

The Impact Of Lockdown On Internet Searches Related To Alcohol Use

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ABSTRACT

Introduction - The COVID-19 pandemic has had a significant impact on everyday functioning, considerable measures being taken to reduce the spread of the virus. For many people, alcohol is part of their social life, a life that has been significantly disrupted by COVID-19. Currently however, it is uncertain what impact the COVID-19 pandemic will have on alcohol consumption, though they are likely mediated by psychosocial factors such as social isolation, grief and anxiety. Moreover, the lockdown yield a significant increase in the use of various internet sources for seeking information on a wide range of topics. Hence the present study design to examine and interpret the changes in online search interest for keywords representing different alcohol related themes during the lockdown period.

Methods – The study was designed as a descriptive study. Internet search trends were compared before (1st May, 2021 to 10th May, 2021) and after the lockdown was imposed (11th May, 2021 to 24th May, 2021) in Tamil Nadu and Pondicherry. Google trends were utilized to give normalized relative search volume for online searches in its search engine.

Results and conclusion - A substantial rise in internet search interest for terms linked to the purchase of alcohol was noticed in during lockdown, compared with pre-lockdown. Indian individuals with access to the internet utilized search keywords linked to alternative means of acquiring alcohol and problems experienced due to break in alcohol supply chain during the lockdown.

Keywords - Alcohol use, internet search, lockdown.

1. INTRODUCTION

A lockdown has been imposed on most countries worldwide since December 2019, when the Covid-19 pandemic started. In an effort to combat both the spread of the virus and the accompanying demand for health resources, a variety of strategies have been employed,

having a detrimental effect on both the economy and other aspects of daily life. Some countries have implemented stringent COVID-19-related regulations while others have opted for a more relaxed approach to dealing with the virus [1].

Since the Covid-19 outbreak, millions of people have been trapped indoors, many of them worried about their career and health. COVID-19 pandemic triggered a nationwide lockdown that resulted in India's first ever complete ban on alcohol sales for 41 consecutive days. For the first lockdown, the shutdown of all non-essential services and strict stay-at-home instructions were imposed during a period of 3 weeks from 25 March to 14 April 2020 (lockdown 1.0). There was a conditional relaxation of the lockdown for 19 days from 15 April to 3 May 2020 (lockdown 2.0). In both phases of lockdown (1.0 and 2.0), people were restricted from moving around the country and non-essential business operations were shut down.

There's no doubt that there are people in many nations who turn to alcohol to cope with stress. Consequently, alcohol is a factor that might hinder economic development and represent an additional financial burden for the society, with consequences for health systems and criminal justice that largely outweigh the benefits of income tax on alcoholic products [2]. Lockdown and sudden alcohol ban in many countries saw a sudden surge in complicated alcohol withdrawal. There were also reports of alcohol withdrawal resulting in cases of suicides during the COVID-19 pandemic from India, raising potential dilemmas of forced abstinence [3].

Apart from this, recent studies have also shown that the Internet is among the primary sources of information for the population actively using the Internet is increased widely during the lockdown period. The Internet has played a very vital role as it helps to public and private sectors, households, women, urban-rural and remote populations to run their activities by maintaining social distance. In another way, the lockdown prompted a significant increase in the use of various internet sources to get information. In line with this, internet-based research can provide insight on the impact of the alcohol ban [3].

Infodemiology, an emerging area of research at the crossroads of consumer health informatics and public health informatics, as well as infometrics and web analytics tools, can be defined as the science of distribution and determinants of information in an electronic medium, specifically the Internet, with the ultimate aim to inform public health and public policy. In recent days, Infodemiological study methods have been widely utilised by researchers to examine COVID-19 related phenomena [4].

An analytical tool, Google Trends, tracks the online search interests of the population. The literature supports the use of Google Trends as a reliable and valid method for monitoring web-based activity of the population, and making accurate predictions, now casting and forecasting related to public behaviors. The use of Google Trends for tracking alcohol use-related behaviors at the population level has been validated previously [5].

We expected that those with access to internet would have searched online to seek answers for their alcohol-related queries. Therefore, the study is examining and interpreting changes

in the interest level in online searches for keywords representing different alcohol-related themes in 2 different states such as Puducherry and Tamilnadu in India during the lockdown period.

2. MATERIALS AND METHODS

To answer the research questions of this study, data from Google Trends were collected. In this section, the data collection process and analysis are explained.

Google Trends Data collection

A normalized relative search volume algorithm is used by Google Trends (Google Inc., Menlo Park, CA, USA) to show the relative search volume (RSV) for keyword(s) searched for in a geographical area and time period. A query's RSV ranges from zero (generally represents low search volumes) up to 100 (typically represents peak search volumes). This data was pulled out using the context for analysing health related info epidemiology and surveillance provided by Google Trends. The search was made under the themes such as types of alcoholic beverage consumed, means of accessing alcohol, problems experienced due to break in alcohol supply chain, help-seeking for alcohol use disorders. The keywords such as beer, distilled spirits, wine, alcohol, liquor, country liquor, alcohol shop, buy alcohol online, alcohol home delivery, alcohol substitute, make alcohol at home, alcohol alternatives, alcohol withdrawal, alcohol addiction, alcohol dependence, alcohol delirium, alcohol seizures, alcohol craving, benzodiazepines, alcohol treatment, stop alcohol, quit drinking, quit alcohol, leave alcohol and alcohol detoxification. The day-to-day RSV values for designated search enquiries were collected for the lockdown period from 11/5/2021 to 24/5/2021 in Tamilnadu and Pondicherry. In the same way, pre lockdown data were collected from the period of 1/5/2021 to 10/5/2021. Furthermore, by using the Google Trends 'rising related queries' option, other related terms that were searched with the search query entered by the same people during the selected period were also downloaded[2,3].

Data analysis

Analysis of the data was performed using Microsoft Excel and the Statistical Package for the Social Sciences (SPSS, Version 23.0. New York, IBM Corp.). The statistics were alienated into two timeframes representing pre-lockdown, lockdown periods in both Tamilnadu and Pondicherry. The mean RSV across three time periods was compared using the one-way analysis of variance. One-way analysis of variance and Kruskal–Wallis test was adapted [3].

3. RESULTS

We examined daily variations in online search interest for diverse alcohol-related search queries during pre-lockdown and lockdown in both Tamilnadu and Puducherry. The change

in mean RSV values for selected keywords fewer than four different alcohol-related themes across the two selected timeframes in two different states were listed in Table 1 and Table 2. In our paper, we used RSV as the unit of analysis. There has been a substantial increase in interest in keywords representing distilled spirits in the pre-lockdown compared to the lockdown period in Tamil Nadu. Additionally, interest in online search terms in themes related to help seeking for alcohol use disorder, problems due to break in alcohol supply were decreased during lockdown. There are only slight changes observed in pre-lockdown and lockdown period in the theme means of accessing alcohol. Puducherry showed a decreasing trend for most searches related to the 4 themes. Our results represent a huge difference in RSV values in Puducherry and Tamilnadu in some of the themes.

TABLE 1								
Keyword	Mean	RSV	in	SD	Mean	RSV	in	SD
	Tamilnaduprelockdown				Tamilnadu during lockdown			
Beer	59			28.61	50.50			25.70
Distilled spirits	48.3			33.46	66.64			20.02
Wine	53.9			32.10	52.93			23.59
Alcohol	63.4			19.61	57.14			19.01
Liquor	38.5			32	40.93			29.5
Buy alcohol online	10			31.62	7.14			26.73
Make alcohol at home	10			31.62	7.14			26.73
Alcohol withdrawal	19.2			40.52	7.14			26.73
Alcohol addiction	10			31.62	7.14			26.73
Alcohol dependence	10			31.62	7.14			26.73
Alcohol treatment	10.00			31.62	7.14			26.73

TABLE 2								
Keyword	Mean	RSV	in	SD	Mean	RSV	in	SD
	Puducherryprelockdown				Puducherry during lockdown			
Beer	0				0			
Distilled spirits	18.3			38.81	13.07			33.39
Wine	14.70			33.41	7.14			26.73
Alcohol	10			31.62	32.78			45.76
Liquor	10			31.62	0			0

Table 1- Mean relative search volume for popular keywords searched during pre-lockdown, lockdown in Tamilnadu.

Table 2- Mean relative search volume for popular keywords searched during pre-lockdown, lockdown in Puducherry.

In the case of alcohol sales, the Tamil Nadu State Marketing Corporation (TASMAC) has sold liquor worth Rs 428.64 crore per day during prelockdown. All liquor outlets (n= 5338) and bars opened in the state during pre-lockdown. On normal Sundays, Tasmac sells liquor to the tune of Rs 140 crore - 160 crore on a weekday. Puducherry witnessed unprecedented sales of liquor worth Rs 20.4 crore, following the relaxation of the lockdown after 40 days. On the opening day, sales of Rs 7.4 crore were registered followed by Rs 6 crore on June 9 and Rs 7 crore on June 10, according to official sources [15].

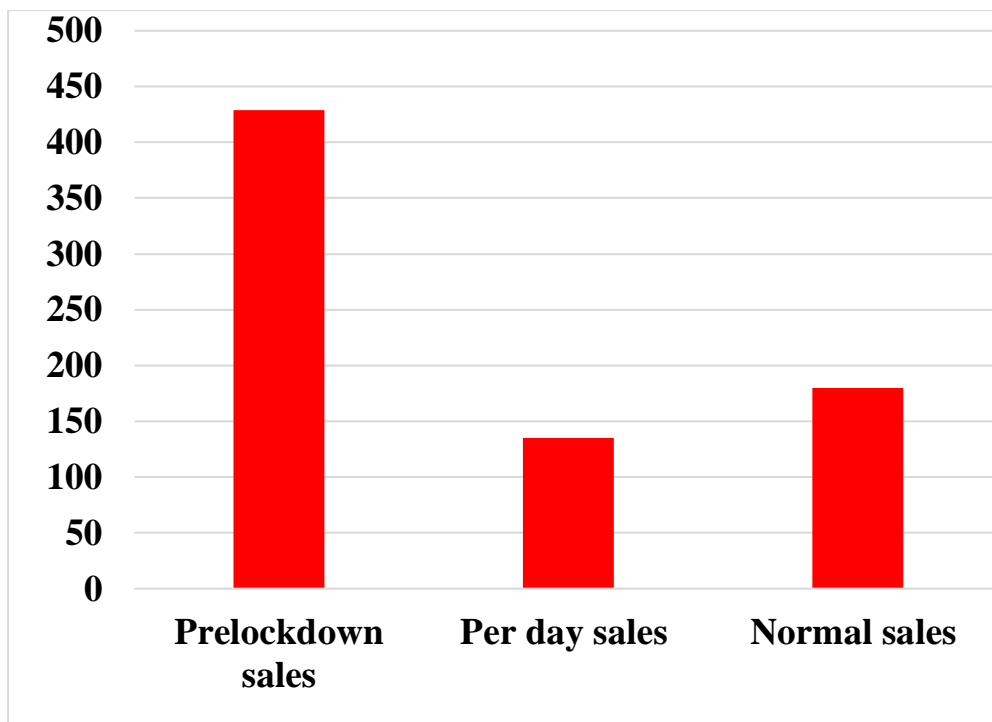


Figure 1 – Trends in alcohol sales in Tamilnadu

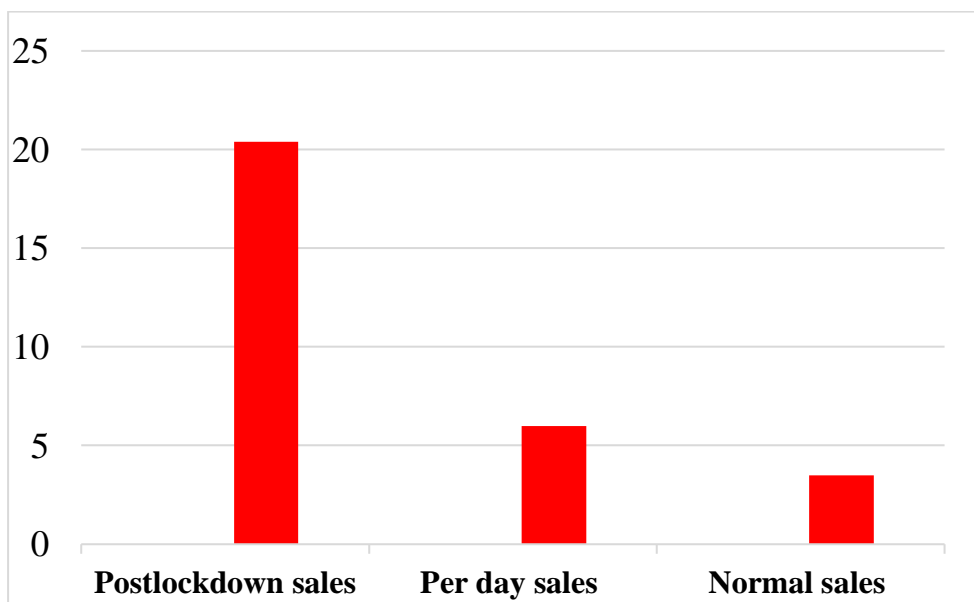


Figure 2 -Trends in alcohol sales in Puducherry

4. DISCUSSION

Web data surveillance holds a strong potential to lead to overlooked phenomena and might increase knowledge on campaign strategies centered on timing of interest cycles. This paper

works under the demand-based approach, examining patterns of public seeking for information on alcohol during lockdown, like similar works that have become increasingly frequent in recent literature. The use of search volume for predicting real-world events may have less to do with their superiority over other data systems than with matters of low cost, transparency, simplicity, and reproducibility across a variety of domains. Among other free access tools available [7].

Estimated number of alcohol users in India, was 62.5 million, 17% of them being dependent users accounting for 20%–30% of hospital admissions due to alcohol-related problems. The goal of this study was to see how the state-wide sales of alcohol restriction during the COVID-19 shutdown affected online search interest for alcohol-related inquiries among Indian internet users [8]. In view of easy availability of alcohol at a subsidized rate in Puducherry, this study was performed as a comparison between the adjacent states Tamilnadu. Based on the changes observed in online alcohol- and help-seeking behaviours of this population during the lockdown period, this study provides an indirect assessment of the nature of concerns caused by the break in the supply chain [9].

The results were obtained in mean RSV values. An RSV value of 100 represents the highest search volume over a selected time, while a value of 0 represents the least amount of search volume. Google Trends provides an average weekly RSV value. Search terms were assessed for RSV using filters for region, date, and category. As previous literature has demonstrated the efficacy of Google Trends studies in Online Searching to Detect Alcohol Use Risk at Population Scale, we use this data to compare public interest in alcohol related search from the lockdown and post lockdown period [10].

In Tamil Nadu, compared to pre-lockdown, there was significant and sustained increase in the interest for keywords that represent distilled spirits (whiskey, brandy, gin, vodka and rum) and liquor on the internet. The increased search trends for distilled spirits denote most people consume distilled spirits as their primary alcoholic beverage. This finding is in line with the fact that Distilled spirits represent the most-commonly consumed alcoholic beverage in India. [2] However, online search interest for the keywords beer was significantly lower during lockdown compared to pre-lockdown. A similar trend was seen nationwide during the first lockdown in 2020 [1]. It appears people were searching for alternate ways to get alcohol before and during the lockdown. Many recent reports denote that, in response to a lack of access to alcoholic beverages, some people tried making alcohol at home by reverse engineering hand sanitizers. Additionally, a number of news reports from different parts of the country have mentioned online platforms that offer information, such as telephone numbers or links to secret social groups involved in illegal alcohol distribution at homes during the lockdown [2,3]. Interestingly, a decreased trend for alcohol online searches related to help seeking for alcohol use disorders and problems experienced due to break in alcohol supply chain was observed and this observation possibly reflects the limited interest

in seeking treatment services for alcohol use disorders among those who accessed the internet during this lockdown period. This is similar to the pattern of help-seeking observed in the past following the prohibition of alcohol in the state of Bihar in India. There was limited interest in seeking treatment services, with around 30% of respondents continuing to consume alcohol even after more than 2 months into prohibition [1]. Alternatively, this pattern of online search interest might be partly explained by the inability of people to leave their households for seeking treatment during the lockdown period [1].

Puducherry entered complete lockdown from April 23-26[12] wherein sales of liquor was banned. However, the sales resumed from 27th[13] with partial restriction and a complete lockdown was announced from May 10. In Puducherry, the keyword alcohol was seen to be searched more during the lockdown than prelockdown. However, the trends for searches about Distilled spirits was lower during lockdown compared to prelockdown. Keywords related to Means of accessing alcohol, problems encountered due to break in alcohol supply and help seeking for alcohol use disorders wasn't searched about significantly both during the prelockdown and lockdown. In Puducherry, reports emerged about seizure of illicit liquor during the lockdown [14]. Also there were reports of alcohol being sold illegally during the lockdown which can possibly explain these findings [11].

Study limitations, such as assessing only Google-search based internet traffic, should be kept in mind when interpreting the findings. Differential Internet access could introduce bias; however, the GT platform normalizes RSV estimates for this

5. CONCLUSION

A traditional research methodology may not be applicable in the current context of COVID-19 lockdowns and other restrictions. Even during the lockdown, People with access to the internet in Tamilnadu searched for ways to procure alcohol. The present study provides a systematic assessment of the impact of nationwide lockdown due to COVID-19 on alcohol users at the population level. People showed a preference towards distilled spirits compared to other varieties of alcohol. The reason for decrease in search trends related to 'Beer' remains a point for future research. Furthermore, there was limited searching for help-seeking for break in alcohol supply. The keywords 'make alcohol at home' and 'buy alcohol online' had lesser number of entries because probably the lockdown was anticipated by people (as a lockdown had already been imposed previously), as other states had already entered a lockdown around this time, and COVID 19 cases were on the rise. The decreased and insignificant search trends in Puducherry could have possibly been influenced by sales of illegal and illicit alcohol. Interestingly, on the first day of lifting restrictions on the sale of alcohol both the states witnessed a record surge in alcohol sales[15]. This underscores the need for revisiting the rules and regulations for the sale of alcohol during the lockdown period in response to the COVID-19 pandemic and also, Relevant stakeholders should consider a comprehensive policy

and plan for availability of alcohol and services for management of alcohol dependence during lockdowns related to COVID-19.

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