Using Twitter to Track the Impact of COVID-19 on Dentistry

Ola Al-Hayk & Alghalia Al-Mansoori, Year 3 students,
Sharifa Qassmi, Year 2 student,
Layan Mohamed, Year 1 student,
College of Dental Medicine - Qatar University
Fatima Haouari, PhD candidate, College of Engineering - Qatar University
Dr. Tawanda Chivese, Teaching Assistant of Population Medicine, College of Medicine
Supervisor: Dr. Alaa Daud, Assistant Professor of Restorative Dentistry and Assistant Dean for Student Affairs,
Co-supervisor: Prof. Faleh Tamimi, Associate Dean for Academic Affairs,
College of Dental Medicine - Qatar University

From left: Dr. Tawanda Chivese, Prof. Faleh Tamimi, student Alghalia Mansoori, student Sharifa Qassmi (front), student Ola Al Hayk, student Layan Mohamed, and Dr Alaa Daud.

Several epigenetic modifications, mainly DNA methylation, are also found to be involved in the pathophysiology behind T1DM development as it alters the expression of certain genes involved in insulin secretion, b-cell survival and autoimmunity (Zullo, 2017). DNA methylation is the process of methyl group binding to the fifth carbon of cytosine, leading to the formation of 5-methylcytosine. Although T1DM patients are found to have unique DNA methylation patterns compared to healthy controls, the mechanism behind the influence of such patterns on T1DM is not clearly understood.

The following study represents a collaborative effort between students and members from 3 different faculties at Qatar University, namely, the College of Dental Medicine, College of Medicine and College of Engineering.

Introduction

COVID-19, caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), is thought to spread via close contact through respiratory droplets and aerosols. Owing to aerosol generation at the dental chair as well as close proximity to patients, dentistry is thought to be associated with the spread of infection. It is crucial to investigate the risk of bidirectional spread of infection between patients and dental professionals to take additional precautionary measures to halt the spread of COVID-19.

Predicting the number of suspected or confirmed cases of COVID-19, the spread of infection, and implications are crucial in the prevention and control of virus outbreak. An "infoveillance" approach using Twitter has been proposed in the literature to measure public perceptions and track levels of disease activity during pandemics.

In the current descriptive study, a tweets crawler (Twitter search algorithm) which exploits the Twitter Academic research API, was developed to retrieve historical tweets during the breakout period of COVID-19, reporting infections and deaths in dental practices. Content analyses was performed and geographical landmarks outlined on a map (Figure 1). The research team spearheaded by Dr. Alaa Daud, an Assistant Professor of Restorative Dentistry and the Assistant Dean for Student Affairs, present the following study, which has been accepted at the 2022 International Association for Dental Research IADR/APR conference. IADR is a prestigious dental conference presenting ground breaking dental research annually worldwide.

The College of Dental Medicine is proud to have 4 undergraduate dental students participate in collecting the data and analyzing the tweets. Teamwork and collaborative practice was a driving force to the success of the study.

Figure 1. Map showing tweets by users reporting death of a dentist, dental staff or dental patients worldwide.

Abstract

Twitter data has been used in a descriptive or predictive context during COVID-19 pandemic. Even though Twitter proved being a useful tool for tracking the impact of COVID-19 pandemic worldwide, data on the effect of Covid-19 on the dental profession remains scarce. Here, we investigated reported COVID-19 infections and deaths in dental practices. Two approaches were adopted to collect tweets from 1st January 2020 to 31st March 2021. A manual approach using tweetdeck, a user interface provided by Twitter allowing search through keywords or phrases. The second, an automated approach using a tweets crawler utilizing the Twitter Academic research "API". Queries included keywords on infection or death of dental staff and patients caused by COVID-19, e.g. (dental OR dentist OR dentists) AND (death OR deaths) AND (COVID-19 OR covid OR corona). Inclusion–exclusion principle was adopted. Tweets registering events on infection or death of dentists, dental staff, and patients as part of their conversation were retrieved.

A total of 5,639 eligible tweets were retrieved of which 1,581 were deemed relevant after applying the inclusion and exclusion criteria. Of the relevant tweets, 309 described infections at dental practices, where 1,168 infection cases were reported amongst dentists, 132 dental staff and 41 patients. Of these, 30 were males, 43 females, with remainder gender not reported. Most common Countries reporting were USA, India, followed by Canada with an age range of 20-51. Six hundred deaths were described, of which 253 were dentists, 22 dental staff, and 7 patients. Of these, 98 male and 32 females. Most common Countries reporting were USA, Pakistan, then India with an age range of 23-83.

The data suggests analyses of twitter may provide useful information regarding the impact of COVID-19 pandemic on the dental profession. However, further research is needed to assess its validity.