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1st Symposium of Laser in Dentistry from Rio Doce Valley, Brazil – Experience Report of this Online Event Conducted During the COVID-19 Outbreak

Primer Simposio de Láser en Odontología del Valle del Rio Doce, Brazil - Informe de Experiencia de este Evento en Línea Realizado Durante el Brote de COVID-19

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ABSTRACT: The Specialized Center in Laser Therapy Applied to Dentistry (CELAO) is an extension project of the School of Dentistry, Federal University of Juiz de Fora campus Governador Valadares (UFJF-GV) that develops activities related to the treatment of patients through laser therapy. Due to the COVID-19 pandemic in 2020, the attendance of the population was suspended, requiring the project to adapt to the new reality. In this precept, the 1st Symposium of Laser in Dentistry from Rio Doce Valley, Brazil was idealized. The event was organized and accomplished by CELAO, completely online and free of charge, with the aim of dissemination of knowledge, expansion of the event's reach, and the inclusion of the largest number of students and professionals in the area. The results show that the event was relevant to improve knowledge of the participants, with satisfactory integration against the context of social isolation. Still, this Event model used by CELAO can extrapolate to other areas of knowledge, allowing the participation and inclusion of people from various locations.

KEY WORDS: laser therapy, higher education, students, social isolation, coronavirus infections.

INTRODUCTION

The COVID-19 disease made the year 2020 unusual due to the appearance of a new coronavirus, the Sars-CoV-2. This virus has a speed of propagation that varies from 1.6 to 4.1 and is highly infectious. These factors associated with the absence of an effective vaccine for the new corona virus contributed to cases increasing exponentially and alarmingly (Malta *et al*., 2020). Thus, restrictive measures and social distance were necessary, according to the recommendations of the World Health Organization (WHO, 2020).

According to the United Nations Educational, Scientific and Cultural Organization (UNESCO, 2020), in early May 2020, 186 countries closed schools, in whole or in part, to contain the spread of the disease, reaching about 70 % of the students. This measure affected the school calendar, causing insecurity regarding the students' learning (Oliveira *et al*., 2020).

To not disrupt the progress of the school semester, given the impossibility of conducting face-to-face classes, alternatives needed to be rethought. In March, the Ministry of Education of Brazil published an ordinance (343/2020), which provided for the replacement of face-to-face classes by classes in digital media while the COVID-19 pandemic situation lasts (Ministery of Education, 2020). In addition to the limitations of adapting content and dynamics that minimize the impairment in the learning process (de Jesus *et al*., 2020), there was also inequality in technological access (Palhares, 2020).

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Given this, educational institutions have leveraged the holding of events remotely, to continue leagues activities and extension projects, such as lectures, journeys, live streams on Instagram and online conferences. This way, technological tools have enabled students to add knowledge through online interaction, motivating them and maintaining proximity to subjects related to their course, even with suspended curricular activities (Xavier *et al*., 2020).

Even with all the difficulties, classes and events of educational nature were and are being carried out successfully. In addition to facilitating access to those who could not have them, whether for financial reasons and/or physical distance, the internet provides this approach. The purpose of this paper is to describe the experience report of the event "1st Symposium of Laser in Dentistry from Rio Doce Valley, Brazil" carried out by the Extension Project Specialized Center for Laser Therapy Applied to Dentistry (CELAO) of the School of Dentistry, Federal University of Juiz de Fora, campus Governador Valadares (UFJF/GV), Brazil, organized and implemented entirely online. The relevance of the work is due to the need to contribute to education, which is happening remotely, thus reducing any losses.

MATERIAL AND METHOD

This study consists of the description of an experience report about the organization and realization of the even t "1st Symposium of Laser in Dentistry from Rio Doce Valley, Brazil", which happened during the pandemic of COVID-19. The entire journey took place online, as its organization. The event aimed to bring up-to-date relevant topics on the use of laser in dentistry in the hospital and dental office environment, in addition to its use in the management of cancer patients. It was free of charge, had three lectures by qualified professionals in the area on each day of the event, and a certification of 9 hours in total to the participants. The event was proposed by CELAO and occurred on August 13 and 14, 2020, when the COVID-19 pandemic and social isolation persisted. On that date, face-to-face classes were suspended, as well as face-to-face events in general. The event was organized by all CELAO members, being two supervising professors, nine undergraduate dentistry students, and one post-graduate student. The distribution of activities was as follows:

Speakers. Invitations were made to the speakers by the supervising professors through digital platforms. The lecture themes were decided in consensus by the invited speakers and the CELAO members. Ten days before the event, each speaker received a manual containing the guidelines regarding the event, with instructions about the digital platform used for the transmission.

Registration and disclosure. An online document registered the entries through Google forms®. The registration was available in the biography link of CELAO's Instagram® profile (@celao.ufjfgv) and lasted 19 days. In addition, disclosure was made through other social networks. The event was free and open to interested people, with no restriction on the degree of training and/or area of expertise on the subject. After registration, participants received a confirmation email and a manual with detailed information about the event, guidelines, and links to access the lectures. Both the manual and the links were available on Instagram® throughout the event.

The event was advertised through publications on the project's Instagram® profile, with the themes of the lectures, resumes of the lecturing professors, and some pertinent information. Through the same platform, the subscribers made shares about the event, also contributing to its dissemination. Furthermore, the event was publicized on the official UFJF/GV website giving instructions for registration.

Virtual environment. The "1st Symposium of Laser in Dentistry from Rio Doce Valley, Brazil" was transmitted via YouTube®, through the StreamYard® platform, free version, on August 13th and 14th, from 4:00 pm to 8:00 pm, Brasília time zone. On each day of the event, three lectures were given, with an average duration of 1 hour each, followed by 30 minutes for questions and comments. Between each lecture, there was an interval of 10 minutes, contributing to the event's punctuality, which was widely praised by participants in the YouTube® chat and on CELAO's social networks.

The first day covered topics related to the application of lasers in the dental office and featured lectures on the following topics: "How to insert low and high-power lasers into the routine of the dental office?" taught by Professor Ana Cecília Aranha;"Lasers in the management of dentin hypersensitivity pain" by Professor Vinícius Maximiano; and "Use of Lasers and LEDs in orofacial harmonization" by Professor Luana Campos. The second day was devoted to laser applications in cancer patients: "Photobiomodulation

in the management of mucositis associated with radiotherapy and/or chemotherapy" by Professor Fábio Alves;"Use of photobiomodulation and antimicrobial photodynamic therapy in osteonecrosis of the jaws" by professor Letícia Lang; and "Benefits of laser therapy for onco-hematological patients" by Professor Fernanda de Paula Eduardo. During the lectures, the CELAO members were available in the YouTube® chat to assist the participants, and to collect the audience questions.

Certification and data collection. A link was made available for 15 minutes, during each lecture, in the chat and in the video description, which contained an online survey, by Google forms®, to confirm participants' presence and collect relevant data. In this document, the participants should answer questions regarding their name, e-mail, sex, age, city/state, the current professional status, and if they were a student if they studied at a public or private institution; the communication platform through which they had learned about the symposium; if they had ever used the laser in college or office; and through a scale ranging from 1 to 10, they should answer about what they thought of the event, how much knowledge the event added and what they thought about the event being online. The participants were asked if they agreed with the use of the data for scientific purposes by the organizing committee of the event, as long as the personal data that allowed the identification were not disclosed.

Upon the attendance of at least 60 % of the total workload of the event, that is, being present in at least 4 of the 6 lectures provided, the certificates were issued by the Dean of Extension of the Federal University of Juiz de Fora, with 9 hours of workload in total, and sent via email to participants.

RESULTS AND DISCUSSION

In 19 days, 5.755 registrations were made through the online document. After removing 371 duplicate registrations, a total of 5.384 registrations were obtained.

Despite many registrations, 1.444 participants attended to the first day of the event, while 1.256 attended the second day. Considering the participants of the two days and removing the duplicates, a total of 1.505 participants reached in the two days of the event. Of these, 33 did not agree with the use of their data for scientific purposes, and thus the following analysis will refer to the 1.472 participants of the symposium who agreed with the terms. The distribution of participants, according to sex was: 1213 females (82.4 %) and 259 males (17.6 %).

The age of the participants ranged from 16 to 68 years old, showing how the approach and the language used in the event were accessible to all age groups. However, most of the public was between 18 and 25 years old, representing together 80.77 % of the audience (Fig. 1).

The event was widely publicized on social networks, using all media that were available to promote the event. Thus, the "1st Symposium of Laser in Dentistry from Rio Doce Valley, Brazil" had its access amplified democratically. Most of the public, 1.337 people (90.83 %), heard about the event through Instagram®, another 99 participants (6.73 %) through WhatsApp, and 2.44 % of the public heard about it by other means, such as the UFJF website (1.09 %); YouTube (0.54 %); by referral from friends (0.54 %) and by email (0.27 %). The detailed data are shown in Table I.

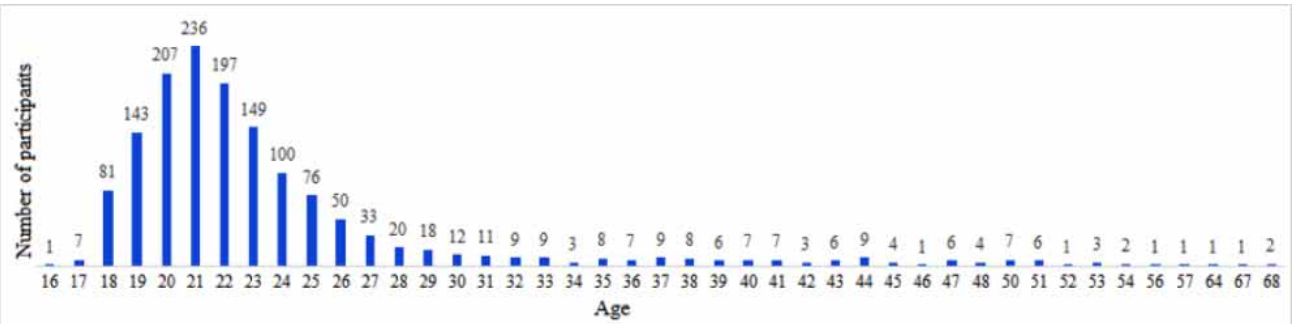

Fig. 1. Distribution of participants, depending on age.

Table I. Means of communication by which participants learned about the 1stJourney of Laser in Dentistry from Rio Doce Valley, Brazil.

Means of communication	Number of participants	%
Instagram®	1337	90.83
WhatsApp®	99	6.73
UFJF website	16	1.09
YouTube®	8	0.54
By friends	8	0.54
email	4	0.27
Total	1472	100

The event had great publicity and repercussion, as shown in Table I. Corroborating this reality, despite the great majority of participants being Brazilian, the event was attended by people from other five countries (Table II).

Table II .Number of participants and their country of origin.

Country	Number of participants	%
Brazil	1466	99.59
Colombia	2	0.13
Dominican	1	0.07
Argentina	1	0.07
Chile	1	0.07
Uruguay	1	0.07
Total	1472	100

Among the Brazilians, participants from 25 of the 27 federative units in Brazil were present. This demonstrates how an online event can include people who would not have the opportunity to participate in person, due to financial and geographic issues. Of the 25 states, Minas Gerais was the state with the most participants, 551 people (37.43 %), followed by São Paulo with 153 people (10.39 %) and Bahia with 131 people (8.9 %). Rondônia and Acre were the only two Brazilian states that did not have representatives. The number of participants was well distributed among the Brazilian states, as shown in Table III. The Rio Doce Valley is in the state of Minas Gerais, and it is where the CELAO is localized. Thus, it is believed that this fact justification the high numbers of participants from this state.

The distribution of participants according to the Brazilian regions is shown in Figure 2. Most participants were from the Southeast region (58.60 %), followed by the Northeast region (17.93 %). The region with the lowest number of participants was the North (2.86 %).

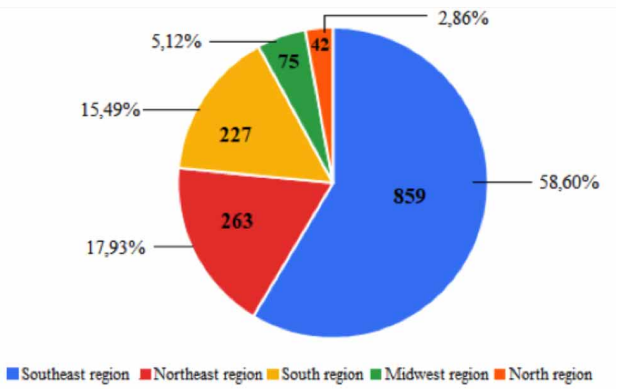

Fig. 2. Number of participants by Brazilian regions.

Table III. Number of participants per Brazilian state.

State	Number of participants	%	State	Number of participants	%
Minas Gerais	551	37.59	Sergipe	19	1.30
São Paulo	153	10.44	Federal District	19	1.30
Bahia	131	8.93	Paraiba	14	0.95
Rio Grande do Sul	107	7.30	Amazon	14	0.95
Holy Spirit	95	6.48	Rio Grande do Norte	11	0.75
Paraná	73	4.98	Goias	11	0.75
Rio de Janeiro	60	4.09	Piaui	11	0.75
Santa Catarina	47	3.21	Pernambuco	10	0.68
Alagoas	35	2.39	Maranhao	5	0.34
Ceará	27	1.84	Roraima	4	0.27
Mato Grosso	24	1.64	Tocantins	2	0.14
Mato Grosso do Sul	21	1.43	Amapá	2	0.14
Stop	20	1.36			
Total				1466	100

The event was open to interested people without any restrictions on the degree of training, area of activity and, occupation of the participants. However, it was observed that most of the public was dental students, 1.248 participants (84.79 %), followed by Dentists, who represented 12.36 % of the participants. There was also the participation of teachers, master's students, professionals, and students from other areas, totalizing 2.85 % of the public (Table IV).

Table IV. Number of participants according to current occupation/profession.

Profession/Occupation	Number of participants	%
Dentistry Student	1248	84.79
Dentist	182	12.36
Teacher	17	1.15
Health student from another area	9	0.61
Health professional from another area	9	0.61
Master	5	0.34
Professional from another area	2	0.14
Total	1472	100

Of the students, master's, and teachers present at the event, 859 people (58.36 %) are studying and/or working in private institutions. In contrast, another 429 people (29.14 %) are part of a public institution. Therefore, the remainders (12.5 %) declared not to be students, as shown in Table V.

Table V. Type of educational institution of the participants.

Higher education institution	Number of participants	%
Private	859	58.36
Public	429	29.14
I'm not a student	184	12.50
Total	1472	100.00

Participants were asked if they had already used laser devices in any situation at college and/or in the office. The results are as shown in Table VI. It is important to note that most participants have never had contact with the laser device.

Table VI. Number of participants who already use laser in college and/or office.

Laser in office/college	Number of participants	%
Yes	337	22.89
No	1135	77,11
Total	1472	100

After the final lecture, participants were able to rate and give an opinion on the event, on a scale of 1 to 10, through the last presence form. Most participants gave a score greater than or equal to 8, therefore the event could be considered to have reached the audience's expectations.The distribution of responses is as shown in Table VII.

Table VII. Participants' notes on satisfaction with the event, on a scale from 1 to 10.

Degree of satisfaction	Number of participants	%
10	1196	81.25
9	180	12.23
8	78	5.30
7	11	0.74
6	6	0.41
2	1	0.07
Total	1472	100

Subsequently, the participants were asked about how much knowledge they believed the event added to their professional career, on a scale of 1 to 10. Of the 1.472 participants, 1.121 (76.15 %) participants evaluated with a score of 10, followed by 188 (12.77 %) who scored 9 and 118 who rated 8 (8.02 %). Regarding the median assessment, together (Notes 7, 6, and 5), there were 44 participants (2.99 %). Only 1 person (0.07 %) rated it poorly (Note 2). The data are all grouped in Figure 3.

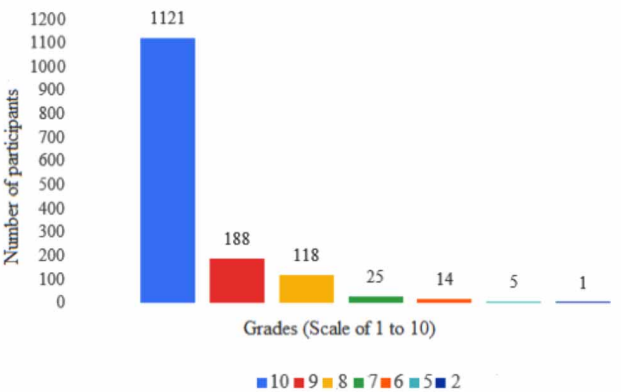

Fig. 3. Participant's grades of how much knowledge the event has added to their professional careers.

Finally, the participants were able to assess, on a scale of 1 to 10, whether or not they liked the event to have happened remotely. When grouping the best grades (Notes 10, 9, and 8), it is noted that there is a significant number (97.21 %) of participants satisfied

with the online modality, only 39 people (2.65 %) gave grades averages (Notes 7, 6 and 5) and 2 participants rated poorly (0.14 %). The preceding data are described in Table VIII.

Table VIII. Participant's grades on the Day being held.

Remote event classification	Number of participants	%
10	1214	82.47
9	147	9.98
8	70	4.76
7	27	1.83
6	7	0.48
5	5	0.34
4	1	0.07
2	1	0.07
Total	1472	100

YouTube® data. The "1st Symposium of Laser in Dentistry from Rio Doce Valley, Brazil" was held live through the StreamYard® platform and transmitted by YouTube®. The lectures were not recorded. After the broadcast, complete data on each day of the Event could be obtained from YouTube® reports. The first relevant data to be highlighted are the impressions. Impressions happen when a viewer sees your video thumbnails on YouTube, that is, how many times they appear on the platform. On the first day, the event had 19.300 impressions, while on the second it had an increase of 1.600 impressions, totalling 20.900. Thus, it is proven that the event had high visibility, which justifies the great diversity of participants from other states and countries.

The overall video views over the two days on average remained at approximately 3.600 views. Concerning the simultaneous views, on the first day of the event, there were 804 concurrent views. On the second day, however, there were 536 simultaneous views.

In the two days of the event, the average duration of viewing was 26 minutes and 15 seconds, despite the daily extend of the event being approximately 4 hours. That is because many spectators did not watch the event until the end. Corroborating this reality, despite YouTube®'s data attributing 2.300 viewers on the first day and 1.900 on the second, only 1.444 participants signed the attendance list on day 1 and 1.256 participants on day 2.

Extension activities at a University have the social responsibility of maintaining integration between the fields of teaching and research. Therefore, it is necessary to guarantee the relationship between teachers and students, preserving the learning process (Marques, 2020). That was possible through the "1st Symposium of Laser in Dentistry from Rio Doce Valley, Brazil" conducted by CELAO, since with the pandemic of the new coronavirus it was necessary to innovate to be able to fulfill its activities.

Scientific events make it possible to increase the communication network since they provide the exchange of information, ideas, and thoughts involving a larger audience. Thus, we note the importance of these events as they are a way of acquiring new knowledge, keeping up to date, and being able to gather qualified professionals in the area even if still remotely (de Jesus *et al*.). The Symposium enabled undergraduate students to maintain proximity to their course and acquire enriching knowledge about Laser Therapy applied to Dentistry, with excellent lectures. In addition, enabled Dentists to participate as a way of aggregating information in a continuing education process.

It can be noted that 90.3 % of the participants were aware of the event through Instagram®. Thus, it is understood how social networks can assist in the teaching-learning processes, continuing education, and to improve the career by being a means of disseminating events, courses, and opportunities related to the promotion of education (Santos *et al*., 2017; Machado, 2019).

Thus, the results show how important the "1st Symposium of Laser in Dentistry from Rio Doce Valley, Brazil" was, adding knowledge to the participants, and satisfactory integration in the context of social isolation allowing the participation of people from various locations, generating inclusion and dissemination of information knowledge.

Furthermore, based on the results, it is believed that the model used by CELAO to carry out the online event, can be extrapolated to other areas of knowledge since it has reached expectations and could be considered a success.

CONCLUSIONS

Through the "1st Symposium of Laser in Dentistry from Rio Doce Valley, Brazil", the extension project CELAO played its social role. Through the event, an opportunity to transmit knowledge to the entire interested community was created and allowed CELAO members

to maintain the link with the university by fulfilling the activities and hours allocated to the project innovatively and adaptively during the pandemic of the new coronavirus.

In addition, it is clear that with the online Event, it was possible to reach a larger, more diverse audience and from different locations. Even so, it was able to count on the presence and contribution of renowned professionals in a more accessible way. Thus, the event became more inclusive and integrative, with very enriching discussions due to the diversity of the audience.

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DOMINGUES, P. B. A.; COELHO, L. H. M.; FERREIRA, I. V.; SILVA, H. D.; VERNER, F. S. & PIGATTI, F. M. 1era jornada de laser en odontologia Del Valle Del Rio Doce, Brazil - informe de experiencia de este evento en línea realizado durante el brote de COVID-19. *Int. J. Odontostomat., 15(4*):843-849, 2021.

RESUMEN: El Centro Especializado de Laserterapia Aplicada a la Odontología (CELAO) es un proyecto de extensión de la Universidad Federal de Juiz de Fora Campus Governador Valadares (UFJF/GV) que desarrolla actividades relacionadas con el tratamiento de pacientes a través del láser. Sin embargo, debido a la pandemia COVID-19 en 2020, se suspendió el servicio a la población, lo que obligó al proyecto a adaptarse a la nueva realidad. En este contexto se idealizó la "1era Jornada Láser en Odontología del Valle del Rio Doce". El evento fue organizado y realizado por CELAO de forma totalmente online y gratuita, con el objetivo de difundir el conocimiento, ampliar el alcance del evento e incluir al mayor número posible de estudiantes y profesionales en la materia. Los resultados mostraron que el evento fue importante para acrescentar el conocimiento de los participantes, con una integración satisfactoria en el contexto de aislamiento social. Aún así, el modelo de Jornada utilizado por CELAO puede extrapolarse a otras áreas del conocimiento, permitiendo la participación e inclusión de personas de diversas localidades.

PALABRAS CLAVE: terapia por láser, educación superior,estudiantes, aislamiento social, infecciones por coronavirus.

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