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## THE IMPACT OF COVID-19 ON WORLD'S MENTAL HEALTH: AN INTEGRATIVE REVIEW

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### ABSTRACT

COVID-19 (Corona Virus Disease-2019) is a sharp disease caused by the new Corona Virus that can be lethal, it has affected more than 200 countries, causing countless illnesses and deaths. One of the coping measures is the isolation, needed to contain the diseases's spread. However, it can generate psychological suffering, compromising the mental health of the population. Thus, is important to study the impact of those coping measures against COVID-19 in population's emotional and psychological health, as well as other aspects of the pandemic, like fear of the contamination, death and loss of family and friends. This article has as a goal evaluate the scientific production about the impact of COVID-19 on world's mental health between January and May of 2020. It's a integrative review that analysed a sample of nine articles. As results, it was observed that all the studies (100%) showed scientific evidences of the impact that COVID-19 can have on population's mental health. It follows, that updated and precised information about the pandemic, as well as quickness and congruence of government actions, ruled on science and ethical principles, impact positively on population's physical and mental health.

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### INTRODUCTION

COVID-19 (Corona Virus Disease-2019) is the disease caused by the new Corona Virus, known as SARS-CoV-2 (Severe Acute Respiratory Syndrome Corona Virus 2). It's a sharp disease that can be lethal. The severe onset of the disease can result in death due to the massive alveolar damage and progressive respiratory insufficiency (XU *et al* 2020). The World Health Organization (WHO) declared, in January 30th 2020, that the disease constitutes in a Public Health Emergency of International Importance – the Organization's highest level of alert, according to International Health Regulations. In March 11th 2020, the COVID-19 was characterized by WHO as a pandemic. The epidemiology points that the virus has affected more than 200 countries, causing countless illnesses and deaths in society.

The WHO registered, until now, more than eight millions of confirmed cases of COVID-19, with nearly 460 thousand of deaths, Americas shows the highest number of cases and deaths (WHO, 2020). The United States of America (USA) and Brazil reached 1 million of people diagnosed with the disease (BBC News, 2020). Based on the evolution of cases in Brazil, until now, it's estimated that, without introduction of preventive measures, the number of cases can duplicate in each three days. Daily behaviors as wash the hands and avoid crowding reduce the contagion of the disease. Brazil's Health Ministry (Ministério da Saúde do Brasil) suggests the reduction of social contact that, as consequence, will reduce the chances of virus' transmission, that is higher if compared with the latest coronavirus. Men kind is social and, as well, needs to live socially, set contacts and social-affective contacts that are developed in days at work, family, study, leisure,

where social interactions happens between individuals, family and society. With the pandemic, changes happens and affects those relations, like social isolation, quarantine and social distancing. Social isolation consists in the separation of infected or symptomatic individuals from healthy ones. The quarantine is a measure of separation and restriction of movement of individuals exposed to risk and contagious situations and the social distancing is an effort to reduce the contact and increase the physical distance between people with the intent to reduce the quickness of the virus spread. Those measures are extremely necessary to contain the disease's progress, reducing the scale of transmission by the virus that happens quickly by human contact between healthy and unhealthy people in crowdly places. However, it can affect directly people's mental health when they start to live isolately, far from their loved ones, changing their routines. Those changes generate the sensation of social isolation that is followed by the sensation of emotional isolation and imprisonment, this can initiate reactions and stress symptoms, anxiety and depression. In this subject, it's important to study the impacts of those measures in psychological and emotional behavior in people, caused by COVID-19, as well as other aspects of the pandemic, like fear of contamination, death and loss of family and friends. Highlighting here the importancy of national and international scientific evidences to a better understanding of the subject. Thus, the interest arose to study the case based on the following guiding question: What's the scientific production existent about the impact of COVID-19 on world's mental health? This study intends to evaluate the scientific production about the impact of COVID-19 on world's mental health, between January and May 2020. The study is expected to be as a base to build the politics of prevention and promotion of mental health in times of epidemiological crisis.

## MATERIALS AND METHODS

It's a literature integrative review about the national and international production of scientific articles related to: the impact of COVID-19 on world's mental health. This review is structured on the steps proposed by Ganong: 1) identification of the theme and selection of the research's guiding question; 2) establish the criteria of inclusion and exclusion/sampling or literature search; 3) categorization of studies/ definition of informations to be extracted from the selected studies; 4) evaluation and critical analysis of the studies included on the review; 5) discussion/ interpretation of the results; 6) presentation of the review/ synthesis of knowledgement (Souza *et al*, 2010; Sousa *et al*, 2017). The guiding question was stated using the PICOT strategy, considering the target public (P), the interest or interest area (I), the comparison with types of intervention or groups (C), the obtain results (O), and the time necessary to obtain the results (T) (Grupo Anima Educação, 2014). The criterias were: studies published on data bases available on Virtual Health Library (Biblioteca Virtual da Saúde – BVS), between January and May 2020, in portuguese, english and spanish, with full articles available, that approach the subject of this article. As criterias of exclusion were set: replicate and editorials articles. The descriptors used were: mental health, mental disorder and COVID-19, according to the vocabulary of “Descriptors in Health Science” (Descritores em Ciências da Saúde – DeCS). The collection of datas was carried out during May 2020, on BVS, using boolean operators OR and AND on the

descriptors. It was found 119 articles, of wich, after the application of the criterias of inclusion and exclusion, 39 were selected. It was performed the evaluation and the critical analysis of the titles and abstracts, establishing a sample of nine articles. The relevant datas for this study were extrated and made available in a sample frame, to categorize easily.

## RESULTS

The nine articles selected by this integrative review are shown on frame 1, in order of appearance on BVS. From this sample, six studies are from China, one from Italy, one from South Korea and one from United Kingdom. The majority of them (six), were published on March 2020, being five from China and one from United Kingdom. The rest of them were published on April (one from China and one from South Korea) and on May 2020 (one from Italy). All of them were published in english. About the target public involved in the studies, six of them searched the mental health of general public, on their birthplace, being four form China, one from South Korea and one from Italy. Two studies involved health care professionals (one from China and one from United Kingdom) and one chinese study involved college students. All the studies analysed (100%) showed scientific evidences of the impact that COVID-19 can cause on population's mental health. In the case studies of Wang, Wang and Yang (2020) was verified that the prevalence of COVID-19 in China had an significant psychological impact in affected and unaffected people, according to those case studies. Li *et al* (2020) performed ecological study analysing and comparing the difference of posts from 17.865 active users of Weibo (China's social media, like Twitter), before and after January 20th 2020, in linguistic and psychological categories. After this analysis, they detected that negative emotions and the sensibility over social risks increased. People were more concerned about their health and family and less concerned about leisure and friends.

Cao *et al* (2020) evaluated the mental situation of 7.143 college students during the pandemic of COVID-19 in China and observed that 0,9% of the respondents were with severe anxiety problems, 2,7% with moderate anxiety and 21,3% with light anxiety. Having family or friends with COVID-19 were the main factor of increasing their anxiety, as well as the economical effects and daily life, and college activities delays were positively associated with anxiety symptoms. The social support was negatively related to the level of anxiety. Wang *et al* (2020) performed an online transversal study with 1.210 respondents from 194 chinese cities, where they found that 53,8% of the respondents classified the psychological impact of COVID-19 outbreak as moderate or severe; 16,5% reported moderate to severe depressive symptoms; 28,8% reported anxiety symptoms from moderate to severe and 8,1% reported stress levels from moderate to severe. They found that specific health informations, updated and accurate (like treatment and local situation of the outbreak) and special measures of precaution (like washing the hands and using masks) were associated to a lighter psychological impact of the outbreak and to low levels of stress, anxiety and depression ( $p < 0,05$ ). Lai *et al*. (2020) did measurements of the mental health of 1257 healthcare professionals in 34 chinese hospitals equipped to treat the COVID-19 patients, from January 29th to February 3rd 2020.

Frame 1. Articles used in the integrative review

	AUTHOR/DATE/PLACE	METHODOLOGY	GOALS	RESULTS
1	Wang, Wang, Yang, 24/04/2020 - China	Case study	Report the causes, clinical manifestations and preventive measures of COVID-19 psychological impact in Chinese.	<ul style="list-style-type: none"> <li>- The prevalence of COVID-19 in China had a significant psychological impact on affected and unaffected people.</li> <li>- The mental disorders related to COVID-19 were mainly anxiety, depression, solitude, stress and fear, excitement or a combination of all these factors.</li> <li>- A person infected by the new coronavirus, after endotracheal intubation and mechanical ventilation, suffered significant changes in mood, including momentary excitement and occasional irritability, besides the hallucinations, and was diagnosed as a carrier of a transient mental disorder.</li> <li>- Another patient who was not infected by the virus showed insomnia, irritability, screams, singing moments, pitching and excess of food intake after being isolated at home, diagnosed with psychological stress caused by the excessive fear of disease's dangers and social isolation.</li> </ul>
2	Li <i>et al.</i> , 19/03/2020 - China	Ecological study of 17,865 posts by active users on Weibo, before and after COVID-19 declaration in January 20th 2020.	Explore the impacts of COVID-19 on people's mental health; Help the political formulators to develop action politics and Help the clinicians to provide accessible services to affected people.	The results showed that negative emotions (like anxiety, depression and resentment) and the sensitivity to social risks increased, while the positive emotions score (like happiness of Oxford) and the satisfaction with life decreased. People were more worried about family and health than with leisure and friends.
3	Cao <i>et al.</i> , 20/03/2020 - China	Transversal study.  -Sample: 7,143 college students of medicine Changzhi	<ul style="list-style-type: none"> <li>- Evaluate the mental situation of college students during the pandemic;</li> <li>- Provide a theoretical basis for psychological interventions with college students.</li> </ul>	<ul style="list-style-type: none"> <li>- 0,9% of the interviewees were with severe anxiety, 2,7% with moderate anxiety and 21,3% with light anxiety.</li> <li>- Living in urban areas (OR = 0,810, IC95% = 0,709 - 0,925), having family financial stability (OR = 0,726, IC 95% = 0,645 - 0,817) and living with parents (OR = 0,752, IC95% = 0,596 - 0,950) were factors of protection against anxiety;</li> <li>- Having family or friends infected by COVID-19 was a risk factor to increase anxiety (OR = 3,007, IC 95% = 2,377 - 3,804);</li> </ul>
4	Wang <i>et al.</i> , 06/03/2020 - China	Transversal study  -Sample: 1210 interviewed from 194 Chinese cities.	Search the general public in China to understand better the levels of psychological impact, anxiety, depression and stress during the initial stage of COVID-19 outbreak.	<ul style="list-style-type: none"> <li>- 53,8% of the interviewees classified the psychological impact of the outbreak as moderate or severe.</li> <li>- 16,5% with moderate or severe depressive symptoms. 28,8% with moderate or severe anxiety symptoms. 8,1% with moderate or severe stress levels. 84,7% of the interviewees spent 20 to 24 hours a day at home. 75,2% were worried about family members who got COVID-19. 75,1% were satisfied with the quality of health information available. - Specific information about health, updated and precise, as well as special measures of precaution were associated with a lower psychological impact of the outbreak and lower levels of stress, anxiety and depression (p &lt; 0,05).</li> </ul>
5	Lai <i>et al.</i> , 23/03/2020 - China.	Transversal study, stratified by region, collected demographic data and measurements of the mental health of 1257 healthcare professionals in 34 hospitals from January 29th to February 3rd 2020 in China.	Evaluate the severity of the results in mental health and its associated factors between healthcare professionals who take care of patients exposed to COVID-19 in China.	Professionals reported symptoms of depression (634 [50,4%]), anxiety (560 [44,6%]), insomnia (427 [34,0%]) and anguish (899 [71,5%]). Nurses, women, healthcare professionals on the front line and those who work in Wuhan, China, reported more severe rates of mental health symptoms than other healthcare professionals.

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6	Zhang; Ma, 31/03/2020 - China	Transversal study as an online search offered in an online platform. Adults (age +18), with chinese nationality that lived in Jinzhou, Liaoning province, Continental China, during all the pandemic, including before COVID-19.	Investigate the immediate impact of the COVID-19 pandemic in mental health and in quality life between the residents in chinese places, at age 18, in Liaoning province, Continental China.	<ul style="list-style-type: none"> <li>- The average score of IES on participants were from 7,7 to 13,6, reflecting a light stress impact.</li> <li>- There was no difference on the IES average score between men and women (14,2 vs. 12,8, respectively) (P = 0,173). In general, just 7,6% of the participants had a score on IES <math>\geq</math> 26.</li> <li>- 52,1% of the participants reported that they felt horrified and apprehensive about COVID-19. However, participants majority (53,3%) didn't felt impotent regarding the pandemic.</li> <li>- The impact in lifestyle changes related to mental health: <ul style="list-style-type: none"> <li>• 67,7% of the participants reported that were pain more attention on their mental health after the pandemic;</li> <li>• 62,0% reported that were enjoying this time to rest.</li> <li>• The majority of the participants (64,2%) said that were spending more time to relax and more than half of the participants (59,7%) also reported that were spending more time exercising.</li> <li>• Participants that spent more time resting were more willing to have a average score on IES (P = 0,028).</li> </ul> </li> </ul>
7	Lee; You, 25/04/2020 - South Korea	Half structured online search four weeks after the first case confirmed in South Korea; 973 individuals were included in the analysis for risk of infection by COVID-19.	Guide the public as complete and active participants of the preparing to emergencies in public health, essential to a better resilience	<p>The majority of the interviewers reported that the chance of infection were "not too high not too low" (51,3%).</p> <p>The average score of severity were bigger than the susceptibilynoticed; 48,6% reported that the severity would be "high", while 19,9% reported that it would be "very high".</p> <p>Many interviewers reported that were taking precaution, 67,8% reported that were always cleaning their hands and 63,2% reported that were always wearing facial masks while were outside. About 50% reported that they canceled or postponed social events and 41,5% were avoiding crowded places.</p> <p>Having precaution associated with the perception of risk and efficiency of behavioral answer.</p>
8	Mazza, et al, 02/05/2020 - Italy	Online search performed between March 18th and 22nd 2020 to 2766 participants, analyzing associations between sociodemographical variables; personality traits; depression; anxiety and stress.	Establish the prevalence of psychiatric symptoms and identify risk factors and protect the psychiatric suffering of general population	<p>67,3% (n = 1859) of the participants had an average level of depression, 17% (n = 470) were in the high range and 434 (15,4%) in the extremely high range. About anxiety, 81,3% (n = 2247) of the interviewers had average level, 7,2% (n = 198) were in high range and 318 (11,5%) on extremely highrange. About stress, 2012 (72,8%) of the interviewers were in the average range, 404 (14,6%) in high range and 347 (12,6%) in extremely high range. Female, negative affect, detachment, as well as having a family member or a friend infected or going out to work were associated to higher levels of depression, anxiety and stress.</p> <p>Ultimately, those with family member young and infected that had to go out to work presented higher levels of anxiety and stress, respectively.</p>
9	Greenberg et al, 26/03/2020 - United Kingdom	Collective experience report/ public material review.	Establish measures that the health managers need to apply to protect the mental health of the team.	<p>The healthcare professionals have more chances to suffer moral injuries and mental health problems by dealing with COVID-19 challenges.</p> <p>The health managers need to take proactive measures to protect the mental welfare of the team and should be frank about the situation in wich the employees will probably be exposed to.</p>

The professionals reported symptoms of depression, (634 [50,4%]), anxiety (560 [44,6%]), insomnia (427 [34,0%]) and anguish (899 [71,55%]). The authors concluded that the protection of healthcare professionals is an important element of public health measures to strike the COVID-19 epidemic. Greenberg *et al.* (2020) in a report of collective experience in United Kingdom, versed about the mental health of healthcare professionals during this pandemic. They pointed that these professionals are in a bigger risk of moral injuries and mental health problems when dealing with the COVID-19 challenges. They concluded that the health managers need to take proactive measures to protect the mental welfare of the team.

Zhang and Ma (2020) performed an online transversal study with 263 participants (106 men and 157 women), adults, with chinese nationality and found that 7,6% of the participants had a punctuation on IES  $\geq$  26, indicating negative impact on the mental health of this part of the population. About the impact of the changes on the lifestyle, the majority is paying more attention on their mental health after the pandemic, spending more time to rest and relax, exercising more, with bigger tendency to a lower punctuation on IES. Another study included in this review is Lee and You's (2020) one, they did an online search half structured in South Korea, with 973 individuals with risk of infection by COVID-19. This study

confirmed the significance of psychological answers, to which they joined to the behavioral answers and influenced significantly the level of the public preparation to emergencies in public health related to COVID-19. Mazza *et al*, 2020, through an online search performed in Italy, with 2766 participants, found high levels (17%;  $n=470$ ) and extremely high levels (15,4%;  $n=434$ ) of depression; high levels (7,2%;  $n=198$ ) and extremely high levels (11,5%;  $n=318$ ) of anxiety and high levels (14,6%;  $n=404$ ) and extremely high levels (12,6%;  $n=347$ ) of stress. Female gender, negative affect, detachment, as well as having a friend or a family member infected or even having a family member that has to get out to work, were associated with the highest levels of depression, anxiety and stress.

## DISCUSSION

The fact that the majority of the articles are from China is a relevant data for this study since, beyond the fact that the COVID-19 outbreak happened there, it shows the Chinese quickness in noticing the greatness of the problem and starting the studies about it. By this, they presented to the world strategies used to face the pandemic, well succeeded or not, that guided the politics used in other countries. The inclusion of mental health and psychological aspects regarding the pandemic in the studies also reflect the Chinese sensibility to this fundamental aspect during challenging situations like the one world's facing now. Allied to this fact, the Chinese National Health Commission published, since January 2020, many guiding documents to help intervene in COVID-19 emergency psychological crisis. Starting then the implementation of many mental health online services to needy people during the outbreak in China (Liu *et al*, 2020). Regarding the public, it was noticed that China presented interest in study varied categories, mainly the general public, but also approached the mental health of college students and healthcare professionals. The healthcare professionals public were also used as theme of studies performed in United Kingdom, showing the importance of looking to the mental health of these professionals that are in the front line against this invisible enemy that's so overpowering, risking their own lives to save the others. From those mentioned studies about the mental health of healthcare professionals, Lai *et al* (2020) found high levels of depressive symptoms among the participants, besides other symptoms, revealing an alert to the mental health of these professionals. Greenberg *et al* (2020), reported that these professionals have higher risks to develop mental health problems by dealing with COVID-19 challenges. The results found in these studies are similar with the data found in studies about SARS (Severe Acute Respiratory Syndrome) in 2003, when was found that, in different levels in China and in Taiwan, the healthcare professionals anxiety levels increased reacting about cases of other healthcare professionals that got sick or died by SARS. As a result, the healthcare professionals become more unwilling to work and with anxiety about the increased stigmatization and loss of confidence about their own communities (Schwartz, King, Yen, 2020). While the world stopped because of COVID-19, the healthcare professionals were the only ones that continued to work and kept direct contact with infected patients, witnessing the steep number of death and having to make important choices to save lives. All those facts can harm their mental health and add to cases of depression and anxiety. As presented in Wang's study *et al* (2020), in China, there's an interconnection between the access

to updated and precise informations and a lower psychological impact of the outbreak and even lower levels of stress, anxiety and depression. The absence of precise, transparent and right informations about the outbreak's situation can result in serious risks to population's physical and mental health. The incongruity of data and the divergency of facing strategies against the pandemic generate uncertainties and increase the insecurity feeling, bringing individuals to take risk attitudes to their health and to the health of others. In Brazil, the Health Ministry (Ministério da Saúde), in the beginning of June 2020 (pandemic height in Brazil) decided to adopt the counting of deaths by COVID-19 from the date of occurrence, not by the notification of death cause. This measure result in information failure, generating fake reality about the pandemic evolution in the country, as the delay of tests realization and results brings the verification of the disease days after the patient death. This damage the application of more suitable measures to control the current situation. This decision was revoked by the government after many critics and by the determination of Supremo Tribunal Federal do Brasil (Martins, 2020). Another study points that, during the current outbreak of COVID-19, China responded quickly to healthcare professionals psychological pressures. The second Xiangya hospital from Central-South University developed a detailed plan of psychological intervention, with actions like online courses to guide the medical team about dealing with common psychological problems; and psychological interventions that leads to individual and group activities to release the stress. However, these services of psychological intervention meets obstacles, as the medical team didn't want to participate in the activities, either individual or groupal ones. The intervention were, then, adjusted to meet the professionals needs, resulting in a bigger adhesion of the professionals. Keep the mental health of employees is essential to control the infectious diseases (Chen *et al*, 2020).

The impact of COVID-19 in the lifestyle changes related to mental health, reported by Zhang and Ma (2020), reflects the positive point of view that, during a pandemic, with the imminent fear of death, people start to value their lives, start taking care of their health, start looking for relaxing activities and exercise more often. Although evidences suggests that practicing physical activities increase the resilience and decreases the risks of depressive and anxious symptoms (Fiocruz, 2020), in the study performed by Zhang and Ma (2020), not just people have presented positive changes in their lifestyles and received more social and familiar support, the participants haven't been informed about the virus severity, what may have contributed to a smaller psychosocial impact over the pandemic in the studied population. The importance of the psychological answers associated with the behavioral answers confirmed by Lee and You (2020) study, shows the importance of those reactions as factors to protect individuals health. How bigger the perception about the severity of the situation, bigger the protection, looking for right measures to avoid COVID-19 contamination. Once again is very important the transparency of epidemiological data of the pandemic. The research performed by Mazza *et al*, 2020, showed high levels of depression, anxiety and stress on Italians because of COVID-19, showing the relation with facts related to their close reality, as having a friend or a family member infected. This may show that as long as the infected or dead people are just numbers, other people don't feel impacted about it. But when the numbers became faces, names, feelings, the alert sign is on. Like it's necessary to get

close to their reality to recognize the danger and the damage caused by Corona Virus. The loss of family member can increase the sensation of vulnerability and psychosocial impacts of the pandemic. The contact with socio affective network it's one of the strategies to mental health care. When this network is exposed or lost, symptoms of stress, depression and anxiety can appear, as showed by the study above-mentioned.

## Conclusion

Concerning the analysis performed in the selected articles, it was found scientific evidences of COVID-19 impact on population's mental health in all the studies analyzed. China was the country with higher representation in the studies analyzed indicating, that besides the quickness of pandemic precautions, they showed sensibility to recognize the psychosocial aspects involved. The measures regarding mental health protection should be applied in many ways and pointed to individuals with or without COVID-19. Healthcare professionals need psychological support in their work hours as well as healthcare students and mourning families need psychotherapeutic support. Society need to receive clear informations about the disease and how to protect themselves physical and mentally over the pandemic. Although the outbreak is inevitable, it's impact can be lowered by an efficient management of events, according to Damir Huremovic (2019). This management includes universal approaches that can be internalized by the population. Updated and precise informations related to the outbreak, as well as quickness and congruence in governmental actions, relied in science and ethical principles, guide people's actions, generating the feeling of security, empathy and confidence while facing critical situations like the present one, impacting positively on population's physical and mental health.

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