

RESEARCH ARTICLE

The impact of the COVID-19 pandemic on the educational process of Dental Medicine Department students in Oradea University during the lockdown period

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Aim: This cross-sectional study assesses the opinions regarding the abrupt change in dental health education of students from the Department of Dentistry, Faculty of Medicine and Pharmacy, Oradea University during the lockdown period. **Materials and methods:** An on-line survey was distributed, from 30th of April 2020 until the 2nd of May 2020, collecting data about gender, nationality, year of study, sources of information about the virus, measures taken to avoid contamination, rating online teaching versus face-to-face teaching, experiencing anxiety about the future of the profession, perceived impact of the COVID-19 pandemic on their life and professional future and possible measures that can be implemented in order to avoid or reduce contamination. Data was analyzed using IBM SPSS and Chi-Square test. **Results and discussions:** Reopening was associated with anxiety concerning the future of the profession for 44.8% of the respondents; almost half of the students experienced anxiety caused by the possibility of being infected in case of reopening (49.7%), while 62.6% were afraid of the possibility to infect their family, peers or patients. From the total number of students, 12.9% were considering changing their profession. A quarter of respondents (25.2%) declared that they will wait for a decrease in number of cases in order to reevaluate their professional career options. **Conclusions:** Government provided data was preferred by the female respondents' group, versus the men respondents' group who preferred the information provided by the WHO. The highest percentage of respondents that considered professional psychological support from university during the lockdown period useful were in the first 4 years of study. Most of the foreign students preferred to open their own dental office, while most of the Romanian students opted for being an employee in a big Dental Clinic or for reevaluating their options at a later point.

Keywords: COVID-19 pandemic, dental medicine students, education, anxiety

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Introduction

The lockdown period that was imposed during the spring of 2020, at the beginning of the COVID-19 pandemic, seriously impacted not only the practice of dentistry, the patients and the professionals, but also the medical teaching and the lives of teachers and students. At that moment, the pandemic was seen as being a serious, but rather transitory situation; in the meantime, the new epidemiological conditions are becoming a long-term day-to-day reality that everybody needs to adapt to. Dental teaching was deprived of clinical activities, that are so important in gaining the knowledge and abilities that are required for a good practitioner. As defined by Foa *et al.* (2017), anxiety is considered a uniquely human diffuse emotion, closely related to fear, and includes a person's conscious, sometimes unreasonable or excessive state of worry over a current or future unwanted event [1]. In a study made by Nechita *et al.* (2019), discussing the correlations between anxiety and coping strategies employed by 333 students at the Medicine, Pharmacy and Nursing Faculties, and comparing them with the general population, the authors noticed the

students' predilection for maladaptive coping mechanisms and how anxiety relates to their professional choice, concluding that in situations in which there is physical danger type anxiety, it is closely related to the separation type anxiety and in the ones of separation and self-disclosure, their participants mostly use avoidance, rumination and catastrophizing [2].

Understanding the opinions and the situation of every part involved in the educational process, students primarily, is paramount if we want to obtain the best teaching experience and results, which represented the aim of this study. We aimed to assess the levels of generalized anxiety among dental medicine students in the context of the new unexpected situation generated by the lockdown period and SARS-CoV 2 pandemic, trying to add this information in the context of our specific didactic experience as dentists. In this respect, we conducted a cross-sectional study using an on-line survey from 30th of April 2020 until the 2nd of May 2020, among the dental students from the Faculty of Dentistry in Oradea University.

Materials and methods

A 16 items on-line anonymous survey, with two multiple-choice and fourteen single choice questions, was distrib-

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uted by email to students of all six years of study ($n=480$) from the Department of Dental Medicine, Faculty of Medicine and Pharmacy, University of Oradea, during the lockdown period, from 30th of April 2020 until the 2nd of May 2020, collecting data about gender, nationality, year of study, sources of information about the virus, measures taken to avoid contamination, rating online teaching versus face-to-face teaching, experiencing anxiety about the future of the profession, perceived impact of the COVID-19 pandemic on their life and professional future and possible measures that can be implemented in order to avoid or reduce contamination. The two multiple-choice questions were related to which advice from the European Centre for Disease Control (ECDC 2020) they are following, and the advantages they are seeing in patients having access to telephonically offered information and telemedicine (recommendations, online prescriptions). The participation was voluntary; the questionnaire used Likert-type scale, open-ended and closed-ended type items. The study was approved by Ethics Committee of the Oradea University. Statistical analysis was performed using IBM SPSS version 19 and Pearson Chi-square test (χ^2) and assessed the relation of students' response with the respective demographical variables. Level of significance was set at $p=0.05$.

Results

A number of 163 students answered the questionnaire, resulting in a response rate of 33.9%; 93.8% of them were Romanian students; 74.8% of them were women. Most

responses were obtained from students in the first year (25.8%), followed closely by those in the second year (19.6%); least interest was shown by students in the third (9.8%) and fourth (12.9%) year, while those in the fifth and sixth year responded in equal numbers (16%). In the first multiple-choice question, washing of hands with soap and water was declared the most followed advice from the European Centre for Disease Control (ECDC 2020) (97.5%), followed closely by social distancing (92%) (Figure 1).

A vast majority of students (78.5%) evaluated on-line teaching as being less effective, while 72.4% of them rated the period of lockdown as being less productive from the education point of view. Reopening was associated with anxiety concerning the future of the profession by 44.8% of the respondents. Almost half of the students experienced anxiety caused by the possibility of being infected in case of reopening (49.7%); a greater number of them (62.6%) were afraid of the possibility to infect their family, colleagues, teachers and patients. From the total number of students that answered the questionnaire, 12.9% were considering changing their profession, while 1.2% already decided to do so. Being asked how they decided to begin their life as dentists after finishing school, most of the students answered as employee in a big Dental Clinic (36.2%), while 28.2% want to open their own praxis. A quarter of respondents (25.2%) declared that they will wait for a decrease in number of cases in order to reevaluate their professional career options and only 8% thought to associate with another colleague (Figure 2).

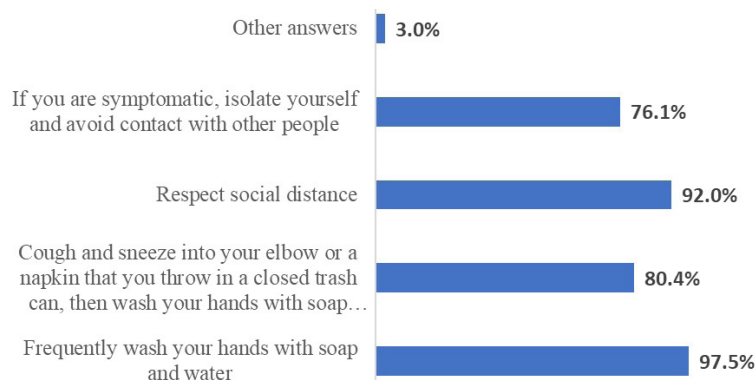


Fig. 1. Measures taken by the respondents in order to prevent infection.

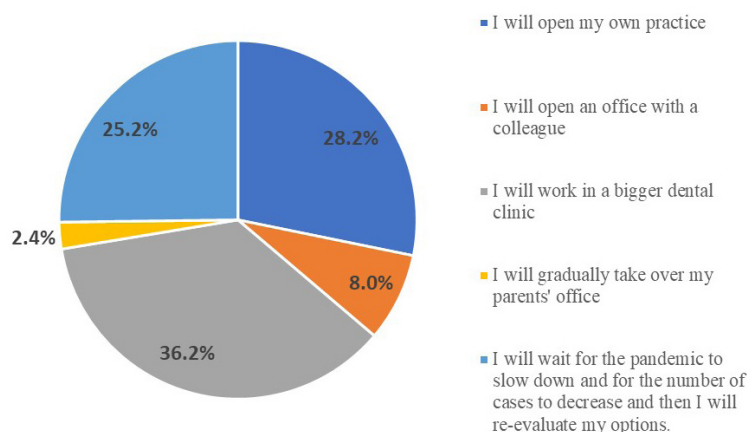


Fig. 2. Career intentions of the respondents after graduation.

A number of 35% of respondents considered that the most important measures for reopening of university clinics is wearing both types of masks, surgical and N-95, together with the protection equipment that is currently used in intensive care units; 30.1% that wearing an N-95 mask routinely and 25.8% answered that a surgical mask is enough (Figure 3).

From all the respondents, 53.4% declared that they would appreciate professional psychological support from university during this period. Most students (57.1%) used the Government data as the main information source, while 35.6% preferred the information provided by the WHO. A great part of the respondents was considering that the COVID-19 pandemic was impacting the most their daily

life (57.7%), versus their professional future (22.1%) and their mental comfort (17.2%) (Figure 4).

They also considered that the patients (95.1%) and the personnel (94.5%) should be tested for SARS-COV-2 related symptoms before being allowed to access the Dental Clinic of the University. To the second multiple-choice question regarding patients' access to telephonically offered information and telemedicine, most students answered yes for screening for fever and COVID 19 symptoms (64.4%), yes for speeding up the process when they arrive at the faculty (39.9%), and yes for avoiding useless appointments (42.9%); only 4.3% found it useless (Figure 5).

Regarding the question if patients experiencing fever and COVID-19 symptoms should be treated in the faculty

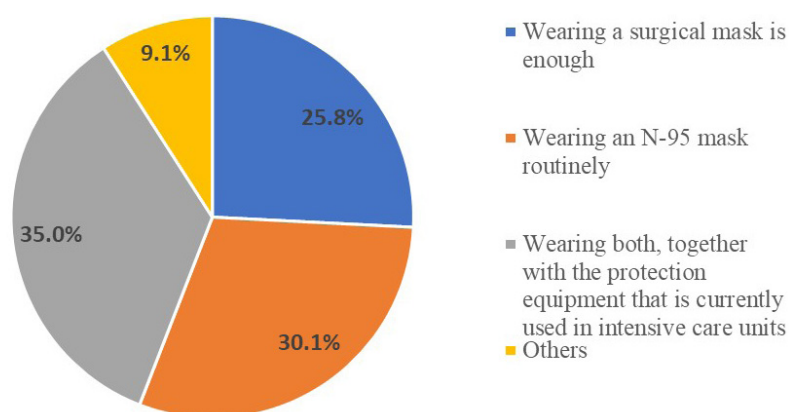


Fig. 3. Measures considered necessary by the respondents for reopening university clinics.

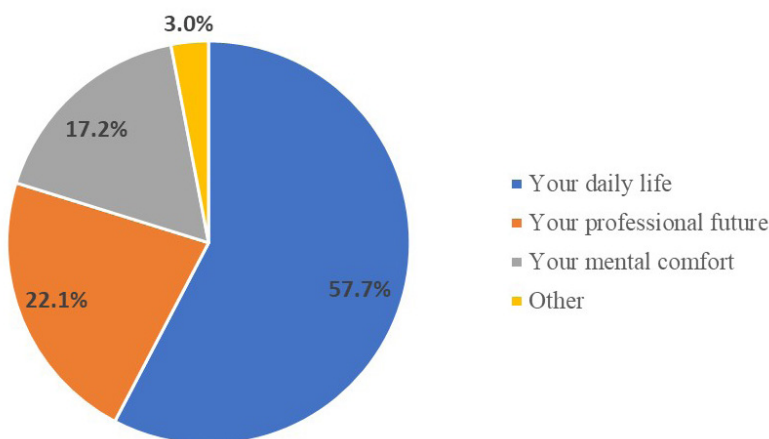


Fig. 4. The domain considered to be most impacted by the pandemic for the students.

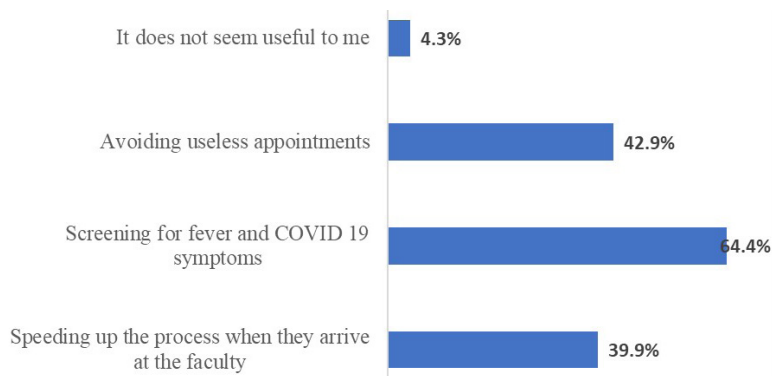


Fig. 5. Usefulness of telephonically offered information and telemedicine.

healthcare facility, 47.2% of students answered no, they should be referred to another special unit, 28.2% answered yes, but in a separate area dedicated to COVID-19 patients, 12.9% answered yes, but scheduled last and 11% answered yes, as long as the same special precautions are taken for every patient.

Discussions

Statistically significant differences ($p=0,016$) were noticed between male and female students concerning the information source, 63.9% of the women preferring to use the Government provided data, while 51.2% of men preferring to use the information provided by the WHO. Similar differences ($p=0.007$) were noticed between the Romanian and the foreign students, most of the former preferring to use the Government data 59.6%, while 63.63% of the latter preferring to use the information provided by the WHO. Other significant differences between Romanian and foreign students were noticed in opinions regarding professional psychological support from university during this period. Although the majorities in both groups considered this as being a good idea, almost 7% of Romanian students saw this support as being necessary or mandatory, versus none of the foreign students ($p=0.006$). For the same question, different results were also noticed between students in the final years (5 and 6) and those in the first 4 years of study ($p=0.028$). Only 49% of the first ones considered professional psychological support from university during the lockdown period useful, compared to 64.7% of the second ones. Another observation was related to future career options and nationality, most of the foreign students preferring to open their own dental office, while most of the Romanian students (37.8%) opted for being an employee in a big Dental Clinic or for reevaluating their options (25.82%) ($p=0.040$). The percentage of the students that wanted to open their own dental office was in inverse ratio with the year of study. Respondents that were reevaluating their options were mostly those in the 5th and 6th year of study.

Medical systems and medical universities worldwide had been suddenly and heavily affected by the COVID-19 pandemic and tried to keep a balance between continuing their activities and dealing with the risk of being infected [3]. In our country, although graduating dental students were the most exposed, considering the discussions that took place initially on the subject of the eventual cancellation of their final exams, the entire community was affected by the anxiety and stress related to the rapid spread of the virus, in the absence of vaccines and specific medication [4]. Psychological support is considered useful to be offered to members of the medical community to improve their mental state, together with training and improved management solutions [5]; students can also benefit from these measures [6].

Witze A., in an article published in Nature (2020), considers that generally speaking, the whole university educa-

tion will never be the same after the COVID-19 pandemic passes [7]; still, concerning the dental education, clinical teaching and the presence of patients in the universities are considered paramount. The members of the dental education community from different countries are trying to find solutions, exchanging information and experience, agreeing that the whole model of dental education should be innovated to suit different situations and novelty intelligent technology should be applied for future dental education [8]. Everybody agrees that, at least for the moment, virtual education has become the new norm, therefore new tools and techniques and multimodal approaches to achieve course content objectives for better learning outcome will be necessary as much as understanding students' needs from a distance and changing the way of examination [4,9].

One of the limitations of our study was a consequence of the fact that did not include participants from all the dental medicine departments/faculties in all major university centers, so the results cannot be considered representative for the entire dental medicine student population of Romania. Our study aimed to assess how the Dental Medicine Department students in Oradea University were impacted by the sudden changes in the way of teaching, the limited patient interaction and the supplementary prophylactic measures taken in the COVID-19 pandemic. A second limitation of the study was that the survey confidence level was slightly reduced, due to response rate. Another limitation was the fact that it took place during a non-precedented time; the lock-down period was difficult to manage both for students and for teachers; it was also constrained by the time available to investigate (the final weeks of the lock-down period). The long-term effects of the pandemic on daily life, clinical teaching and the future professional career of dental students are not easily quantifiable. At that moment, there was little, if any, prior research on our topic so our research method was rather explorative. More research is necessary to investigate if, for a significant number of them, high anxiety levels and uncertainty in regards to their career can lead to a career change, which in turn can have an impact on the dental clinic services.

Conclusions

Considering the limitations of our study, we found that the Government provided data was preferred by the female respondents' group, versus the men respondents' group who preferred the information provided by the WHO. Similarly, we found that the Government provided data was preferred by the Romanian respondents' group, versus the foreign students' group who preferred to use the information provided by the WHO. Other significant differences between Romanian and foreign students were noticed in opinions regarding professional psychological support from university during this period. Although the majorities in both groups considered this as being a good idea, some

of the Romanian students saw this support as being necessary or mandatory, versus none of the foreign students. The highest percentage of respondents that considered professional psychological support from university during the lockdown period useful were in the first 4 years of study. Most of the foreign students preferred to open their own dental office, while most of the Romanian students opted for being an employee in a big Dental Clinic or for reevaluating their options at a later point. The percentage of the students that wanted to open their own dental office is in inverse ratio with the year of study. Respondents that were reevaluating their options were mostly those in the 5th and 6th year of study.

Authors' contribution

GC (Conceptualization; Methodology; Investigation)

ESB (Conceptualization; Data collection; Investigation)

CF (Formal analysis; Methodology; Validation)

MND (Data curation; Writing - original draft)

TAF (Methodology; Analysis and interpretation of data for the work)

DIT (Data collection; Validation)

OCA (Data curation; Methodology; Writing - original draft; Writing - review & editing)

Conflict of interests

Nothing to declare.

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