



# Contributions of the Academic League of Cariology to students and community education: experience report


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**Abstract** The objective of this work is to report the experience of dental students with the activities developed by the Academic League of Cariology (ALC) of the University of Santa Cruz do Sul (UNISC) in 2021 and 2022. The ALC began in May 2021 in online format via Google Meet due to the COVID-19 pandemic. Meetings were held weekly and included teaching, outreach, and research activities. In teaching, book chapters, scientific articles, and clinical cases related to caries and other disorders of the mineralized tissues of teeth, such as erosion and other non-carious lesions, were discussed. In outreach, interventions with guidelines for oral health of children and adolescents were developed, always with prevention in mind. Public lectures on cariology topics were also given and the Instagram account “@ligacariologiaunisc” was created to post educational content based on readings during ALC activities. In research, the participating students sought scientific evidence for the topics covered. Students were also encouraged to participate in scientific events and present their work. In this way, it is assumed that the performance of students in different scenarios, based on a theoretical deepening, contributes to an academic training that is closer to the real world. In addition, through the integration of teaching, research, and outreach, the activities carried out by ALC have provided knowledge to other professors, students and dentists interested in the field of cariology and have benefited the community through outreach activities.

**Descriptors:** Dental Caries. Dental Education. Community-Institution Relations.

## Aportes de la Liga Académica de Cariología a la formación de estudiantes y de la comunidad: relato de experiencia

**Resumen** Este trabajo tiene como objetivo relatar la experiencia de estudiantes de Odontología en las actividades desarrolladas por la Liga Académica de Cariología (LAC) de la Universidad de Santa Cruz do Sul (UNISC) en los años 2021 y 2022. La LAC comenzó en mayo de 2021 de formato online, a través de Google Meet, debido a la pandemia de COVID-19. Las reuniones se realizaron semanalmente, abarcando actividades de docencia, extensión e investigación. En las actividades docentes se discutieron capítulos de libros, artículos científicos y casos clínicos relacionados con la caries y otros trastornos de los tejidos mineralizados de los dientes, como la erosión y otras lesiones no cariosas. Como extensión, se desarrollaron acciones con lineamientos de salud bucal para niños y adolescentes, buscando siempre la prevención. También se realizaron conferencias abiertas al público sobre temas relacionados con la Cariología y se creó una cuenta de Instagram “@ligacariologiaunisc”, que publica contenidos educativos, basados en lecturas realizadas durante las actividades de LAC. En la investigación, los académicos involucrados buscaron evidencia científica en relación con los temas tratados. También se animó a los académicos a participar en eventos científicos, presentando trabajos. De esta manera, se considera que el desempeño de los académicos en diferentes escenarios, a partir de una profundización teórica, contribuye a una formación académica más cercana a la realidad del mundo del trabajo. Además, al integrar ejes de docencia, investigación y extensión, las actividades realizadas por LAC sumaron conocimientos a otros docentes, estudiantes y cirujanos dentistas interesados en el área de Cariología, y beneficiaron a la comunidad cubierta por las acciones de extensión.

**Descriptorios:** Caries Dental. Educación en Odontología. Relaciones Comunidad-Institución.

## **Contribuições da Liga Acadêmica de Cariologia para a formação dos estudantes e para a comunidade: relato de experiência**

**Resumo** Este trabalho tem o objetivo de relatar a experiência de acadêmicos de Odontologia nas atividades desenvolvidas pela Liga Acadêmica de Cariologia (LAC) da Universidade de Santa Cruz do Sul (UNISC) nos anos de 2021 e 2022. A LAC teve início em maio de 2021 em formato online, via Google Meet, em virtude da pandemia de COVID-19. Os encontros foram realizados semanalmente, contemplando atividades de ensino, extensão e pesquisa. Nas atividades de ensino foram discutidos capítulos de livros, artigos científicos e casos clínicos relacionados à cárie dentária e outras desordens dos tecidos mineralizados dos dentes, como erosão e outras lesões não cariosas. Como extensão, foram desenvolvidas ações com orientações de saúde bucal para crianças e adolescentes, buscando sempre a prevenção. Também foram realizadas palestras abertas ao público, sobre temas relacionados à Cariologia, e criada uma conta no instagram “@ligacariologiaunisc”, que publica conteúdos educativos, embasados nas leituras realizadas nas atividades da LAC. Na pesquisa, os acadêmicos envolvidos buscaram evidências científicas em relação aos temas abordados. Os acadêmicos também foram estimulados a participar de eventos científicos, apresentando trabalhos. Dessa forma, considera-se que a atuação dos acadêmicos em diferentes cenários, a partir de um aprofundamento teórico, contribui para a formação acadêmica mais próxima da realidade do mundo do trabalho. Além disso, ao integrar os eixos ensino, pesquisa e extensão, as atividades realizadas pela LAC agregaram conhecimento para outros professores, estudantes e cirurgiões-dentistas interessados na área de Cariologia, e beneficiaram a comunidade contemplada com as ações de extensão.

**Descritores:** Cárie Dentária. Educação em Odontologia. Relações Comunidade-Instituição.

## **INTRODUCTION**

Many advances in recent decades have improved people's health status and enabled them to live longer with better quality<sup>1</sup>. There have also been improvements in oral health, especially in dental caries, the prevalence of which has decreased, especially in developed countries<sup>2</sup>. In Brazil, a decrease in caries prevalence has been observed in some age groups, but the 2010 National Oral Health Survey showed that more than half of the Brazilian population experiences caries, which continues to make it a public health problem<sup>3,4</sup>.

Due to the complexity of the health care system and the fact that dental caries shares risk factors with other diseases, especially the consumption of sugary foods<sup>5,6</sup>, integrated actions between dentistry and professionals from other health and education sectors can contribute to better oral and general health conditions<sup>7</sup>. In this sense, working in different scenarios, in addition to the dental clinic, since dental school, allows the development of skills, competencies, and values aimed at humanized, decisive and, when necessary, interprofessional care<sup>8</sup>. This approach takes into account the National Curricular Guidelines (NCG) for dental degree<sup>9</sup>, which describe the profile of the dental school graduate as a professional generalist, with a solid technical-scientific foundation and actively working to build permanent knowledge; humanistic and ethical, attentive to the dignity of the human person and to individual and collective needs, able to work in a team, interprofessional, interdisciplinary and transdisciplinary manner; with a leadership attitude; communicative, able to express himself clearly.

In the health field, one of the ways to develop activities in different teaching-learning scenarios is the Academic Leagues, which propose to deepen the knowledge of relevant topics, integrating teaching, research, and outreach, and contributing to the training of professionals better able to act in the health reality of the Brazilian population<sup>10,11</sup>. The first academic league in Brazil was founded in 1920 under the name of “League for the Fight of Syphilis” at the Faculty of Medicine of São Paulo. Since then, groups of students with a common interest and on a voluntary basis, under the guidance of professors, have deepened their studies and developed activities in specific areas of knowledge in order to contribute to society as professionals and be better prepared to meet the needs of the

population under their care<sup>12</sup>. The number of academic leagues has increased throughout the country, with medical schools proving to be at the forefront of these initiatives<sup>13</sup>. The goals of academic leagues include bringing students closer to the practice of health care, providing a variety of scenarios, learning how to act, and learning to care for others<sup>14</sup>.

Academic leagues benefit professional training because they combine the university arms of teaching, research, and outreach, which is not always the case with other projects. Therefore, when done well, they are beneficial to students, contribute positively to the academic environment, and are socially relevant<sup>10</sup>. In addition to deepening the subject matter, academic leagues based on the protagonism of students allow the anticipatory involvement of participants in different areas of activity and contribute to the development of relationships between professionals and patients, allowing the integration of teaching, service, and community<sup>13,15</sup>.

In this sense, deepening the study of topics that represent public health problems, such as caries, in academic leagues can contribute to the health of the population. In Brazil, caries is taught in different ways. In some dental programs, theoretical content is concentrated in a single subject area (e.g., cariology), while in other programs, content and practices are distributed throughout the curriculum in related curricular components. However, according to the "Consensus of Guidelines for the Teaching of Caries in Undergraduate Dental Courses in Brazil", the teaching of this pathology cannot be separated from other health problems, but must encourage an expanded discussion to consider the training of students in different scenarios and practices, in basic and applied sciences, and in individual and collective actions<sup>16</sup>.

Considering that activities developed in academic leagues can contribute to professional training, the objective of this article is to report the experience of dental students from the University of Santa Cruz do Sul (UNISC) who participated in the Academic League of Cariology (ALC) in 2021 and 2022.

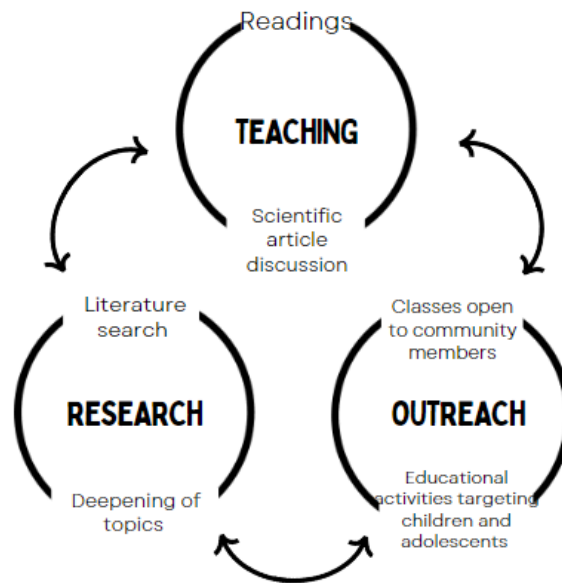
## EXPERIENCE REPORT

The ALC of the UNISC Dental School is an extension project developed by UNISC Dental School students and coordinated by a professor. Prior to the start of activities, the League's regulations were approved by the program's Board of Directors, and the project was evaluated and approved by the Department of Health Sciences, to which the program is affiliated. To participate, the student must be regularly enrolled in the UNISC dental program and have completed the Cariology module, which is in the fourth academic semester. The duration of the UNISC dental program is five years and includes both day and evening classes. The league consisted of eight students in 2021 and 10 students in 2022, selected through academic records and interviews. Students who are part of ALC or participate in its activities to the academic community, such as lectures or case discussions, may use up to 40 hours for the Flexible Center. Student participation is voluntary and the number of hours per week spent on activities varies, with a minimum of one hour per week and a maximum of four hours per week.

League activities began in May 2021, and due to the COVID-19 pandemic, meetings began synchronously via Google Meet. From 2022, with the improvement of the epidemiological situation, meetings began to take place in person. Over the months, weekly activities were developed in the areas of teaching, research, and outreach, as shown in Figure 1.

In teaching-related activities, the goal was to provide space for discussion of book chapters, scientific articles, and clinical cases related to the development and progression of carious lesions and other disorders of the mineralized tissues of teeth, such as erosion, and other non-carious lesions. Participants were also encouraged to recognize the importance of the social determinants of health in the occurrence of dental caries. For the World Health Organization (WHO), the social determinants of health are defined as the conditions in which people are born, grow up, live, work, and age. According to the model proposed by the Commission on Social Determinants of Health, the social and structural determinants of health inequalities - which refer to the political and socioeconomic context and the socioeconomic position of individuals, respectively - influence the intermediate determinants, which include health behaviors, psychological, biological, and behavioral factors, and health systems. These intermediate components, in turn, can influence an individual's health and

well-being<sup>17</sup>. Thus, as part of the activities of ALC, in-depth studies were conducted on topics covered in the various curricular teaching activities.



**Figure 1.** Activities carried out in the Academic League of Cariology.

At the beginning of the semester activities, all members of the league (students and the professor in charge) planned the readings to be done, presented, and discussed throughout the period. Each week, two participants prepared the presentation of the selected material that had been previously read by all. Currently, it was decided to read the selected books in their entirety<sup>18,19</sup>. For some chapters, several weekly meetings were required to discuss them, depending on how long they were, whether it was deemed necessary to go deeper into the topic, or how interested the participants were. In addition, during the activities, questions arose that led to the search for further scientific articles to expand the theoretical knowledge of the topics discussed. These articles were also discussed during the weekly meetings.

To study some topics, the group brought in professors and scholarship holders from other outreach projects to deepen knowledge in other areas. For example, the study of a book chapter on the “Consequences of Caries Lesions on the Pulp and the Surroundings”<sup>18</sup> involved participants from the “Prevention in Endodontics Project” who were also from the UNISC dental program, since it was a common topic between the two projects. Professors and students from the UNISC nutrition course participated in the discussion on “Nutritional Conditions and Oral Health Problems in the First 1,000 Days of Life”<sup>20</sup>, which provided an opportunity to share information that contributes to the professional training of both courses. Considering that dental caries has common risk factors, especially the consumption of free sugars, which is a determining factor for the occurrence of caries, with several diseases<sup>7,21</sup>, integrated interventions with other health fields, in addition to dentistry, can have a positive impact on both oral and general health. In addition, integrated interventions with other curricula are part of the NCG requirements for the dental undergraduate course, which aims to train dentists who are able to “act interprofessionally, based on reflection on their own practice, by sharing knowledge with health professionals and other knowledge areas to identify and discuss problems and continuously improve collaboration and the quality of health care”<sup>9</sup>.

In the area of research, activities included promoting and advising on the search for the best knowledge on the topics addressed, related to the etiology, prevention, diagnosis, and treatment of various diseases relevant to the

field of cariology. The basic principles required for conducting research in terms of ethical and methodological aspects were addressed on several occasions during discussions of articles and book chapters. In addition, social media publications shared by participants were critically analyzed. In this way, it is hoped to contribute to professional training by promoting the use of reliable sources that can support clinical practice through critical thinking in relation to the available content in both scientific journals and social media. Participants were also encouraged to attend scientific meetings and present their work. These activities are believed to promote one of the specific competencies of the NCG, which is "the development of critical, reflective, and creative thinking and the ability to seek and produce knowledge"<sup>9</sup>.

Panobianco *et al.* (2013)<sup>22</sup> highlight that the approach to research in terms of the role of academic leagues is of great importance, as contact with the field in question promotes the development of these skills. In this way, exposure to the field impacts professional performance, i.e., students become better professionals as they broaden their critical perspectives and develop the ability to reflect on health needs related to their field of study.<sup>22</sup>

In the outreach arm, educational activities for children and adolescents were developed and implemented in various locations, such as in elementary schools, a facility that welcomes minors in vulnerable situations, a reference center for social assistance (CRAS), and the waiting room of the UNISC dental clinic. Through discussion groups, lectures, and playful means such as puppet shows, participants were educated about caries, erosive tooth wear, nutrition and oral hygiene, with the goal of improving oral health. Large models of dental arches and cavities, toothbrushes and floss, and printed materials prepared by League members were also used to facilitate the lessons. In this way, the League benefited the general population and directed students' education toward a model of care designed to promote health and decrease risk, disease, and injury in a humane manner<sup>23</sup>.

Considering the potential of social media for knowledge sharing, an Instagram account "@ligacariologiaunisc" was created to post educational content on topics discussed in the group and to promote outreach activities.

As another outreach activity, open classes were held for students and professionals from UNISC and the community, which were posted on social media and broadcast on the YouTube channel "UNISC Ao Vivo". Topics covered included discussions relevant to cariology such as selective removal of carious tissue, erosive tooth wear, detection of prebiotics and probiotics in relation to caries, and the first thousand days of life and oral health.

One of the challenges of student involvement in extracurricular activities, both in research and outreach and in academic leagues, is the difficulty of balancing members' schedules for action development with other curricular activities and with social and family life. In this sense, it is important that all stakeholders understand that participation requires commitment and time, with the goal of a collective construction that allows to effectively deepen the knowledge of participants in academic leagues.

Participation in the academic league earned students several contributions, as shown in the word cloud (Figure 2) created by students who worked on the ALC of the UNISC dental program in 2021 and 2022. From this figure, it can be seen that participation in the league during their studies allowed students to deepen their knowledge of cariology, a very important topic in dental practice, thus establishing a closer relationship with the working world. Gameiro and Gameiro (2020)<sup>24</sup> highlight that a positive outcome of participation in the Ophthalmology League was that exposure to the specialty allowed participants to gain more experience before choosing a future medical specialty. This was also observed in our league, i.e., exposure to the specialty and gaining more knowledge allowed students to question whether they wanted to continue studying and/or working in the field and to identify an affinity for the field.

Therefore, it is considered that the activities carried out by the ALC, including the study of dental caries, contribute to "future professionals understanding the challenges in the detection, monitoring, treatment, and ultimately effective care of individuals, families, and populations suffering from the consequences of dental caries", thus achieving the purpose described in the document "Consensus of Guidelines for the Teaching of Dental Caries in Undergraduate Dental Courses in Brazil"<sup>16</sup>.



**Figure 2.** Word cloud showing the perception of the members of the Academic League of Cariology.

## FINAL CONSIDERATIONS

Although professional training has always been an addition to formal education, the opportunities and potential for learning today are unprecedented. In today's rapidly evolving context, universities are expanding their traditional role as places to learn through curricular activities to include new forms of learning that extend beyond the confines of the classroom<sup>25</sup>. In this sense, the opportunity to participate in an academic league with activities that integrate teaching, research, and outreach allows students to receive a differentiated education that is closer to the realities of the working world.

It is assumed that everyone who participated in the activities of the UNISC ALC received some benefit from the teaching, research and outreach activities carried out: children and adolescents who participated in the educational activities, the students and professors at UNISC and other institutions, the dentists who participated in the open classes, and the league members who participated in the activities to deepen the study of cariology.

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