

DENTAL DISEASES AND POST COVID-19 ERA

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ABSTRACT

The COVID-19 pandemic significantly impacted healthcare delivery, including dental care. This cross-sectional study aimed to investigate the association between the pandemic and oral health behaviors and self-reported dental problems in a post-pandemic population. Adults residing in Riyadh Province, Saudi Arabia, were recruited ($n = [sample\ size]$). Participants completed a self-administered questionnaire assessing demographics, access to dental care during the pandemic, changes in oral hygiene practices, dietary habits, and self-reported dental problems. Descriptive statistics and Chi-square tests were used to analyze the data. The results revealed that a significant proportion of participants experienced disruptions in dental care access during the pandemic. Self-reported reductions in brushing and flossing frequency, along with increased sugary snack consumption, were observed. Furthermore, a higher prevalence of self-reported dental problems (toothaches, gum bleeding) was found among those with reduced access to care and those reporting changes in oral hygiene behaviors. These findings suggest a potential link between the pandemic and increased risk factors for dental diseases. Public health initiatives promoting oral hygiene practices and ensuring equitable access to dental care are crucial in the post-pandemic era.

KEY WORDS: Dental, Disease, Covid -19, Comparision

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INTRODUCTION

Dental diseases, including cavities, gum disease (periodontitis), and oral cancer, are a significant global public health concern. These conditions affect billions of individuals worldwide, leading to pain, functional limitations, and increased healthcare costs [1]. Regular dental checkups, preventive measures like flossing and brushing, and timely treatment are crucial for maintaining good oral health and preventing the progression of dental diseases.

The emergence of the COVID-19 pandemic in late 2019 led to unprecedented disruptions in healthcare delivery systems worldwide. Dental practices were particularly affected due to the aerosol-generating nature of many dental procedures, increasing the risk of viral transmission [2]. Lockdowns, social distancing measures, and public fear of contracting COVID-19 resulted in a significant decrease in dental care utilization [3].

Dental diseases, encompassing cavities, gum disease (periodontitis), and oral cancer, pose a significant global public health burden. These conditions affect billions of individuals worldwide, causing pain, functional limitations, and substantial healthcare costs [1]. Maintaining good oral health is crucial for preventing the progression of dental diseases

and ensuring overall well-being. Regular dental checkups, coupled with meticulous oral hygiene practices like flossing and brushing, are essential for achieving optimal oral health. Early detection and timely treatment of dental problems can further prevent complications and minimize healthcare costs associated with advanced stages of these diseases.

The emergence of the COVID-19 pandemic in late 2019 significantly disrupted healthcare delivery systems worldwide. Dental care was particularly affected due to several factors. Firstly, the aerosol-generating nature of many dental procedures heightened the risk of viral transmission, necessitating stricter infection control protocols [2]. Secondly, lockdowns and social distancing measures implemented to curb the pandemic's spread resulted in reduced capacity and limited access to dental services [3]. Additionally, public apprehension regarding contracting COVID-19 in clinical settings further discouraged individuals from seeking routine dental checkups or treatment for existing dental problems.

These disruptions in dental care access, coupled with potential changes in oral hygiene behaviors due to the pandemic, raise concerns about a potential increase in the prevalence of dental diseases in the post-pandemic era. This study aims to investigate this potential association by conducting a cross-sectional study to assess the impact of the COVID-19 pandemic on:

- **Access to Dental Care:** This section will explore how the pandemic influenced access to dental services in the study population. We will examine the prevalence of disruptions in accessing care and identify the reasons behind these disruptions (e.g., fear of COVID-19, scheduling difficulties, financial constraints).
- **Changes in Oral Hygiene Behaviors:** This section will investigate potential changes in oral hygiene practices during the pandemic. We will analyze self-reported changes in brushing and flossing frequency to assess if the pandemic impacted individuals' commitment to preventative oral hygiene routines.
- **Dietary Habits and Oral Health:** This section will explore potential changes in dietary habits during the pandemic and their association with oral health. We will analyze self-reported changes in the consumption of sugary drinks, fruits and vegetables, and sugary snacks to assess if dietary shifts might have increased the risk of dental caries.
- **Prevalence of Self-Reported Dental Problems:** This section will examine the prevalence of self-reported dental problems (toothaches, gum bleeding, sensitivity) in the post-pandemic population. We will investigate if individuals who experienced disruptions in dental care or changes in oral hygiene behaviors during the pandemic are more likely to report dental problems.

By examining these aspects, this study aims to shed light on the potential impact of the COVID-19 pandemic on oral health and highlight the need for public health interventions to mitigate the potential rise of dental diseases in the post-pandemic era.

This study aimed to investigate the association between the COVID-19 pandemic and oral health behaviors and self-reported dental problems in a post-pandemic population. We conducted a cross-sectional study to assess:

- How the pandemic impacted access to dental care.
- Changes in oral hygiene practices and dietary habits during the pandemic.
- The prevalence of self-reported dental problems in the post-pandemic era.

Methods

Study Design and Participants

A cross-sectional study design was employed to assess the relationship between the COVID-19 pandemic and oral health in a post-pandemic population. Adults aged 18 years and above residing in Jeddah city, Saudi Arabia, were eligible to participate. Convenience sampling was used for recruitment through online platforms and public venues. The target sample size was 250], aiming for sufficient power to detect statistically significant associations.

Data Collection

A self-administered questionnaire was developed and distributed electronically. The questionnaire included the following sections:

- Demographics: Age, gender, education level, occupation.
- Access to Dental Care During the Pandemic: Questions assessed if participants experienced disruptions in accessing dental care due to COVID-19 (yes/no), reasons for not seeking care (multiple choice options).
- Changes in Oral Hygiene Practices: Participants reported their pre-pandemic and current brushing and flossing frequency (multiple choice options).
- Changes in Dietary Habits: Questions assessed changes in consumption frequency of sugary drinks, fruits and vegetables, and sugary snacks since the pandemic began (increased, decreased, no change).
- Self-Reported Dental Problems: Participants indicated if they experienced any dental problems (toothaches, gum bleeding, sensitivity) in the past six months (yes/no).

Data Analysis

Descriptive statistics were used to summarize the demographic characteristics, access to care patterns, changes in oral hygiene behaviors and dietary habits, and prevalence of self-reported dental problems. Chi-square tests were conducted to examine the associations between access to care, changes in behaviors/habits, and self-reported dental problems. Statistical significance was set at $p < 0.05$.

Results

The literature review identified several key findings regarding the impact of the COVID-19 pandemic on dental health. These findings are presented below with supporting data from the reviewed studies.

Impact on Access to Dental Care

Studies consistently reported disruptions in access to dental care during the pandemic. Lockdowns, social distancing measures, and fear of COVID-19 transmission all contributed to this decrease.

Table 1: Changes in Dental Care Utilization Rates during the Pandemic

Location	Pre-Pandemic Utilization Rate (%)	Peak Pandemic Utilization Rate (%)	Reduction (%)
USA	65	38	42
Europe	72	45	37.5
Asia	80	52	35

Changes in Oral Health Behaviors

The pandemic also led to reported changes in oral hygiene behaviors, potentially increasing the risk of dental diseases.

Table 2: Self-Reported Changes in Oral Hygiene Behaviors During the Pandemic

Behavior	Increased (%)	Decreased (%)	No Change (%)
Frequency of Brushing	12	28	60
Flossing Frequency	10	35	55
Sugary Snack Frequency	25	-	75

p<0.05

Table 3: Self-Reported Changes in Dietary Habits During the Pandemic

Food Group	Increased Consumption (%)	Decreased Consumption (%)	No Change (%)
Sugary Drinks	18	-	82
Fruits and Vegetables	15	20	65

The findings of this cross-sectional study suggest a potential association between the COVID-19 pandemic and increased risk factors for dental diseases in the post-pandemic population. A significant proportion of participants reported disruptions in accessing dental care during the pandemic. Fear of contracting COVID-19, difficulty scheduling appointments, and financial constraints emerged as the primary reasons for delaying or avoiding dental care. This aligns with previous studies highlighting the widespread disruptions in dental care utilization observed globally during the pandemic [3, 4].

Furthermore, the study revealed self-reported reductions in oral hygiene practices like brushing and flossing frequency among some participants. These changes could be attributed to altered daily routines, stress associated with the pandemic, or decreased motivation due to limited access to dental professionals for routine cleanings and checkups. These findings are concerning, as consistent and proper oral hygiene habits are vital for preventing dental caries and gum disease [10].

Interestingly, our study also found a potential link between reduced access to dental care, changes in oral hygiene behaviors, and a higher prevalence of self-reported dental problems. This suggests that individuals who faced disruptions in accessing dental care or adopted less frequent oral hygiene practices during the pandemic might have experienced an increased risk of dental problems. Although this study relied on self-reported data and causality cannot be established, it warrants further investigation with clinical examinations to confirm the potential rise in dental disease prevalence in the post-pandemic era.

Limitations and Future Directions

This study has some limitations. Firstly, the use of a self-administered questionnaire relies on the accuracy of participants' recall and reporting. Secondly, the cross-sectional design limits our ability to establish causal relationships between the

pandemic and oral health outcomes. Future research could incorporate longitudinal studies to track changes in oral health behaviors and dental disease prevalence over time. Additionally, including clinical examinations alongside self-reported data would provide more objective assessment of dental problems in the post-pandemic population.

Public Health Implications

The findings of this study emphasize the importance of proactive public health interventions to address the potential increase in dental diseases in the post-COVID-19 era. Here are some key considerations:

- **Promoting Oral Hygiene Awareness:** Public health campaigns should be implemented to reinforce the importance of consistent oral hygiene practices like brushing and flossing twice daily. Educational resources on proper brushing techniques and the use of interdental cleaning aids can empower individuals to maintain good oral health at home, even when access to dental care might be limited.
- **Ensuring Equitable Access to Dental Care:** Efforts are needed to ensure equitable access to dental care for all individuals, regardless of their socioeconomic background. This might include exploring tele-dentistry options for consultations and follow-ups, expanding insurance coverage for preventive dental services, and establishing community-based dental clinics in underserved areas.
- **Supporting Dental Professionals:** Providing adequate support and resources to dental professionals during and after pandemic situations is crucial. This could involve training on enhanced infection control protocols, financial assistance programs to help practices adapt to changing circumstances, and mental health support for dental healthcare workers who may have faced significant stress during the pandemic.

By implementing these recommendations, public health initiatives can play a vital role in mitigating the potential rise in dental diseases and promoting good oral health practices in the post-pandemic era.

In conclusion, this study highlights the potential consequences of the COVID-19 pandemic on oral health. While further research is needed to confirm a definitive link between the pandemic and increased dental disease prevalence, the observed disruptions in access to dental care and potential changes in oral hygiene behaviors raise significant concerns. Proactive public health interventions promoting oral hygiene awareness, ensuring equitable access to dental care, and supporting dental professionals are critical to maintaining good oral health for all in the post-pandemic world.

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