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Participation of undergraduate students in a dental cohort with adolescents in a municipality in southern Brazil: an experience report

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Abstract Scientific Initiation (SI) is essential for academic training, providing undergraduate students with their first contact with scientific research. This experience report describes the involvement of two dentistry students from the Federal University of Santa Maria (UFSM) who participated as scholarship holders in the Institutional Program for Scientific Initiation Scholarships (PIBIC) of the National Council for Scientific and Technological Development (CNPq), in a project entitled "Social Determinants of Inequities in Oral Health from Childhood to Adolescence: A 13-Year Cohort." This study is part of a cohort initiated in 2010 with preschool children in Santa Maria, RS, and aimed to analyze factors influencing oral health during the transition from childhood to adolescence. The scholarship students played key roles in data collection and organization. Additionally, they actively participated in academic and scientific activities, such as organizing seminars and preparing articles and abstracts for conferences. The experience provided significant learning regarding the various social, economic, and cultural realities that affect oral health, as well as the development of practical and theoretical skills fundamental to academic and professional careers. Scientific Initiation proved to be a valuable tool for engaging students in research, encouraging them to consider academic careers, and improving their academic performance. The involvement of students in research projects from the early stages of their undergraduate studies contributed to the consolidation of essential competencies, such as scientific communication and critical thinking, preparing them for future challenges in Dentistry and other health-related fields.
Descriptors: Education, Dental. Students, Dental. Cohort Studies.

Participación de estudiantes de pregrado en una cohorte odontológica con adolescentes en un municipio del sur de Brasil: un relato de experiencia
Resumen La Iniciación Científica (IC) es fundamental para la formación académica, ya que ofrece a los estudiantes de pregrado su primer contacto con la investigación científica. Este relato de experiencia describe la participación de dos estudiantes de Odontología de la Universidad Federal de Santa Maria (UFSM), quienes actuaron como becarios del Programa Institucional de Becas de Iniciación Científica (PIBIC) del Consejo Nacional de Desarrollo Científico y Tecnológico (CNPq), en un proyecto titulado "Determinantes Sociales de las Inequidades en Salud Bucal desde la Infancia hasta la Adolescencia: Una Cohorte de 13 Años". El estudio forma parte de una cohorte iniciada en 2010 con niños en edad preescolar en Santa Maria, RS, y tuvo como objetivo analizar los factores que influyen en la salud bucal durante la transición de la infancia a la adolescencia. Los becarios desempeñaron papeles clave en la recolección y organización de los datos. Además, participaron activamente en actividades académicas y científicas, como la organización de seminarios y la elaboración de artículos y resúmenes para congresos. La experiencia proporcionó un aprendizaje significativo sobre las diversas realidades sociales, económicas y culturales que afectan la salud bucal, así como el desarrollo de habilidades prácticas y teóricas fundamentales para las trayectorias académicas y profesionales. La IC demostró ser una herramienta valiosa para involucrar a los estudiantes en la investigación, alentándolos a considerar carreras académicas y mejorando su rendimiento académico. La participación en proyectos de investigación desde las primeras etapas del pregrado contribuyó a consolidar competencias esenciales, como la comunicación científica y el pensamiento crítico, preparándolos para futuros desafíos en Odontología y otras áreas de la salud.
Descriptores: Educación en Odontología. Estudiantes de Odontología. Estudios de Cohorte.

Participação de alunos de graduação em uma coorte odontológica com adolescentes em um município do sul do Brasil: um relato de experiência

Resumo A Iniciação Científica (IC) é essencial para a formação acadêmica, proporcionando aos estudantes de graduação o primeiro contato com a pesquisa científica. Este relato de experiência descreve a participação de dois estudantes do curso de Odontologia da Universidade Federal de Santa Maria (UFSM) como bolsistas do Programa Institucional de Bolsas de Iniciação Científica (PIBIC) do Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq), em um projeto intitulado "Determinantes Sociais das Iniquidades em Saúde Bucal da Infância à Adolescência: Uma Coorte de 13 Anos". O estudo integra uma coorte iniciada em 2010 com crianças em idade pré-escolar em Santa Maria, RS, e teve como objetivo analisar os fatores que influenciam a saúde bucal durante a transição da infância para a adolescência. Os bolsistas desempenharam papéis fundamentais na coleta e organização dos dados. Além disso, participaram ativamente de atividades acadêmicas e científicas, como a organização de seminários e a elaboração de artigos e resumos para congressos. A experiência proporcionou aprendizado significativo sobre as diversas realidades sociais, econômicas e culturais que afetam a saúde bucal, além do desenvolvimento de habilidades práticas e teóricas essenciais para a carreira acadêmica e profissional. A IC mostrou-se uma ferramenta valiosa para o engajamento dos estudantes na pesquisa, estimulando o interesse por carreiras acadêmicas e contribuindo para o desempenho acadêmico. O envolvimento dos estudantes em projetos de pesquisa desde os estágios iniciais da graduação favoreceu a consolidação de competências fundamentais, como a comunicação científica e o pensamento crítico, preparando-os para os desafios futuros na Odontologia e em outras áreas da saúde.
Descritores: Educação em Odontologia. Estudantes de Odontologia. Estudos de Coortes.

INTRODUCTION

Scientific Initiation (SI) represents an undergraduate student's first contact with scientific research[1]. This experience, made possible through interaction with graduate students and faculty, offers unique opportunities[2]. As a result, skills such as public speaking and scientific writing are significantly enhanced[1,3]. In the field of dentistry, in particular, SI contributes to improved academic performance[4]. Thus, connections between the university and other sectors of Society, which hold transformative potential[5], are essential for SI students to understand their role in the community and to develop skills such as responsibility, resilience, and creativity[1]. Furthermore, SI programs serve as important educational tools in university training, contributing to the development of new learning strategies, students' intellectual growth, and their introduction to the world of science[6]. Scientific Initiation programs have been recognized as part of the support policies of the Brazilian National Council for Scientific and Technological Development (CNPq) and of various State Research Support Foundations, which provide scholarships to students across multiple fields of knowledge. In Dentistry, SI students engage in a broad range of activities, from laboratory work to field research and data collection in oral health studies.

Oral diseases are highly prevalent, leading to economic impacts and negatively affecting individuals' quality of life. The World Health Organization (WHO) estimates that, globally, around 3.5 billion people (approximately 50% of the population) suffer from some form of oral disease[7]. In Brazil, according to data from the 2010 National Oral Health Survey conducted by the Ministry of Health, the average Decayed, Missing, and Filled Teeth Index (DMFT) is 2.07 among 12-year-olds and 4.25 among those aged 15 to 19[8]. In addition, dental trauma and periodontal diseases are common during school age[9]. According to the 2019 National School Health Survey, the proportion of Brazilian students who reported experiencing dental pain was 17.6% among those aged 13 to 15 and 20.8% among those aged 16 to 17[10].

In this context, the behavioral changes that occur during the transitions from childhood to adolescence and adulthood are of fundamental importance to oral health[9,11]. Schools can serve as effective platforms for the dissemination of knowledge about oral health[12]. However, the school environment can also be the setting for negative experiences, such as bullying, which may trigger both physiological and psychological problems, with potentially harmful effects on oral health as well[13]. Furthermore, subjective self-perception of oral health may often explain this dynamic more effectively than clinical conditions alone[14]. Therefore, assessing contextual factors is essential for promoting more effective public policies, tailored to local realities and aimed at reducing inequalities in oral health[15].

Given this, evaluating changes in oral health conditions during transitional periods in individuals' lives, particularly from childhood to adolescence, is essential. In this context, the involvement of undergraduate dentistry students in this process provides an exceptional opportunity for scientific learning and for understanding the various social contexts and their impact on oral health. Therefore, this study aims to report the experience of two SI scholarship students in the epidemiological data collection of a 13-year dental cohort conducted in a municipality in southern Brazil, whose participants were preschoolers at the beginning of the study.

EXPERIENCE REPORT

This descriptive study presents the experience of undergraduate Dentistry students from the Federal University of Santa Maria (UFSM), in the state of Rio Grande do Sul, who participated as scholarship holders in the Institutional Program for Scientific Initiation Scholarships (PIBIC) in a project entitled *"Social Determinants of Inequities in Oral Health from Childhood to Adolescence: A 13-Year Cohort"*, conducted between September 2022 and September 2023, with the approval of the Research Ethics Committee (CEP) of the Federal University of Santa Maria (protocol CAAE 63937422.0.0000.5346). The aim of this project is to analyze the longitudinal interrelations between behavioral, psychosocial, contextual, and socioeconomic factors, as well as normative and subjective oral health outcomes among adolescents in the municipality of Santa Maria, Rio Grande do Sul, Brazil. This cohort study began in 2010 with a random sample of 639 preschool children aged 1 to 5 years. These individuals were subsequently evaluated in 2012, 2017, 2020, and 2023, totaling a 13-year follow-up period.

The undergraduate research students from the fourth and fifth semesters of the Dentistry program began their activities in September 2022, organizing the fifth data collection of the monitored participants and their families. The undergraduate students were responsible for making phone calls to update the addresses and contact information of the participants, digitizing and storing the information and clinical records from previous collections in a database. Additionally, they prepared the instruments for field use by washing, organizing, and sterilizing the kits, an activity that extended throughout the entire data collection period. Moreover, the data collection was conducted at public schools and participants' homes, where the students administered structured questionnaires about behavioral, contextual, psychosocial, and socioeconomic factors of the adolescent research participants. The students also recorded data obtained during clinical examinations carried out by master's and PhD students. For the guardians of the adolescents comprising the sample of this study, the students applied a questionnaire from the Brazilian Food Insecurity Scale, often conducted through conventional phone calls.

Participating in the project as undergraduate research students from the early stages of the program can have a significant impact on students' academic performance. Experiencing firsthand all phases of scientific research allowed the development of essential skills related to methodologies, from their fundamental concepts to data collection, result organization, analysis, and dissemination. Furthermore, integrating the theoretical knowledge acquired during weekly meetings with the group of graduate students and professors with the practical application during the research was crucial. This actively consolidated learning that would typically only be addressed practically during graduate studies and theoretically during undergraduate studies. Thus, critical thinking and proactivity skills in the academic environment are enhanced.

The stage of data collection from adolescents and their families at homes and/or public schools in different neighborhoods of the municipality enabled an approach to diverse social, economic, and cultural contexts. This expanded the students' exposure to the various health realities faced within the same region, allowing them to correlate the impact of different factors on normative and subjective oral health outcomes. Administering the questionnaire to both the adolescents and their guardians provided an opportunity to explore different approaches and management techniques, considering that the questionnaire contained personal questions that could have varied repercussions. In this regard, the approach taken by the undergraduate research students played a crucial role in adherence and the quality of the responses. This experience not only enriched the data collection process but also strengthened the students' ability to handle delicate and sensitive situations in the dental context.

In this context, conducting data collections at the schools attended by the study participants or at their homes promotes and encourages a humanized perspective on the part of the team involved. The opportunity to experience epidemiology means understanding the contexts faced by individuals and drawing associations with oral health and quality of life. In

this sense, these experiences allow for a comprehensive understanding of the individual as a whole and highlight the need for multiprofessional treatment, emphasizing that health should be approached interdisciplinarily. Moreover, the complexity of this work, such as difficulties locating addresses, problems with phone numbers, data collection on rainy or cold days, long distances, among other challenges, underscores the relevance of this type of study. The mobilization and planning required to produce quality scientific evidence are significant. In this scenario, the undergraduate student feels part of a larger mechanism and engaged in work that can positively impact people's lives.

The completion of the data collection phase and the subsequent analysis enabled the undergraduate research students to gain a comprehensive understanding of the methodology employed, allowing them to follow each step of the process. With the support of graduate students and supervising professors, it was possible to deepen the scientific writing on the research questions addressed by the project. The students fully developed scientific articles, abstracts, and posters for presentation at conferences and events, strengthening two essential skills: autonomy in scientific writing and the ability to communicate and share their research results with the public. The students' participation in the project over the course of a year also fostered greater engagement in research activities and scientific writing, as well as encouraged the development of ambitions related to academic careers, both in research and teaching. This immersion provided an enriching experience, sparking interest and consolidating the students' commitment to research and scientific production. As a result, many began to consider the possibility of pursuing careers involving research and academic teaching, motivated by the positive experience and the impact perceived during their participation in the project.

Another fundamental aspect observed by the students was the continuous improvement in academic performance throughout their participation in the research internship. During this period, the students recognized the need for more effective time management for studying, driven by exposure to various teaching methodologies and the absorption of knowledge from multiple sources at different times. Furthermore, interaction with peers from different undergraduate and graduate levels provided an enriching experience, allowing for valuable exchanges of ideas. Above all, fostering an active pursuit of knowledge and building a theoretical and practical framework based on evidence were key factors developed during this period, significantly contributing to the students' progressive improvement in university performance.

FINAL CONSIDERATIONS

SI is a methodological support tool for students that significantly contributes to engagement in scientific research[16]. These experiences bring students closer to social realities and encourage them to conduct research even during their undergraduate studies, collaborating in professional training and the continuous updating of scientific production[17]. According to a study conducted with dentistry students at the Federal University of Espírito Santo, approximately 79% of students enjoy scientific research, and about 83% report having the habit of reading scientific articles. However, limited time availability, financial investment, and insufficient infrastructure ultimately hinder student involvement in this area[18-20].

Active involvement of the SI in research contributes to their academic journey at the university[21]. When this engagement occurs from the beginning of the undergraduate program, ideal conditions are established for the development of the desired attributes in a higher education professional and for stimulating interest in graduate studies[4]. Thus, the close integration between graduate and undergraduate activities offered during SI enables the student to make more informed professional choices, as well as promotes the development of skills and competencies that can be applied more effectively[22].

Programs such as the National Curricular Guidelines (NCG) of the Brazilian Ministry of Education establish principles, foundations, and procedures aimed at ensuring the comprehensive education of students and the academic quality of higher education institutions[23]. Among the central aspects are the competencies that students are expected to develop, such as critical and reflective thinking, intellectual autonomy, social responsibility, ethical commitment, and the ability to work in an interdisciplinary and collaborative manner across diverse contexts[23]. The NCG also reinforces the inseparability of teaching, research, and extension, understood as a structuring element of the educational process[23]. Thus, the pedagogical projects of undergraduate programs must articulate these dimensions coherently and integratively, enabling students to experience meaningful academic activities that connect theoretical knowledge with social practice and contribute to the transformation of reality.

This report presents some limitations that should be considered. The results are largely based on the perceptions of the undergraduate research scholarship holders regarding the research stages, which makes some aspects inherently subjective. However, since this is an experience report, this limitation is inherent. The restriction of the analysis to the city in question and its surroundings can be seen as a territorial limitation that influenced the perceptions of the scholarship holders. Nevertheless, the sampling process was carefully planned to reflect the local population characteristics, allowing the students who participated in the cohort data collections to explore diverse social realities in a proportionally appropriate manner, thereby contributing to the comprehensive construction of scientific learning.

This report highlighted the importance of undergraduate dentistry students' participation in research programs, exemplified by the contribution of two scholarship holders in a preschool dental cohort followed for 13 years in a municipality in southern Brazil. The experience was fundamental for enhancing and developing academic competencies focused on scientific research. Participation in the project not only contributed to the practical training of the students but also broadened their understanding of oral health inequities and their impacts during childhood and adolescence. Furthermore, involvement in SI motivated the students to consider academic careers, developed oral communication skills, and stimulated interest in scientific production. Therefore, participation in SI programs during undergraduate studies should be encouraged and supported by educational institutions, as it is essential for training professionals committed to research and evidence-based clinical practice.

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