

# Therapeutic Cannabis and COVID-19: between opportunism and intoxication

## *Cannabis terapéutico y COVID-19: entre el oportunismo y la intoxicación*

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### The pandemic and drug use

The coronavirus pandemic (COVID-19) of recent months has generated unprecedented social alarm worldwide. Reactions of anxiety, worry or fear are predicted to increase in the population given the unknown nature of the disease and the uncertainty surrounding it, to which must be added the social distancing and lockdown measures arising from the state of emergency (García-Álvarez, de la Fuente-Tomás, Sáiz, García-Portilla & Bobes, 2020).

This scenario involves substantial changes in our daily habits at the level of family dynamics, at the job level (working from home, redundancy, short-time working schemes, etc.), in social relationships and/or in the use of leisure time. The population is adapting as best it can to the new situation, doing sports and cultural activities in their own homes, keeping in touch with friends and family through information and communication technologies, using the helplines provided by various non-governmental organizations and health professionals to receive psychological support. However, other activities such as drinking, smoking and the use of psycho-

tropic drugs and cannabis could increase, not only as a form of distraction or behavioural avoidance strategy, but also as a consequence of the stress, anxiety or depressive symptoms people are experiencing (García-Álvarez et al., 2020).

The coronavirus situation also presents users of psychotropic substances with unique challenges, mainly involving illicit drugs, given the difficulty of obtaining the substances during lockdown, but also at the level of vulnerability since those who smoke or vape cannabis-derived products (and tobacco), and those who are opioid and methamphetamine dependent may also face increased risk of complications due to the effects of SARS-CoV2 infection on the respiratory system and the lungs (Dunlop et al., 2020). Compared to the general population, people with substance use disorders have a higher burden of comorbid diseases (Schulte & Hser, 2013; Wu, Ghitza, Zhu, Spratt, Swartz & Mannelli, 2018). At the same time, drug users are likely to be more vulnerable during the COVID-19 epidemic, mainly due to poorer health literacy, stigma or social discrimination towards the group, and a large proportion of users often prioritize drug use over other health issues (Dunlop et al., 2020).

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## Taking advantage of difficult circumstances

For decades now, but particularly in recent times, the proliferation of fake news about alleged healing properties of cannabis has been growing. Even during lockdown, certain groups have claimed that cannabis and its products should be considered “*products of first necessity given their extensive therapeutic use*”, so that the clubs and associations dispensing it could remain active during the pandemic (García, 2020). But what is behind all this? How did we reach a state of affairs where a considerable number of citizens look favourably on the use of this drug? The permissiveness of misleading advertising found in physical stores and online, its dissemination in fairs, forums, websites and the declarations by consumers in cannabis clubs, pressure groups, advocates of their legalization in specialized forums and even certain politicians (regardless of ideology), have contributed to the creation of this state of opinion. To this end, very questionable but effective strategies have been used, such as comparisons with different countries and laws, consumer opinion and, above all, referencing studies which are more than dubious due to their low scientific validity and obvious biases. It should be emphasized, as stated by the NASEM in its report (National Association of Sciences, Engineering and Medicine of the United States, 2017), that in most cases the conclusions reached by certain studies or research are not properly summarized, translated or communicated to policy makers, healthcare staff and professionals in associated entities. And there is a difference compared to other substances such as alcohol and tobacco because the inherent risk of use cannot be determined given that there are no accepted standards for ‘safe levels of use’, nor are there suitable doses available to guide consumers. In fact, there is a current scientific consensus in the recognition that the negative effects of cannabis use on physical, cognitive, emotional and behavioural levels increase in those who begin using it in their adolescence; in general terms they have a greater likelihood of developing risky use patterns and a more harmful repertoire of use (Filbey, Mc-Queeny, DeWitt & Mishra, 2015; Rial, Burkhart, Isorna, Barreiro, Varela & Golpe, 2019). Furthermore, it is possible that ‘recreational’ or ‘therapeutic’ use is subject to great individual variability.

As mentioned above, citizens as a whole are experiencing an unprecedented health situation. Lockdown is generating uncertainty in sectors of the population and some people are undergoing notable physical and psychological distress. During this time, we have been hearing on countless occasions, repeatedly and by various means, that cannabis can alleviate certain negative symptoms due to its potential therapeutic benefits (e.g. that it relaxes, increases the appetite, calms anxiety, relieves pain and helps escape reality) and can even combat COVID-19 or at least minimize its symptoms. The approach here seems to be to

get the same message to the population which it received about other pathologies and which associates cannabis with curative therapy.

It is precisely now, taking advantage of the pandemic, that more publications have appeared attributing different potentially therapeutic properties of some cannabinoids – not cannabis itself, which is not the same! The current trend among those who defend the use of ‘therapeutic cannabis’ is to hide from a discussion of the effects of tetrahydrocannabinol (THC), mainly advocating instead the effects of cannabidiol (CBD), cannabitol (CBN) and cannabigerol (CBG). But not all follow this line because there are groups and pressure groups who continue unanimously to praise and demonstrate the properties of ‘joints’ or ‘spliffs’, demanding legalization and advocating self-cultivation for personal use (Confac, 2020; García, 2020).

This period of lockdown has witnessed considerable media hype regarding cannabis and its potential to ‘treat’ the cytokine storm associated with COVID-19, a fatal immune dysregulation occurring throughout the course of the disease. While human data on acute viral infections and cannabinoids is scarce, studies conducted thus far cast a glimmer of hope on their potential role in immune suppression in COVID-19 disease; however, it should be noted that the studies are based on in vitro and in vivo experiments (Sexton, 2020).

The World Health Organization itself warns of the great threat accompanying COVID-19: the ‘*infodemic*’ or an overabundance of information regarding rumours, hoaxes and false data propagated by certain groups with manifest interests who seek to misinform and confuse citizens. Below are some examples of published headlines linking cannabis to COVID-19:

*“Cannabis does not cure coronavirus, but it can help alleviate certain symptoms.” “Good news! Cannabis can cure COVID-19”; “New York orders stop to sale of cannabis product as COVID-19 cure”; “Arizona marijuana dispensary closed for promoting false ‘cure’ for coronavirus”; “Canadian company to investigate effects of cannabis on COVID-19 symptoms”; “Ten cannabis ideas to try in times of coronavirus”; “Marijuana as an essential service”; “Researchers find potential cure for coronavirus in marijuana”*

Therefore, having seen and analyzed certain news or ‘fake news’ related to cannabis and COVID appearing mainly on the Internet and social networks, we see it as our moral and scientific duty to combat these hoaxes and help contribute to ensure that citizens have truthful, reliable information backed by scientific evidence.

First of all, it is worth noting here, in the context of the COVID pandemic, the opinion of Nora Volkow (2020), director of the National Institute on Drug Abuse (NIDA):

*“The risk of serious harm and even death caused by COVID-19 increases with advancing age, but it is also concentrated among those who are immunocompromised or have their health compromised by various conditions such as diabetes, cancer, heart disease and respiratory diseases. Many of the latter arise from smoking and, therefore, may increase the risk of death and disease among smokers (tobacco and/or cannabis)”.*

Similar to smoking tobacco, cannabis use can cause long-term effects of increased cough, sputum production, and wheezing, along with respiratory tract diseases such as chronic bronchitis and decreased lung function (Owen, Sutter & Albertson, 2014; Tashkin, 2013). Furthermore, data obtained from healthy adult cannabis smokers demonstrated an overall reduction in cytokine production (McCoy, 2016; Sexton et al., 2014). Likewise, the use of ‘vapers’ (electronic devices for the vaporization of nicotine, which can also be manipulated for the use of THC and CBD) may present an even greater risk through the concentration, adulteration or contamination of extracts. The concentration of cannabinoids and terpenes can be increased between 3.2 and 4 times and between 2.7 and 8.9 times, respectively (depending on the extraction process and the structure of the terpene), and this concentrated form may also contribute to exacerbating respiratory symptoms and dysfunction (Sexton, Shelton, Haley, & West, 2018). Refraining from smoking cannabis and vaping THC and CBD concentrates is therefore particularly relevant to lung health in the shadow of COVID-19. These methods of administration can weaken the respiratory system’s effectiveness in responding to infection, and thus increase the risk of rapid progression to hypoxemia (Sexton, 2020).

It is worth highlighting the danger of using cannabis in a water pipe (bong, hookah, shisha) since it allows each inhalation to send more smoke to the lungs and therefore more THC (and nicotine), which boosts the effect of cannabis mainly due to its bronchodilator effect (Tetrault, Crothers, Moore, Mehra, Concato & Fiellin, 2007). It is common practice among cannabis smokers to inhale deeply and hold their breath to achieve maximum absorption of THC in the lungs (Hall, Degenhardt & Teesson, 2009). To this must be added the burning of coal in the hookah which produces carcinogens, heavy metals, polycyclic aromatic hydrocarbons and various toxins, substances which have all been linked to lung and heart diseases and cancer (Etemadi et al., 2017). Being a social group practice, the hookah’s nozzles and hose are shared; this practice constitutes a health risk, increasing the danger of transmission of respiratory diseases such as tuberculosis or viruses such as hepatitis or herpes (mycobacterium tuberculosis, helicobacter pylori, hepatitis C virus, Epstein-Barr, herpes simplex, respiratory virus and aspergillus) mainly due to the prevailing humidity and because on many occasions the hookah water is not changed for several sessions,

which creates a breeding ground for bacteria that can be very harmful to health (Galindo, González, Espigares & Moreno, 2019). The infection is caused by several people sharing the mouthpiece, which thus acts as a transmission vehicle given that any of the smokers may have gingivitis or another type of oral cavity lesion, which makes them more likely to transmit or become infected (Blachman-Braun, Del Mazo-Rodríguez, López-Sámano & Buendía-Roldán, 2014). This coincides precisely with COVID transmission routes, droplets when breathing, aerosols and shared infected surfaces, so such use is absolutely contraindicated.

Along similar lines, the conclusions of a study by the pharmacology and clinical toxicology service of the University Hospital of Genoa (Agoritsas et al., 2020) are worth noting. A pharmacological evaluation of the use of cannabinoids in people infected with SARS-CoV-2, on the basis that the use of phytocannabinoids in experimental models has revealed contradictory results, shows that long-term daily use of cannabis is associated with fibrotic progression in case of hepatitis C, leading to viral replication of hepatitis, and that THC is also associated with an increase in viral replication in HIV and increases the viral load of influenza in animal models. Given these premises, the risks of cannabis use in COVID-19 can be highly significant, and the authors emphasize that there are currently no scientifically based studies recommending the use of cannabis and its derivatives in the case of COVID-19. This means that any advertisement touting its alleged usefulness lacks scientific evidence. Conversely, the false claim that certain cannabinoids “boost the immune system” or the fallacy regarding the potential antiviral effects of CBD are refuted by current pharmacological and clinical evidence showing that CBD (and THC) can decrease the capacity to fight infections, which contrasts with its possible clinical uses as an anti-inflammatory. The risk may be even higher in viral and respiratory infections (Brown, 2020). Therefore, it is necessary that users and healthcare personnel are recommended to avoid the use of CBD and other cannabinoids during this pandemic, unless it is by medical prescription (for example, for seizures, cancer, or chronic pain).

Satre, Hirschtritt, Silverberg, and Sterling (2020) propose that, in the context of the pandemic, healthcare workers and providers should therefore advise adult cannabis users over the age of 60 that they ought to stop smoking and vaping or at least substitute it with edible forms; such measures, if applied, are likely to improve the chances of surviving COVID-19. This group should also be alerted to adverse effects including falls, anxiety and dependency. Likewise, cigarette smokers should be encouraged to stop smoking and vaping, and to turn to substitutes for smoked nicotine (e.g., patches or gum) and anti-withdrawal medications like bupropion. Quitting smoking reduces cardiovascular problems and other health issues (Mons et al., 2015), thereby increasing the chances of survival against

coronavirus, as shown by data from the Chinese Centre for Disease Control and Prevention, which reveal that COVID-19 has a case fatality rate of 6.3% for people with chronic respiratory disease, compared to 2.3% of the general population (Wu & McGoogan, 2020). This proposal is very similar to that of Yafai, Sherry, Etengoff and Stuart (2020), who recommend cannabis users to limit their use by smoking and inhalation and switch to edibles, oils and tinctures (start small and go slowly); Although there is no clear data on whether these forms of cannabis consumption are better or worse for infected people, it seems logical to think that smoking could add irritation to an infected lung; so, if you are infected or are at risk of being infected by COVID-19, stop using cannabis.

One of the most recent studies spread by cannabis supporters tries to present cannabis sativa (specifically extracts with high CBD content) as a more effective substance in the prevention and treatment of COVID-19 than hydroxychloroquine, highlighting the harmful effects of the latter. However, the study in question is a preprint version researching the use of high CBD content cannabis as a hypothetical treatment for inflammatory processes of COVID; this is currently being tested in artificial 3D human tissue models of oral, aerial and intestinal routes, and because the results are inconclusive, further research is required (Wang, 2020).

This misleading infosaturación or infoxication regarding the supposed therapeutic benefits of cannabis reaches citizens via the Internet, mainly through web pages on domains mostly owned by what we may call 'pro-cannabis movements', financed directly or indirectly by the cannabis industry, publishing stories such as "Israel launches clinical trials to treat COVID-19 with cannabis" (www.canamo.net). The main objective is to create a favourable state of opinion on social networks towards cannabis use and its legalization (Isorna, Vázquez, Redondo & Veiga, 2019), and this will ultimately affect the attitudes and behaviours of people outside the network and therefore in society in general.

## Conclusion

Given the information available, it is opportune to warn that people who smoke cannabis and users who vape its derivatives will be subject to greater risks in the COVID-19 pandemic, risks which come in addition to the many already known issues of cannabis use (García-Álvarez, Gomar, García-Portilla & Bobes, 2019). Quitting cannabis therefore represents an important preventive measure to better defend against COVID-19.

The present review strengthens the conviction that there is no scientific justification for using cannabis in the treatment of any symptoms or complications caused by the SARS-CoV-2 virus (COVID-19), much less in its prevention.

## Conflicts of interest

The authors declare that they have no potential conflict of interest.

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