COVID-19 mortality and its relationship with internet searches on mental health during the first year of pandemic[☆]

Mortalidad por COVID-19 y su relación con las búsquedas en internet sobre salud mental durante el primer año de pandemia

Few works have analysed the relationship between COVID-19 mortality and internet searches on mental health in Spain. The few studies that were undertaken indicate the existence of a position association between the number of deaths due to COVID-19 and the volume of internet searches using the terms anxiety[1] and insomnia.[1,2] These studies only examine this association during the first weeks after the declaration of COVID-19 as a pandemic (more specifically, from 13 to 19 April 2020)[1,2] and not all of them include internet searches using the key words anxiety[2] or stress,[1,2] as these terms were usually examined in previous studies of this subject.[3–5] Given the situation described above, the aim was to analyse the association between the variation in the number of deaths due to COVID-19 in Spain and the numbers of web searches using different mental health concepts (more specifically, anxiety, depression, stress, insomnia and suicide) in the period from March 2020 to March 2021.

The data on COVID-19 deaths used in this analysis were taken from reports on the pandemic situation in Spain supplied by Worldometers[6] from 1 March 2020 to 6 March 2021. Data on the daily number of deaths due to COVID-19 were recorded in the platform, and the weekly number of deaths were then calculated during this period. This web resource has been used before in the literature for the statistical study of mortality due to COVID-19.[7,8] Internet search tendencies for mental health were identified using Google Trends.[9] This tool gives an index on the relative search volume (RSV) for different key words in a specific period of time and for a certain geographical area. This RSV varies from 0 to 100, where 100 is the score which indicates the highest volume of web searches for a specific term within the selected search category within a specific period of time. Data were recorded on the RSV for terms in connection with mental health (TCMH): ''anxiety'', ''depression'', ''stress'', ''insomnia'' and ''suicide'' during the period from 1 March 2020 to 6 March 2021. Searches had to have originated in Spain in all categories of internet search (science, news, health, literature, etc.).

Fig. 1A shows that anxiety is the subject with the highest average volume of searches in the year studied (average RSV = 78.70 ± 8.72), followed by depression (average RSV = 27.57 ± 3.96), stress (average RSV = 21.91 ± 3.01), suicide (average RSV = 17.42 ± 4.67) and insomnia (average RSV = 9.40 ± 2.72). During this period of time the weekly number of deaths due to COVID-19 correlated positively and significantly with the weekly RSV for the terms ''anxiety'' ($r = 0.59$; $P < .001$), ''stress'' ($r = 0.41$; $P < .001$) and ''insomnia'' ($r = 0.49$; $P < .001$).

In the lineal regression performed after the correlation analysis, the number of weekly deaths due to COVID-19 remained positively associated with the volume of internet searches for ''anxiety'' ($B = 0.004$; $t = 5.26$; $P < .001$), ''stress'' ($B = 0.001$; $t = 3.21$; $P = .002$) and ''insomnia'' ($B = 0.001$; $t = 4.03$; $P < .001$). The adjusted determination coefficients obtained (Fig. 1B) showed that the number of deaths per week due to COVID-19 explained 34% ($F = 42.36$; $P < .001$) of the variance in the volume of internet searches for anxiety, 15.3% ($F = 10.36$; $P = .002$) for searches about stress and 22.9% ($F = 16.24$; $P < .001$) in the case of searches for insomnia.

These results show that the variation in the number of weekly COVID-19 deaths is associated and explains a significant percentage of variance of public interest in the subjects of anxiety, stress and insomnia as shown by the Google Trends RSV scores. These findings may indicate that the association between the increase in coronavirus deaths and the rise in public interest about the subjects of anxiety and insomnia, as reported by studies undertaken in the first weeks of the pandemic,[1,2] may be seen in cross-section when a yearly period is analysed. The chief limitations of this work would be that Google Trends solely collects data on individuals who use Google as a search engine, and that the search volumes it supplies are relative and not absolute.[10,11]

To conclude, in Spain the periods of high viral activity with the highest number of COVID-19 deaths may have had a specific impact on the levels of anxiety, stress and insomnia in the population, reflecting a higher number of web searches for information about these psychopathological processes. A high level of need for information about these specific mental health subjects can be inferred to exist in the Spanish population, associated with the variability in mortality due to COVID-19.
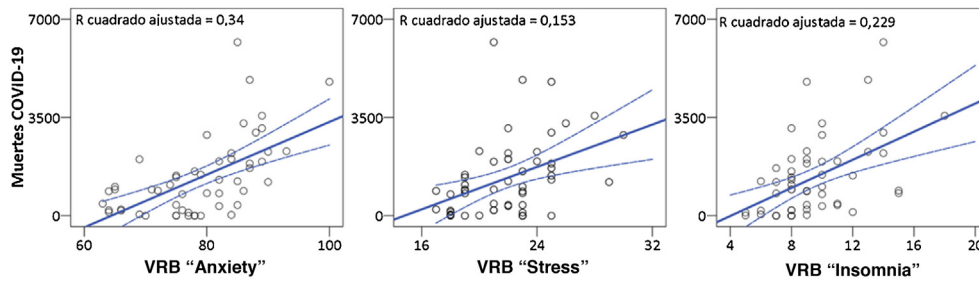
A)
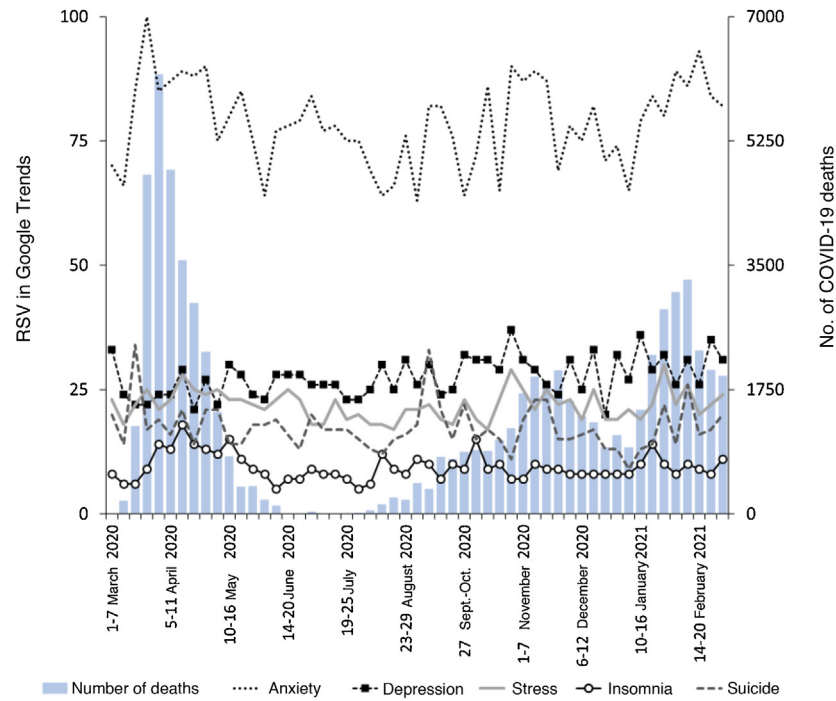
B)

Figure 1 A) Relative search volume (RSV) scores for the terms ''anxiety'', ''depression'', ''stress'', ''insomnia'' and ''suicide'' and the number of deaths per week due to COVID-19 in Spain from 1 March 2020 to 6 March 2021. B) Scatter diagrams and adjusted R squared values for the relationship between the number of deaths per week due to COVID-19 and the RSV for ''anxiety'', ''stress'' and ''insomnia'' in Spain during the period from 1 March 2020 to 6 March 2021.

Financing

Conflict of interests

The authors have no conflict of interests to declare.

References

1. Misiak B, Szcześniak D, Koczanowicz L, Rymaszewska J. The COVID-19 outbreak and Google searches: is it really the time to worry about global mental health? Brain Behav Immun. 2020;87:126–7, http://dx.doi.org/10.1016/j.bbi.2020.04.083.
2. Lin YH, Chiang TW, Lin YL. Increased internet searches for insomnia as an indicator of global mental health during the COVID-19 Pandemic: multinational longitudinal study. J Med Internet Res. 2020;22:e22181, http://dx.doi.org/10.2196/22181.
3. Paredes-Angeles R, Taype-Rondan Á. Trends in Spanish-language Google searches on mental health issues in the context of the COVID-19 pandemic. Rev Colomb Psiquiatr. 2020;49:225–6, http://dx.doi.org/10.1016/j.rcp.2020.07.003.
4. Rana U, Singh R. Emotion analysis of Indians using google trends during COVID-19 pan-

demic. Diabetes Metab Syndr. 2020;14:1849–50, http://dx.doi.org/10.1016/j.dsx.2020.09.015.

5. Brodeur A, Clark AE, Fleche S, Powdthavee N. COVID-19, lockdowns and well-being: evidence from Google Trends. J Public Econ. 2021;193:104346, http://dx.doi.org/10.1016/j.jpubeco.2020.104346.

6. Worldometers. Covid-19 coronavirus pandemic [Accessed 22 March 2021]. Available from: https://www.worldometers.info/coronavirus/.

7. Arokiaraj MC. Considering interim interventions to control COVID-19 associated morbidity and mortality-perspectives. Front Public Health. 2020;8:444, http://dx.doi.org/10.3389/fpubh.2020.00444.

8. Liang LL, Tseng CH, Ho HJ, Wu CY. Covid-19 mortality is negatively associated with test number and government effectiveness. Sci Rep. 2020;10:12567, http://dx.doi.org/10.1038/s41598-020-68862-x.

9. Google Trends — Google Inc. [Accessed 25 March 2021]. Available from: http://trends.google.com/.

10. Butler D. When Google got flu wrong. Nature. 2013;494:155–6, http://dx.doi.org/10.1038/494155a.

11. Arora VS, McKee M, Stuckler D. Google Trends: opportunities and limitations in health and health policy research. Health Policy. 2019;123:338–41, http://dx.doi.org/10.1016/j.healthpol.2019.01.001.

Juan Antonio Becerra-García*, Teresa Sánchez-Gutiérrez, Sara Barbeito Resa, Ana Calvo Calvo

Facultad de Ciencias de la Salud. Universidad Internacional de La Rioja (UNIR), La Rioja, Spain

*Corresponding author.
E-mail address: juanantonio.becerra@unir.net
(J.A. Becerra-García).

Increase in urgent care for patients with an eating disorder during the COVID-19 pandemic in a Spanish province

Incremento de la atención de urgencia para los pacientes con trastornos de la alimentación durante la pandemia de COVID-19 en una provincia española

Introduction

The COVID-19 pandemic has had a great impact on public health, but also on mental health.[1–3] It has affected the mental state of patients suffering from this infection, bereaved relatives having lost loved ones to this disease, health professionals, the general population and patients who had a mental health problem before the pandemic and have seen their symptoms increase and/or their treatment interrupted.[4–6]

Patients with eating disorders are highly sensitive to the pandemic situation due to their physical and psychological risk.[7] The fragility of anorexia nervosa, electrolyte disturbances in bulimia nervosa, and cardiovascular risk in binge eating should be highlighted. In the same way, the psychological stress derived from confinement and the restrictions and anguish inherent to uncertainty, can increase the psychological discomfort of these patients.[8] Isolation and loneliness can be common to those with anorexia nervosa, and may become aggravated during a pandemic. Emotional dysregulation can promote bingeing and purging episodes, while greater external control can cause a decrease in food intake.[9] A pilot study developed during the first two weeks of confinement in an eating disorder unit in Barcelona reports that, in a sample of 32 patients, most of the patients expressed concerns about increased uncertainty in their lives, such as the risk to themselves or their loved ones of COVID-19 infection, the negative impact on their work

and their treatment. Almost 38% (12 of 32) reported a worsening of their eating disorder symptoms and 56.2% (18 of 32) reported additional anxiety symptoms.[7] These findings strengthen the hypothesis that the COVID-19 pandemic may aggravate risk factors for overeating and unhealthy weight gain, especially in vulnerable populations such as children and individuals with an eating disorder and obesity.[10]

It is necessary to remember that the restrictions imposed by the health authorities have limited the accessibility of health care, which is why face-to-face mental health care has been interrupted in many areas, further compromising the state of psychiatric patients.[11] Patients with an eating disorder are vulnerable populations that require specific approaches.[12] As an immediate emergency measure to address this situation, different telemedicine tools have been described within this population, during the pandemic[13,14]; however, there are no studies on their efficacy and acceptability by users.

The objective of this study is to evaluate the impact that the COVID-19 pandemic may have had on the reasons for the urgent care of patients with an eating disorder, comparing the reasons for care with those from a previous period.

Method

Sample and procedure

This study was carried out at the Santa Maria University Hospital in Lleida. This hospital is the only one providing urgent psychiatric care in the province of Lleida, with an area of influence of 137,283 people.[15]

The data in this study were obtained through a retrospective review of digital medical records including patients' sociodemographic data, diagnosis, reasons for consultation and hospital admissions. The observation periods were: 1. before confinement: from January 13, 2020, until March 14, 2020 and 2. during the confinement of the first state of alarm in Spain: from its start on the 15th of March, 2020 until its conclusion on the 20th of June, 2020 and the second state of alarm in Spain: from October 25, 2020 to May 9, 2021.[16]