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Smoking and COVID-19 Search Engine Trends – An Explanatory Study

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ABSTRACT:

Background: Smokers are more susceptible to respiratory infections and are more likely to have major complications as a result of the infections. SARS-Cov-2 is a recently identified virus that has quickly spread into Coronavirus Disease 2019, a global epidemic of primarily respiratory illnesses. (COVID-19).Covid-19 was predicted to be no exception to the rule that smokers are more prone to respiratory infections. In 2019, there are mixed results on the effect of smoking on the risk of Coronavirus illness. (COVID-19).

Aim and objectives: To conduct the exploratory analysis in internet search volumes of Smoking and COVID 19 by using google trends.

Methodology: The aim of this research is to see if there is a correlation between global search patterns and smoking and covid. The time frame, which can range from November 2019 to the March 2021, which can be divided into months or days.To determine the largest search traffic, seven distinct search words were investigated and compared based on the highest related search volume and comma related search volume.

Results: The most searched term in South Africa was "smoking and covid," whereas the least searched term in France was "smoking and covid." When there is a spike in covid cases, the years of search phrases are high.

Conclusion: The findings of this study provide insight into a capable instrument for analysing and comparing oral disorders across time. Forecasting, adjusting marketing strategies, and developing disability limiting techniques can all be done with this instrument.

Key words: smoking, covid, search trends

I. INTRODUCTION:

Tobacco users are more susceptible to infectious respiratory disorders, and they are more likely to have major consequences as a result of those infections. [1]. SARS-Cov-2 is a recently found virus that has quickly developed into Coronavirus Disease 2019, a global epidemic of primarily respiratory illnesses. (COVID-19)[2]. Despite the fact that COVID-19's key complications affect the lungs, the prevalence of current smokers among COVID-19 hospitalised patients has consistently been recorded to be lower than the prevalence of smokers in the general population for geographic area, even though one would expect the opposite[3]

Tobacco smoke causes epigenetic changes in the bronchial epithelium, which results in mucous (goblet) cell metaplasia. Because goblet cells are a key source of ACE2 in the lungs, this could help explain why Cai et al.[4] discovered higher levels of ACE2 in smokers' lungs.[4]Goblet cells, on the other hand, are the primary generator of mucous, which acts as a first line of defence against inhaled pathogens, preventing pathogen entry and infection[4]. Smokers are more susceptible to respiratory infections, and Covid-19 was supposed to be no different.Studies on how smoking influences the risk of Coronavirus illness 2019 (COVID-19) are contradictory[5].Three recent letters by Lutchman[6], McAlinden[7], and Farsalinos[8] capture the divide in opinion about the effect of smoking on COVID-19 and whether the angiotensin converting enzyme-2 (ACE-2) receptor mediates this relationship.Farsalinos et al[9] found that current smoking status was significantly lower than predicted gender and age-adjusted prevalence in COVID-19 patients after analysing the pooled prevalence of current smoking across 11 case series.

Since late April, multiple media sites have reported on this possibility, causing the World Health Organization (WHO) to issue a notice on the matter on May 4, 2020[10]. Mehra et al. discovered that current smoking was an independent risk factor for in-hospital death, with an odds ratio of 1.79, in a study of [8,9,10] COVID-19 patients from three continents.[11]. According to a recent meta-analysis, smokers have a relative risk of more serious disease of 1.45 (95 percent confidence interval 1.03-2.04)[12].

People are more accustomed to fast knowledge transfer in this technology-infused age than to conventional reliance on information learned from family doctors[13]. People have been doing web-based knowledge searches since the turn of the century because they have a constant need for evidence. As a result, a measurable method to quantify global patterns in search undertaken by

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distinct geographic groups was necessary[14]. Google Inc. created GT, a platform that has revolutionised web-based interactive search.GT is a free online portal that was launched in 2004 and has revolutionised how health knowledge seekers research and analyse health problems for themselves or their loved ones[15]. According to Preis T et al., such unregulated surveys will yield far more obvious statistical results than traditional surveys that depend on a pay-for-service model[16]. As the world leader in information technology, Google should be able to provide a clear image of search patterns. According to Geissbuhler A and Boyer C.[17], healthcare terms are the most commonly searched topics on search engines. Over time, it has become clear that internet data with equivalent precision has shown to be more effective than traditional methods for infectious disease surveillance.[18]. As a result, to provide insight into quest patterns and corona virus smoking.

According to the World Health Organization, 8 million deaths worldwide each year from cardiovascular and respiratory diseases. Tobacco use is one of the risk factors for serious illnesses. In this COVID pandemic, WHO advised tobacco users to quit smoking. Toll-free stop lines, mobile text-messaging cessation programmes, nicotine replacement medications, and other approved interventions have all been shown to assist people quit smoking[19].As the WHO warns that reducing tobacco use will increase the risk of contracting the corona virus, the general public may get concerned about the situation, resulting in an increase in the association between smoking and the corona virus.

The aim of this study is to use Google Trends to perform an exploratory analysis of internet search volumes for Smoking and COVID 19.

II. METHODOLOGY:

The aim of this research is to see if there is a correlation between global search patterns and smoking and covid.The real-time data was useful in enumerating this study over time without requiring statistical analysis, and the results were displayed using GT's "search volume index graphs." GT provides real-world data based on search phrases in categories, regional and subregional interest, and interest over time.The user can also select a time window, which can range from November 2019 to March 2021 and be broken into months or days. The portal manages user-specified search words over time and space, and produces a Related Search Volume (RSV) that represents a search query for a certain region and time period, normalised by the top search query over the selected timeframe. The RSV of a single search phrase can be compared across geographic areas and time periods using up to five different search terms at once. To analyse and compare existing search phrases, a combination of many terms with the "+" symbol can be applied to the search input. The CSV files were also included in order to compare the maximum volume of search traffic among various countries for each search term. Each query was subsequently analysed on a worldwide scale based on top trending relevant search phrases.

The search terms related to smoking and covid under top search are

1. Smoking
2. Cannabis
3. Coronal virus
4. Cannabis smoking
5. Electronic cigarettes
6. Alcoholic drinking
7. Tobacco smoking

The search terms related to top queries are

1. Smoking and covid
2. Smoking and corona virus
3. Smoking weed and Covid
4. Smoking and covid 19

III. RESULTS:

Figure 1 shows the relationship between the search years related smoking and covid-19 and the results shows that when there is a raise in the covid cases, there is a raise in the search trends smoking and covid-19. **Figure 2** shows the relationship between the top search terms related entities. It shows that the top search term which is relevant to the regular terms is smoking with the value of 99% and the second top search term is about the corona virus of 18%; cannabis smoking of the 12%. **Figure 3** shows that the top search terms related queries in this the regular search term has been mentioned smoking and covid- 19 which is has the highest value. **Figure 4** shows that the country related search for smoking and Covid which shows South Africa has the highest search related towards the smoking and covid; 2nd highest search country the Canada; 3rd highest Ireland and the India stands 13th position in search of Smoking and Covid

IV. DISCUSSION:

The search phrases used in this investigation were derived from common search terms. Google should be able to give us a clear picture of search trends. According to Geissbuhler A and Boyer C, healthcare terms are the most commonly searched topics on search engines. Despite the use of Google Trends has considerably

increased in recent years for investigating the epidemiological trends of some specific diseases or groups of symptoms, the reliability of this approach remains largely speculative. As the literature is scarce on search trends in relation to Covid 19,effort has been made to compare the present study's findings with studies done on other studies and present trends.

Cameiro HA and Mylonakis E studied and connected search preferences with real-time disease outbreak surveillance, concluding that a GT-based web tool is a viable way for estimating, predicting, and documenting epidemics or diseases.[18]

In this investigation, the most popular search keyword was discovered "smoking" reported by RSV in comparison of the other search terms related enquires and entities. These search term related entities and queries are higher because it is easy term which can be searched by the general population.Trends in "Interest by Region" highlight South Africa, where 33% of the population smokes and 3% uses smokeless tobacco. India stays at the 13th position among the search trends in which it contributes among 28.6% were using the tobacco every day and 42.4% were men and 14.2 % were women; 21.4% adults were using smoke less form of tobacco; 29.6% men and 12.3%[20] were women. These results symbolize that there is a growing-needs to improve awareness regarding the tobacco and tobacco related effects in respect to the country south Africa.

The years of search for smoking and covid are flat when it started in November 2019 and had a drastic increase in February 2020 where in the "Interest by Region" that is in South Africa the search was more due to the 50,879[21] cases recorded in the following months. Then onwards, the search years for the tobacco and covid decreased in the mid-march and increased at the first ofApril, where the cases were increased in UK 28,7403[21]; Spain 241,717[21]; India around 266,598[21]and then there was a sudden decrease in the search at mid-May 2020.Then, in the middle of July, there is an uptick in the hunt due to 933 560 documented cases of COVID-19 in the United States, with 110 220[21] deaths and 788 062 recoveries.On March 13, 2020, 802 new cases were recorded in the United States, making it one of the greatest numbers of new cases reported in a single day. The investigation has been relatively stable until the period of mid-November 2020. As of June 9, 2020, there had been a total of 117 103 cases, 13 699 deaths, and 90 748 recovered[21] in Mexico; there is an increase in search of smoking and covid in mid-December, then a decrease in mid-February due to a drop in cases to 50,123, and then a sudden spike in search due to an increase in cases 170,050,1718 21from March 2021 to now.

Limitation of the study:

1. It's possible that the study doesn't account for a small population that still exists, demands on being told the truth and isn't interested in using the internet a search
2. Traditional reliance on health information, particularly among the elderly. A lacuna may have resulted from the rural population.
3. Many countries around the world are developing and underdeveloped, with only 40% of the worldwide population having access to the internet. As a result, internet search trends may neglect a group of people who live outside of the information technology bubble.

V. CONCLUSION:

The research was conducted using the most widely used search engine, taking into account the most popular connected search queries and RSVs, giving it the advantage of include every worldwide citizen who is affected by information technology.Although the emphasis on the "Web" may shift over time, it should constantly consider the inflow of human-infused interests.The trend research tool can provide real-time information into emerging diseases and their geographic spread. Forecasting, adjusting marketing strategies, and designing disability limiting approaches on a large population can all be done with this application. The GT was used in the current study, which implies that it could be effective for epidemiological investigations, digital data management, and evidence-based output. RSVs that have a substantial number of cases over time and in a certain geographic area may be the topic of more analytical and correlative research.

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Conflict of Interest: nil

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