Resumo

**Introdução:** A mentoria é um processo dinâmico destinado a facilitar a troca de experiências e conhecimentos entre um mentor e um mentorado nos domínios profissional, acadêmico e pessoal. Devido à escassez de artigos sobre mentoria no contexto brasileiro, especialmente na área de Odontologia, este estudo tem como objetivo avaliar o impacto da mentoria fornecida pelo Programa de Educação Tutorial (PET) aos estudantes de graduação em Odontologia da Universidade Federal do Paraná (UFPR). **Objetivo:** Avaliar o impacto da mentoria no desenvolvimento pessoal e profissional dos estudantes de Odontologia de graduação. **Material e método:** Esta pesquisa foi conduzida durante o XVI Circuito PET, um evento anual do grupo PET, utilizando questionários específicos adaptados para mentores e mentorados. Esses questionários consistiram em perguntas de múltipla escolha utilizando a escala de Likert, bem como perguntas abertas. No total, este estudo piloto obteve 31 respostas. **Resultado:** Os dados foram analisados, e as respostas foram extraídas e classificadas em três temas principais: (1) Benefícios da mentoria; (2) Defesa da importância do programa de mentoria; e (3) Barreiras ao engajamento. Tanto mentores quanto mentorados classificaram a atividade como benéfica, com poucos ou nenhum aspecto negativo identificado. **Conclusão:** As limitações do estudo incluem a análise de apenas uma edição de uma atividade tradicional, resultando em um número reduzido de participantes envolvidos na pesquisa.

**Descritores:** Mentoria; aprendizado; educação.

## Abstract

**Introduction:** Mentoring is a dynamic process aimed at facilitating the exchange of experiences and knowledge between a mentor and a mentee across professional, academic, and personal domains. Due to the scarcity of articles on mentorship within the Brazilian context, particularly in the field of Dentistry, this study aims to evaluate the impact of mentorship provided by the Tutorial Education Program (PET) to undergraduate Dentistry students at the Federal University of Paraná (UFPR). **Objective:** To assess the impact of mentorship on the personal and professional development of undergraduate Dentistry students. **Material and method:** This research was conducted during the XVI PET Circuit, an annual event of the PET group, utilizing specific questionnaires tailored for mentors and mentees. These questionnaires comprised multiple-choice questions utilizing the Likert scale, as well as open-ended questions. In total, this pilot study garnered 31 responses. **Result:** Data were analyzed, and responses were extracted and classified into three primary themes: (1) Benefits of mentorship; (2) Advocacy for the importance of the mentorship program; and (3) Barriers to engagement. Both mentors and mentees classified the activity as beneficial, with few or no negative aspects identified. **Conclusion:** Limitations of the study include the analysis of only one edition of a traditional activity, resulting in a small number of participants involved in the research.

**Descriptors:** Mentoring; learning; education.



## INTRODUCTION

A degree in Dentistry presents students with a range of opportunities and uncertainties regarding extracurricular activities, fields of professional activity, and postgraduate possibilities. After completing the course, dental surgeons have several options, such as specialization in two of the 24 areas regulated by the Federal Council of Dentistry, through specialization programs<sup>1</sup> or multi-professional residencies<sup>2</sup>. Additionally, there is the possibility of entering master's, doctoral, and post-doctoral programs, or seeking opportunities in public competitions in various sectors, such as public health, the Armed Forces, or in the management of these services, besides working in the private sector, including private clinics and hospitals.

The need for professional guidance during the undergraduate period is essential to help students cope with frustrations, fears, and insecurities related to their professional choices<sup>2,3</sup>. This continuous support is important for students to define their career paths and find the area they most identify with among the available options. Higher Education Institutions (HEIs) are responsible for training professionals with critical thinking, problem-solving abilities, and social awareness<sup>4</sup>. To this end, they have created support tools for student development, such as mentoring programs<sup>2</sup>, which are defined as a reciprocal relationship where a more experienced and recognized individual in their field (the mentor) assists, guides, and supports a usually younger individual (the mentee) in their personal and professional growth<sup>4-12</sup>.

Mentoring is characterized as a dynamic, long-term, and personal process, which involves not only professional assistance but also emotional support, where the mentor shares experiences, serving as a role model for the mentee to learn how to handle challenges and find a balance between work and personal life<sup>5,8,13</sup>. According to Garneau (2018) apud Franzoi, Martins<sup>9</sup>, the mentor's role is not clinical or evaluative but aims to foster critical-reflective reasoning, encouraging the development of skills for solving personal and professional problems in the pursuit of self-knowledge and independence<sup>5</sup>. Academic mentoring seeks to provide a safe and welcoming environment, fostering a bond between mentor and mentee, particularly for students at the beginning of their undergraduate journey<sup>4,8,10,12,14</sup>. Furthermore, it aims to assist with studying basic cycle subjects, understanding extracurricular activities, presenting seminars, developing interpersonal skills, selecting research topics, understanding the current job market, and choosing a specialization. It also provides psychological support, aiming to reduce stress, minimize dropout rates, and increase confidence, self-esteem, resilience, and empathy<sup>8,13,15</sup>.

There are programs where the mentor is a professor<sup>4,6,7,16,17</sup>, as well as programs where a senior student<sup>8,9,18,19</sup> or a professional in the field<sup>10,15</sup> assumes this role. Both models have shown benefits in mentoring. In the model where the professor is the mentor, they serve as an example with their extensive experience guiding the student<sup>17</sup>. In peer mentoring, senior students provide comfort as they have recent experience and knowledge of the profession<sup>10</sup> and more flexible schedules<sup>18</sup>. This model also helps mitigate the effect of hierarchy and power disparity, making students more comfortable sharing their doubts and challenges at university<sup>19,20,21</sup>.

Given the scarcity of articles on mentoring in the Brazilian context, particularly in the field of Dentistry, there is a need to investigate the effectiveness of these activities. Therefore, this study aims to evaluate the impact of mentoring offered by the Tutorial Education Program (PET) to undergraduate Dentistry students at the Federal University of Paraná (UFPR). The study intends to analyze the influence of mentoring on students' training and mentors' perception of the activity, while expanding knowledge about mentoring practices in Dentistry. Using quantitative and qualitative questionnaires, the study aims to investigate the contribution of mentoring to the personal and professional development of mentors and mentees, as well as identifying areas for improvement in the activity.

## MATERIAL AND METHOD

In order to evaluate the impact and satisfaction of Dentistry students regarding mentoring, quantitative and qualitative data were collected from mentors and mentees after the sessions

promoted by PET Dentistry during the XVI Circuit PET, an annual event of the group. The project was approved by the Research Ethics Committee of the Health Sciences Sector of the Federal University of Paraná, under number 6,457,420. The mentoring took place in UFPR Dentistry course classrooms, previously reserved for this purpose. Five themes were chosen to compose the mentoring, according to the different possibilities of the dental surgeon's work, namely: private practice, work in the Unified Health System (SUS), military career, academic career, and residency.

The group of mentors was composed of dental surgeons from different specialties, who fit into the five predefined areas, designated for students from the 4th period of graduation, and students completing the last period of the course, designated to meet the students in the basic cycle (below the 4th period). The mentors were chosen arbitrarily and by members of the PET Dentistry UFPR group, seeking to include professionals and students with a profile for counseling activities. Vacancies were filled using an electronic form, with two vacancies available per mentor, with the maximum time for each mentoring being 30 minutes. In total, 18 mentoring vacancies were filled. Both mentors and mentoring participants gave their written and informed consent.

The mentoring evaluation questionnaire was administered in person after the end of the conversation. The indicators evaluated were the usefulness and satisfaction of mentors and mentees with the activity, using as a basis the questionnaires applied in the work of Pamuk, Thompson<sup>21</sup> and Sheehan et al.<sup>22</sup>. The mentee questionnaire consisted of 6 (six) objective questions and 4 (four) essay questions, related to the connection between the mentee and their mentor, whether the student felt comfortable exposing their problems and doubts, as well as the perception of mentees about the positive and negative points of having a mentor and the possible adversities with the experience (Chart 1). Likewise, the mentors received a questionnaire composed of 6 (six) objective questions and 3 (three) essay questions with the aim of evaluating the mentor's experience in guiding and helping a student individually, the effectiveness of this space for sharing experiences beyond the positive and negative points of having been a mentor (Chart 2).

For the quantitative analysis of objective questions, the answers follow the Likert scale and were analyzed using simple descriptive statistics. The response scale was used to obtain the opinion of participants who were asked to indicate their level of agreement with the statements in the questionnaire by choosing an answer from the options: (1) I completely agree; (2) Partially agree; (3) Neutral; (4) Partially disagree; and (5) Strongly disagree. From the data obtained, descriptive statistics were performed to obtain the percentages of responses for each question. As for the analysis of open responses, the data obtained were analyzed using an inductive approach to qualitative content analysis in accordance with what was carried out in the study by Sheehan et al.<sup>22</sup> following Graneheim, Lundman<sup>23</sup>. The unit of analysis is responses about the mentoring experience. The data was read and the content of the mentors' and mentees' responses was extracted and classified into three main themes, namely (1) Benefits of mentoring; (2) Supporting the importance of the mentoring program; and (3) Barriers to engagement.

**Chart 1.** Post-mentoring evaluation questionnaire - Mentees

Likert Scale
1. I spoke openly with the mentor about issues related to academy
2. My mentor gave me emotional support
3. My mentor shared personal difficulties he had to overcome to achieve his academic and professional goals
4. My mentor helped me carefully analyze my academic and professional ambitions
5. Spoke openly about personal issues related to being a student with the mentor
6. My mentor made practical suggestions to improve my academic and/or clinical performance
Q 7-10: Essay questions
7. What concerns or problems did you experience during one-on-one mentoring?
8. What did you enjoy most about having a mentor?
9. What did you like least about having a mentor?
10. Would you encourage other students to take part in the one-on-one mentoring activity? Why or why not?

**Chart 2.** Post-mentoring evaluation questionnaire - Mentors

Likert Scale
1. Participating as a mentor in the individual mentoring activity gave me the opportunity to share my experiences and work routine
2. Individual mentoring was important to realize/improve my own confidence in advising and inspiring others
3. My professional knowledge helped the mentee with the reasons for their academic and professional choices
4. Individual mentoring can build bonds and professional relationships with the mentee
5. Overall, there was enough time for a conversation and I was able to help the mentee
6. Individual mentoring should be implemented to have a greater frequency of meetings
Q 7-9: Essay questions
7. What concerns or problems did you experience during the mentoring activity?
8. What did you enjoy most about being a mentor?
9. What did you like least about being a mentor?

## RESULT

### Quantitative Analysis

Eighteen students and thirteen mentors participated in the mentoring activity and agreed to participate in the research. For an analysis of the objective questions, the response percentages for each question are described in Table 1 and Table 2 .

Most of the mentees demonstrated that the activity was beneficial and indicated that they spoke openly with the mentor about academic issues. The majority also responded that the mentor contributed by providing emotional support and assist in personal matters, that he served as an example to achieve academic and professional goals, and that he contributed tips to improve the student's performance. It is noteworthy that no mentee answered the alternative “totally disagree” to any of the questions, and only one indicated that he “partially disagrees” that the mentor made practical suggestions to improve academic and/or clinical performance.

For all mentors, mentoring allowed sharing experiences and work routines. Most agree that playing the role of mentor is important to improve self-confidence, that they were able to help the mentee in their academic and professional choices, and that it was possible to create a mentor-mentee bond. Furthermore, there is a consensus that individual mentoring should be implemented with greater frequency of meetings. However, only 38.46% responded that they completely agreed that the conversation time was sufficient, 46.15% partially agreed, 7.69% said neutral and 7.69% partially disagreed.

**Table 1.** Mentee survey results

Question (18 mentees responded)	I totally agree	Partially agree	Neutral	Partially disagree	Totally disagree
I was able to speak openly with my mentor about issues related to academy.	18 (100%)				
My mentor gave me emotional support.	14 (77.77%)	4 (22.23%)			
My mentor shared personal struggles he had to overcome to achieve his academic goals.	18 (100%)				
My mentor helped me carefully analyze my academic and professional ambitions.	15 (83.33%)	2 (11.11%)	1 (5.55%)		
I was able to talk openly about personal issues related to being a student with my mentor.	16 (88.88%)	2 (11.11%)			
My mentor made practical suggestions to improve my academic and/or clinical performance.	15 (83.33%)	1 (5.55%)	1 (5.55%)	1 (5.55%)	

**Table 2.** Mentor survey results

Question (13 mentees responded)	I totally agree	Partially agree	Neutral	Partially disagree	Totally disagree
Participating as a mentor in the individual mentoring activity gave me the opportunity to share my experiences and work routine.	13 (100%)				
Individual mentoring was important to realize/improve my own confidence in advising and inspiring others.	12 (92.30%)	1 (7.69%)			
My professional knowledge helped the mentee with the reasons for their academic and professional choices.	9 (69.23%)	4 (30.76%)			
Individual mentoring can build bonds and professional relationships with the mentee .	11 (84.61%)	2 (15.38%)			
Overall, there was enough time for a conversation and I was able to help the mentee .	5 (38.46%)	6 (46.15%)	1 (7.69%)	1 (7.69%)	
Individual mentoring should be implemented so that there is a greater frequency of meetings.	12 (92.30%)	1 (7.69%)			

## QUALITATIVE ANALYSIS OF MENTEE RESEARCH

Of the essay questions proposed for mentees , three categories were observed: Benefits of mentoring; Meeting barriers; and Supporting the importance of the mentoring program.

### Benefits of Mentoring

In general, the mentees described the mentoring as useful, being an opportunity to resolve their doubts and listen to the experiences of professionals who have already faced the challenges that arise during their academic and professional career of interest: *“It was extremely rewarding, I resolved several doubts regarding my academic future and I was well guided and reassured”* (mentee A5); *“The opportunity to exchange information with someone who has experience in the area I am interested in, discuss possible difficulties and problems that may arise, as well as clarify doubts about the path to good training and the possibilities of specialization”* (mentor A3); *“Being able to have a perspective on the career I want to follow and being able to hear the experiences of someone who has already followed this path”* (mentee A12). According to the mentees, experiencing mentoring is also an opportunity to acquire information that is difficult to access: *“I asked freely about things that I could not obtain information anywhere else”* (mentee A4).

Furthermore, students who mentored with an undergraduate student in their final periods mentioned the importance of conversation for their development during graduation: *“ Being able to talk about graduation with someone who has already had more experiences contributing in a positive way to my development during graduation”* (mentor A13); *“A student who has already gone through the experiences I am going through and will still go through, brought a different view/perspective of the obstacles and allowed me to see it from another angle”* (mentee A14).

### Meeting Barriers

The majority of mentees did not express any concerns during mentoring. However, the need for more time was a demand presented by four mentees : *“ Very short duration ”* ( mentee A17).

Some also noted apprehension about asking clear, pertinent questions and how the conversation would evolve: *“ Previously, I was afraid of not knowing what to ask or how to do it. But the mentoring moment was super beneficial and I realized that I worried in vain ”* (mentee A14); *“I was initially anxious and worried about how the conversation would evolve, but everything was calmly answered and developed naturally ”* (mentee A15).

Most mentees did not notice any disadvantages in this activity: *“I don't think there was any issue that I didn't like. It was a very good conversation ”* (mentee A13). However, not knowing the mentor previously was highlighted as an unfavorable aspect: *“Not knowing my mentor in depth and thus missing the opportunity to ask more about her experiences”* (mentee A16).

### **Supporting the Importance of the Mentoring Program**

It is unanimous among the participants that mentoring has a positive impact and that it is an important experience that other students should also experience: *“I would encourage the experience and individual contact that mentoring offers, the possibility of talking to a final-year student it demonstrates for me a discovery of possible paths during graduation, which I believe is an essential experience for getting used to graduation”* (mentee A15); *“ Yes, because it is a different experience and one that we do not have the opportunity to experience all the time and for the opportunity to meet new people”* (mentee A16).

## **QUALITATIVE ANALYSIS OF MENTOR RESEARCH**

Of the essay questions proposed for mentors, two categories were observed: Benefits of mentoring; and Meeting barriers.

### **Benefits of Mentoring**

For the mentors, mentoring was a space for sharing experiences, helping mentees who wish to follow paths similar to theirs: *“Being able to share tips, learnings, experiences that I have obtained so far; have contact with students who I see want to follow the path I follow”* (mentor B1); *“Being able to share experiences within the chosen area. The opportunity to encourage students to follow the same path and facilitate access to information that I consider relevant to follow the aforementioned path and that I did not have when I was a student”* (mentor B3); *“I enjoyed passing on my experiences to future co-workers, clarifying several doubts and reducing the fear and insecurity of things they hear from colleagues. It was good that I was able to guide them on the best way to build a good journey and career in the dental field”* (mentor B9).

Mentoring also contributed to showing mentees different possibilities for acting within Dentistry, as well as having a positive impact on the mentors' self-assessment: *“Being able to contribute to showing the possibilities of the area of dentistry in sectors other than health, for example, technology and management”* (mentor B4); *“Being able to share experiences and help the mentee overcome the problems of graduation in a lighter way. In addition, it contributed to the evaluation of my trajectory during graduation”* (mentor 13).

### **Meeting Barriers**

The majority of mentors did not identify problems during the activity, but several suggested that more time be allocated on future occasions: *“ During the activity I did not experience any difficulties. For future activities, I recommend more time for mentoring ”* (mentor B5); *“ The mentees were extremely*

*curious, but there was insufficient time to clarify all their doubts” (mentor B4); “Little time to talk. It could be something more frequent within the course. We went through a lot of fears during the course and it would help a lot if we had a support point” (mentor B11). Only one mentor suggested that the mentorship be shorter and with more students: “ I thought it could be a shorter mentorship, with more students. The 1 hour time slot could be better used for 4 students (15 minutes for each)” (mentor B7).*

## DISCUSSION

There is a consensus in the literature that the program participant, through the creation of bonds with other students and the tutor, has the opportunity to expose their challenges, weaknesses and aspirations experienced throughout the course, in a safe and free space. The authors Martins, Bellodi<sup>4</sup> and Frei et al.<sup>5</sup> state that mentoring makes a great contribution to the better academic and personal development of students, with the greatest effect being to provide them with a more humanized training.

According to the Ministry of Health on June 16, 2022, the World Health Organization considered Brazil to be the country with the highest number of anxious people, 9.3% of the population<sup>24</sup>. Many studies also indicate that the university environment can trigger this pathology in its students. With this, the Mentoring developed by PET would be a possibility/opportunity for Dentistry students from both UFPR and other institutions to talk about doubts and insecurities and feel welcomed.

The results found through the application of the questionnaires are in accordance with the literature<sup>25,26</sup>. A classic study used an organized and reliable method to evaluate the effects of mentoring on students' academic performance<sup>26</sup>. In this, data from 339 participants who participated in the mentoring program of a university on the West Coast of the USA in their first year of college were compared with data from another 339 students, who had not entered the program and who had similar characteristics in terms of year and class of undergraduate entry, academic performance index (ARI) at the beginning of the course, gender, and ethnicity. When comparing these students in relation to IRA, the number of subjects completed, and retention rates at the university, it was observed that the group of students who had participated in mentoring obtained better results in the three parameters. Furthermore, there is a study that states that freshmen who participated in mentoring have greater participation in other extracurricular activities such as scientific initiation and extension projects<sup>15</sup>. Another study with a qualitative assessment approach found that mentoring has positive effects on students in two main areas: emotional and social support and study planning. Regarding emotional and social support, mentoring acted as a space for sharing doubts and anxieties and also as a means of integration between students entering the university with veteran students and teachers. In terms of study planning, students reported that mentoring was very useful in the process of “learning to learn,” contributing to better organization of time and preparation of a personal and study agenda<sup>19</sup>.

With an emphasis on the benefits, importance, and barriers of mentoring, the present study identified that the activity was positively received among dental students and professionals, bringing benefits to both participants. A positive component identified in the responses was the need to adapt the duration of mentoring, which many described as short, demonstrating that the activity was well received so that both mentees and mentors felt comfortable and able to extend the duration of the conversation. Furthermore, the point of mentoring becoming a more frequent activity was raised. In the literature, mentoring experiences are reported as being either mandatory, generally through a mandatory subject for all students<sup>4,10,14</sup>, or non-mandatory, characterized as an optional subject<sup>7,14</sup>, extension project<sup>8,9,27</sup> or an extracurricular program<sup>5,6,9,12,13,15,17,20,28</sup>. A tendency was noticed in foreign universities to carry out mentoring as programs, as opposed to the Brazilian standard, in which mentoring is normally proposed as a discipline or extension project.

Both mentors and mentees classified the activity as beneficial, providing an environment for exchanging experiences and little or no related negative aspects. Furthermore, there were no reports of embarrassment during participation in the mentoring. In addition to the academic aspects, some responses addressed the psychological/personal aspect of the mentoring activity, highlighting that having a mentor helped in solving problems and the possibility of calming anxieties related to graduation. However, as limitations of the study, it was identified that it was analyzing only one edition of an activity historically carried out by PET Dentistry UFPR within the traditional PET Circuit and, consequently, a small number of participants involved in the research.

## CONCLUSION

The mentoring program implemented by PET Dentistry UFPR demonstrates its effectiveness in supporting Dentistry students' education, academic and personal development. The positive feedback from both mentors and mentees underscores the value of such programs in creating a supportive environment for sharing experiences and addressing concerns. While the study highlights the need for longer and more frequent mentoring sessions, it also acknowledges the limitations of analyzing only one edition of the activity with a small participant pool. Moving forward, continued investment in mentoring initiatives can further enhance the educational experience and success of Dentistry students, offering guidance, support, and opportunities for growth.

## AUTHORS' CONTRIBUTIONS

Eduarda Fagherazzi, Luiza Iaizzo Magalhães, Isadora Alves, Thainá Larsen Rodrigues, Alana Silveira Rocha and Júlio César Taffarel contributed in conceptualization, data analysis, research, methodology, project management, supervision, validation of data and experiments, design of data presentation, writing of the original manuscript, proofreading and editing this article equally. Eduarda Fagherazzi, Luiza Iaizzo Magalhães, Isadora Alves, Thainá Larsen Rodrigues and Alana Silveira Rocha were responsible for the acceptance of the ethics committee and data acquisition and compilation. Yasmine Mendes Pupo was responsible for the guidance, reading and correction of the article.

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## CONFLICTS OF INTERESTS

The authors declare no conflicts of interest.

## \*CORRESPONDING AUTHOR

Yasmine Mendes Pupo, UFPR – Universidade Federal do Paraná, Departamento de Odontologia Restauradora, Av. Prefeito Lothário Meissner, 632, Jd. Botânico, 80210-170 Curitiba - PR, Brasil, e-mail: [yasminemendes@hotmail.com](mailto:yasminemendes@hotmail.com)

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