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Prevalence of Dental Hard Tissue Diseases Before and During the Pandemic in South Sumatera Dental Hospital

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Abstract

Introduction: The most common dental problems in Indonesia are broken/cavities/toothache. Dental hard tissue disease is one of the ten biggest outpatient diseases in South Sumatera Dental Hospital. The dental practice has been limited since the COVID-19 pandemic occurred. The frequency of permanent dental hard tissue disease cases at South Sumatera Dental Hospital has increased due to limited treatment access. **Purpose:** This study aims to find out the prevalence of permanent dental hard tissue disease before and during the pandemic at South Sumatera Dental Hospital. **Methods:** This study was a descriptive observational study with a cross-sectional design. Data were collected using the total sampling method, a medical record data on SIMRS BPJS application with a diagnosis of dental hard tissue disease at South Sumatera Dental Hospital. **Results:** The prevalence of dental hard tissue disease before and during the pandemic at South Sumatera Dental Hospital has decreased with the number before the pandemic being 2380 cases and during the pandemic was 770 cases. **Conclusion:** The prevalence of dental hard tissue disease at South Sumatera Dental Hospital has decreased during the pandemic. It is because the number of visits to health facilities has decreased due to the risk of spreading COVID-19 infection.

Keywords: COVID-19; Dental hard tissue disease; Pandemic; Prevalence

Introduction

Health is one of the most important things in human life.[1] Dental health is part of oral health that cannot be inseparable so attention is needed regarding health and dental problems that may arise because they can affect general health status. Poor dental health can be a trigger for the emergence of various diseases, one of which is disease of the teeth themselves.[2–4]

In Indonesia, 45.3% of dental diseases are decaying teeth, according to a 2018 Riset Kesehatan Dasar (Riskesdas) survey. In South Sumatera, 45.1% of teeth deteriorate. Dental hard tissue disease is not communicable and does not pose a risk of death. Patients usually visit the dentist if they feel pain or discomfort when eating, swallowing, or speaking. Dental hard tissue diseases like reversible, irreversible, and pulp necrosis are common reasons people visit the dentist.[5]

Dental practice and hospitals have been limited in recent years, since the establishment of the COVID-19 pandemic by the World Health Organization (WHO) on March 11 2020.[6] The route of transmission of COVID-19 is through droplets, air and vomit. Dental treatment procedures have a potential risk of COVID-19 infection.[7] This causes dental practices and hospitals in areas affected by COVID-19 are limited and must follow established protocols.[8]

South Sumatra Dental Hospital (SSDH), which is located in Palembang City, is the only dental and oral referral hospital in South Sumatra.[9] The COVID-19 pandemic has affected the practice of dentistry at SSDH, so that health protocols and practices must be established according to regulations and limit services and be selective for patients.[10] Limited access to care certainly also has an impact on the number of patient visits, as reported by Yu et al. (2020) in their research, that the number of patient visits at the Wuhan University Stomatology Hospital increased during the COVID-19 pandemic.[11] Based on other research conducted by Obeidat et al. (2020) showed that there was a decrease in the number of hospital patient visits in Romania during the COVID-19 pandemic, because of fear among patients regarding the possible transmission of the virus through dental treatments.[12] Research in Indonesia conducted by Liasari et al. (2022) at a private dental clinic showed that there was a decrease in the number of visits and cases.[13] Until now there is no definite data regarding the prevalence of hard tissue disease of permanent teeth before and during the pandemic at SSDH. It is necessary to conduct research on "Prevalence of Dental Hard Tissue Disease Before and During the Pandemic in SSDH" to explore the impact of COVID-19 on the number of patients and treatments performed.

Methods

This retrospective study was approved by The National and Political Unity Agency, Palembang, Indonesia (No. 070/802/Ban. KBP/2023). The samples were medical record data on the BPJS SIMRS application with a diagnosis of hard tissue disease of permanent teeth for the period March 2019-February 2021 at SSDH. Sampling in this study was carried out using a total sampling method, namely all medical record data in the SIMRS BPJS application with a diagnosis of hard tissue disease of teeth at SSDH for the period March 2019 until February 2021. A complete medical record with diagnosis of hard tissue diseases containing patient data and SOAP information was the inclusion criteria, and data with diagnosis other than it was the exclusion criteria.

Results

Before pandemic, there were 1.054 cases of irreversible pulpitis and 1.326 cases of pulp necrosis. Meanwhile, during pandemic there were only 284 cases of irreversible pulpitis and 486 of pulp necrosis. The total number of cases had decreased by 67.6% (2.380 to 770) compared between before and during pandemic. Statistical analysis of the distribution cases of dental hard tissue disease showed in Table 1.

Table 1. Distribution of the Number of Cases of Dental Hard Tissue Disease Before the Pandemic (March 1 2019-February 29 2020)

Disease	Before Pandemic (1 March 2019 – 29 February 2020)		During Pandemic (1 March 2020 – 28 February 2021)	
	Number of case (n)	Case percentage (%)	Number of case (n)	Case percentage (%)
Irreversibel Pulpitis	1054	44,28	284	36,88
Pulp necrosis	1326	55,72	486	63,12
Total	2380	100	770	100

The results of this study are based on data from the SIMRS BPJS application which only includes referral patients from first-level health facilities. There is no data for reversible pulpitis cases in the results of this study because for pulpitis cases, referrals from first-level health facilities are only made for irreversible pulpitis cases.

Discussion

The results showed that the total number of cases of dental hard tissue disease of permanent teeth before and during the pandemic from 1 March 2019-28 February 2021 at SSDH was 3150 cases with a higher number of cases of dental hard tissue disease of permanent teeth before the pandemic with a total of 2380 cases (75.56%). Cases of permanent dental hard tissue disease during the pandemic showed a lower number than before the pandemic, namely 770 cases (24.44%). In the period before the pandemic, pulp necrosis was recorded as the most common diagnosis of dental hard tissue disease, namely 1326 cases.

The results of this study which show a decrease in the prevalence of dental hard tissue disease in SSDH are similar to research conducted by Obeidat et al. (2020). There was a decrease in the number of patient visits to hospitals in Romania during the COVID-19 pandemic.[12] Liasari et al. (2022), has something in common that there has been a decrease in the number of patient visits to private clinics in Makassar City.[13] The decrease in the number of cases of permanent dental hard tissue disease during the pandemic at SSDH was due to the

government's policy of implementing a lockdown as an effort to control the spread of COVID-19. During the lockdown, many public facilities were temporarily closed by the government, such as schools, offices and public transportation. Dental procedures in hospitals and independent practices are also limited to certain cases. The practices carried out must also use personal protective equipment and follow health protocols.[13,14] Other reason could be the knowledge pertaining to the nature of COVID-19 spreading easily through aerosols, splashes, and droplets, inevitable with almost all types of dental treatments.[12]

In research at SSDH, this can be known based on data obtained from the SIMRS BPJS SSDH application two months after the COVID-19 pandemic was established, namely April and May 2020 which showed that there were no cases of hard tissue disease of permanent teeth at SSDH in these two months.

Another reason for the decline in the number of cases is because people know that the spread of COVID-19 through dental procedures is prone to occur. Almost all dental procedures produce droplets and aerosols which, if contaminated with Coronavirus, can become a pathway for spreading COVID-19. This raises concern for the community, so that people prefer to postpone or even not go for dental treatment.[7,12]

In contrast to the findings of Yu et al. (2020), the number of endodontic case visits at Wuhan University's Stomatology Hospital increased during the pandemic. With only one dental referral hospital in the area during the epidemic, visitation soared. Clinics and dentists' private operations are closed during the COVID-19 pandemic, forcing individuals to use government-approved institutions. Patients' pain and soreness may also keep patient visits high. This keeps patients coming to pandemic-open dentistry clinics to treat their pain.[13]

This study shows the difference between the prevalence of dental hard tissue disease before and during the pandemic. Higher prevalence occurred in the period before the pandemic and lower prevalence occurred in the period during the pandemic. Based on the research that has been conducted, there are constraining factors that are limitations in this research. These factors are expected to be taken into consideration in conducting further research so that it can be improved. The obstacle that becomes a limitation in this study is that the author does not get access to view patient manual medical record data whose data is more complete than the data obtained by the author, namely data from the SIMRS BPJS SSDH application through the admin of the medical record section which causes the data from this study to be limited only for BPJS patients, there is no general patient data. The data contained in the SIMRS BPJS SSDH application is also incomplete, the data obtained only contains the patient's identity and diagnosis code, there is no SOAP in the medical record data.

Conclusions and recommendations

Based on the results, it can be concluded that the prevalence of permanent dental hard tissue disease in SSDH has decreased with the prevalence occurring more frequently in the period before the pandemic, then decreasing during the period of pandemic. According to the conducted research, several recommendations have been identified, outlined as follows:

1. Subsequent studies on the prevalence of hard tissue diseases in permanent teeth at SSDH should aim for more comprehensive data collection.
2. This study is anticipated to serve as an assessment tool for SSDH, enhancing its medical record system by incorporating data not only from BPJS patients but also from the general patient population.

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