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The influence of COVID-19 pandemic on the access to dental offices and the development of oral medical conditions

Abstract

Introduction. Pathologies in the oral cavity are a visible problem in Polish society. The knowledge regarding oral pathologies and a doctor-patient contact are necessary to diagnose and treat efficiently. COVID-19 pandemic limited this contact reducing health control that caused the development of new pathologies. Those limitations touched dentists making the efficient diagnosis and treatment difficult.

Aim. The aim of this study was to examine the influence of COVID-19 on the accessibility of dental procedures and the development of oral pathologies.

Material and methods. The survey took place during Students' Science Club Fair at the Medical University in Lublin on 5th November 2021 and in the following days among students of the Medical University in Lublin and other universities in Poland. 102 respondents answered 8 questions anonymously.

Results. The answers' analysis showed that 74,5% of the respondents do regular dental check-ups at least once a year. Due to the pandemic 27,5% had to change the date of at least one appointment. 47% admitted that the access to dental offices during the pandemic was difficult. 67,6% noticed the rise of the prices of dental procedures. 72,5% declared the lack of new oral pathologies and 26,5% confirmed the appearance of new symptoms in the oral cavity.

Conclusions. The high percentage of dentists in Poland explains why the society is used to an easy access to dental procedures. Dental offices' accessibility was limited due to the pandemic which was felt by the respondents as a rise in prices and a decrease of the availability of the dentists in that period. Those limitations resulted in the diagnosis of new pathologies.

Keywords: COVID-19, accessibility, pathologies, oral health.

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INTRODUCTION

Based on the conducted studies it was found that in highly industrialised countries 60-90% of children at school age and nearly 100% of adults are afflicted by carious lesions [1], as many as 75% of adults display at least one symptom of temporo-mandibular joint dysfunction [2], whereas the awareness of population in regards to dental check-ups remains on lower level [3,4]. That is why it is so relevant to both cultivate and spread dental knowledge and to be systematically controlled by dental professionals. At the same time the analysis of the data collected from the interview, clinical examination and additional examinations are necessary to correctly diagnose and therefore, to treat a patient [5]. For the therapy to be successful, direct contact between a specialist and a patient is demanded.

In regard to COVID-19 pandemic and the implementation of restrictive social distancing rules that were aimed to limit the spreading of SARS-CoV-2 virus, the access to dental offices became limited [6,7]. In terms of "accessibility" one means not only the dentists' real availability to fulfil their duties but also a guarantee of a higher level of procedures within the acceptable time, date and location of the appointment.

Patients who had their dental procedures or check-ups planned, but were at the last minute quarantined, also experienced the limitations of health system accessibility. Various studies show that COVID-19 pandemic obstructed the diagnostic process and early treatment also in other areas of medicine – in this case in oncology, where early detection and therapy turn out to be critical [8,9].

Health, with its genetic and social background, habits of an individual is a widespread topic with many branches that seem to be connected. Therefore, an efficient diagnosis and examination allow the detection of hidden pathologies by general practitioners. Unfortunately, the vast majority of symptoms is ignored by patients, even though an early intervention might be able to stop the development of a disease, reduce its consequences and treatment costs. Postponed doctor appointments work to the patient's disadvantage. There are many reasons why patients avoid contact with their GPs or specialists. In consequence, the dentist becomes their primary care doctor [10]. It is expected from the dentist to be able to spot any signs of pathology that may threaten a patient's health or life. Those sometimes allow to diagnose previously undetected systemic diseases [5]. Moreover, odontogenic infections may be the

source of focal disease. That demands from the dentist both the keen observation of presented symptoms and, above all, pointing out the efficient treatment of the disease's source in the oral cavity [5].

Due to dentists' special role in prevention of oral diseases, spreading awareness and improving oral health, it is of utmost importance to understand all factors restricting doctor-patient relationship.

AIM

The aim of this study was to examine the influence of COVID-19 pandemic on the accessibility of dental procedures and the development of medical conditions in the oral cavity.

MATERIAL AND METHODS

The study was conducted in the form of an anonymous online survey among randomly chosen students of the Medical University of Lublin, as well as other universities in Poland during the Students' Scientific Association Fair at the Medical University in Lublin on 5th November 2021 and in the following days. All in all, 102 respondents were questioned. The anonymous online survey that was used consisted of 8 questions regarding subjective assessment of the condition of health, broadly defined accessibility of dental offices and present health complaints.

Content of the questionnaire:

1. Gender
2. Age
3. "Do you regularly attend dental check-ups?"
4. "Have you ever before COVID-19 pandemic postponed a dental appointment?"
5. "Have you ever postponed a dental appointment because of a pandemic-related reason during COVID-19 pandemic?"
6. "In your opinion, was the access to dental offices made difficult during COVID-19 pandemic?"
7. "Have you noticed a rise in the prices of dental procedures in relation to COVID-19 pandemic?"
8. "During the first dental check-up since the pandemic, has the dentist noticed any pathological changes that did not occur before COVID-19 pandemic?"

RESULTS

Respondents (n=102) consisted of 69.6% of women and 30.4% were men between the age of 19 and 28. The exact division by age is as follows:

- 19 years old – 2%
- 20 years old – 11.8%
- 21 years old – 29.4%
- 22 years old – 31.3%
- 23 years old – 12.7%
- 24 years old – 6.9%
- 25 years old – 2%
- 26 years old – 2%
- 27 years old – 1%
- 28 years old – 1%

The study carried out among the respondents allowed the following analysis of the received answers. The number of 74.5% of respondents declared doing regular dental check-ups

at least once a year, 15.7% did check-ups regularly, but less than once a year; 9.8% did not do check-ups regularly.

To the question regarding postponing the appointment before the pandemic, 52% responded negatively, 24.5% admitted to having postponed the appointment once, while 23.5% postponed the appointments a few times. When it comes to 72.5% of the respondents, they did not postpone the dental appointment during COVID-19 pandemic due to reasons related to the pandemic or did not make the appointment at all. Whereas 27.5% of the people questioned had to change the date of at least one appointment.

As far as 47% of respondents are concerned, they admit that the access to dental offices during the pandemic was made difficult, 28.4% did not notice any trouble with the accessibility, whereas 24.5% did not have any opinion regarding this question. At the same time 67.6% noticed the rise of the prices of dental procedures, 27.5% withheld from expressing their opinion about prices and 4.9% did not notice any changes in prices.

When it comes to 72.5% of the respondents, they declared the lack of newly diagnosed pathological changes in oral cavity that did not occur before the COVID-19 pandemic, while 26.5% confirmed the appearance of new pathological symptoms (16.7% of respondents were diagnosed with new dental cavities, 5.9% with grinding their teeth, 2% with dental calculus, 1% with changes on the mucosa of the cheeks and 1% with gum recession).

The analysis of the received answers proves that 83.3% of respondents answered positively to at least one question directly regarding accessibility of dental procedures (questions 5, 6, 7), whereas 16.7% answered negatively to all above questions. Meanwhile, 7.8% of respondents declared to have postponed the dental appointment at least once, even though in the time before the pandemic it was not in their habit (questions 4, 5).

DISCUSSION

According to the data collected by the Supreme Medical Council from 30th June 2022, there are 39 162 actively practicing dentists in Poland [11], which means that there are 103.2 dentists for every 100 000 inhabitants. It is a high percentage in comparison to other European Union countries which suggests that Poles are used to having an easy access to dentistry and so they felt its lack in the period of higher epidemic danger. The analysis of statistical data from other countries with varied healthcare systems and access to specialists allows to conclude a clear relationship between some of the factors that are characteristic of those healthcare systems. The health of hard tooth tissues (determined by DMFT – Decayed, Missing, Filled Teeth; UTN – Unmet restorative treatment needs; RDFS – Root Decayed and Filled Surfaces index) correlates with the amount of money spent on healthcare, which results in prices of dental procedures. It also correlates with the level of social awareness, with the amount of dentists for every citizen until the need for dental services in society is fulfilled. Those factors directly and indirectly influence a broadly understood accessibility of dental offices, which enables to assess their importance in therapeutic process, as well as to recognize all the dangers that occurred in the time of sanitary restrictions. Examining the differences in all of the above criteria, it can be concluded that the accessibility of dental procedures depends mostly on the price, the patient's awareness and the dentist's availability [12-16].

Since 11th March 2020 (the beginning of the pandemic according to the WHO) and since 20th March 2020 (the beginning of the pandemic in Poland), gradual limitation in movement has begun. The quarantine made healthcare difficult. Due to the risk of spreading SARS-CoV-2 virus, both the doctors and the dentists were bound to work accordingly to the new safety rules. Those new rules concerned the limitations of the amount of patients admitted within an hour, which prolonged patients' waiting time substantially. They also demanded using personal protective equipment. The expense related to providing personal protective equipment influenced the increase of costs of all dental procedures [17,18].

In times before the pandemic, the Polish healthcare system overlooked oral health prophylaxis which is supported by the statistical data. The percentage of people who had natural teeth in 2010 was estimated at 24% whereas in 2017 it grew to 43% [21]. Even though one can observe a positive tendency in that regard, those outcomes remain insufficient and point out the need to spread awareness and accessibility to dental services among Polish society.

A study carried out in the region of Wielkopolska among children up to 18 years old by Olszewska et al. regarding the influence of COVID-19 pandemic on children's oral health, proved the decrease of dental procedures performed between March and April 2019 and March and April 2020 (the period of sanitary restrictions). In those two months in 2019 in Wielkopolska, 53 077 dental procedures were carried out, whereas in 2020 that number decreased to 2 287 procedures. Meanwhile, the number of abscess incision procedures in the oral cavity area increased by 3.5-17.8%, which shows the intensification of complications from untreated pathologies. Moreover, the number of temporary fillings in both deciduous and permanent teeth increased (from 6.4% in 2019 to 19.3% in 2020 for deciduous teeth; from 5.8% to 11.4% for permanent teeth). The overall count of restorative dentistry procedures significantly decreased [20].

More accurate data regarding demand and supply fluctuations in restorative dentistry is presented in a study by Korneta. It compares the prices and the number of dental procedures carried out in five dental clinics in Mazowsze in a couple of following months in 2019 and 2020. Presented data correlate with the outcomes of our survey clearly demonstrating the decrease of demand for restorative dentistry services and the increase of the prices. After the period of sanitary restrictions and the limitations of the accessibility to medical procedures that resulted in the development of medical conditions, the society adapted to the new situation and the demand for treatment increased [21].

A study by Emodi-Perlman and associates was focused on temporomandibular joint dysfunction during COVID-19 pandemic. The conclusions stemming from their study prove the existence of a greater psychoemotional burden among the population of Poland and Israel, which led to the intensification of TMJ dysfunction and pain [22]. It is worth mentioning that the TMJ dysfunctions are effectively treated in dental offices [23]. Thus, the visible intensification in TMJ dysfunctions during the pandemic should have been connected to emotional stress and limited contact between the doctor and the patient. Those two factors made efficient therapy difficult and provoked the development of dysfunctions.

In regards to the importance of prophylaxis and due to the increase of the amount of factors that negatively influence oral

health, dentists should pay more attention to expanding patients' awareness. Dentists should motivate patients to actively participate in treatment and to take care of their health. Our study points out that the vast majority of the respondents noticed a negative influence of the pandemic on both the accessibility of dental offices and the prices of the services they offer. All those factors directly caused by the pandemic contribute to worsening oral health, which is proven by the considerable percentage of newly developed medical conditions among the respondents. The limitation of health supervision touches all branches of medicine, which proves to be particularly negative in cases when medical conditions demand early intervention and treatment. Those conditions that are located in the head and neck area could, and more often than not, should be thoroughly diagnosed also with the involvement of the dentists [24-26].

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