

## PSYCHOLOGICAL AND COGNITIVE REACTIONS TO COVID-19

REAÇÕES PSICOLÓGICAS E COGNITIVAS À COVID-19  
REACCIONES PSICOLÓGICAS Y COGNITIVAS A COVID-19


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### ABSTRACT:

This work deals with the psychological and cognitive reactions that are established in individuals experiencing the COVID-19 pandemic in four perspectives, namely: social isolation, psychological factors, personality factors and behavioral methods, established interdisciplinarily within the scope of Social and Human Sciences and Public / Collective Health. It also presents partial results obtained with the development of bibliographic research aimed at studying the impact of COVID-19 in environments of communication, journalism and / or individual and collective social education.

**KEYWORDS:** Psychological reactions;  
Cognitive Reactions; COVID-19;  
Coronavirus; Public health.

### Introduction

The handling of a pandemic outbreak, in the context of the one presently ravaging the planet, involves full dedication and extremely intelligent planning. Fundamentally, a valid and trustworthy assessment of the probable risks are essential to fight the spread of the virus in different social segments. These, in turn, require different decision making.

The risk communication process, in this context, is one of the main public health tools, which aims to get the pandemic outbreak under control as soon as possible and with the least amount of disturbance. To achieve this goal, efficient risk communication is essential as one of the main psychological tools that any government should use. However, there is a general perception that health authorities are not paying due attention to this tool.

Risk communication involves providing the public with the information they need to make informed decisions about how to protect their health and safety. The important elements of the communication guidelines recommended by WHO (2005-8) can be summarized in five major recommendations: 1st) announce the pandemic as soon as possible, even with information that is still incomplete, in order to minimize the spread of

rumors, fake news and bad news. information; 2nd) provide information on what the public can do to make itself more secure; 3rd) maintain transparency to ensure public confidence; 4th) demonstrate what efforts are being made to understand the public's view, and the public's concern, about the pandemic; and 5th) assess the impact of communication programs to ensure that messages are being understood correctly and that guidelines are properly followed.

Risk communication also involves recommending appropriate hygienic practices, such as washing your hands with soap or hand sanitizer, covering the mouth and nose while sneezing or coughing, and most importantly, being aware of one's own hands, that is, taking care on not touching the eyes, nose or mouth, as well as cleaning household surfaces and wearing face masks. Research indicates that the spread of the respiratory virus can be reduced by frequent use of hand washing and mask use in public environments.

Additionally, another sphere in which risk communication is important would be that of social distancing behavior. This refers to interventions, recommended or mandated, issued by health authorities, with the goal of reducing the likelihood that infected people spread the disease to others. It can also include some of the following steps, depending on the severity of the pandemic outbreak: quarantine of infected people, closings of schools and workplaces, cancellation of public gatherings such as sporting events, concerts, theaters, movie theaters, shopping malls etc. The effectiveness of the risk communication process is also important in order to get people to increase their interpersonal space, maintaining a minimum distance of one to two meters in general, especially from people who show some trace of infection.

In order for social distancing to work, this must be done immediately, rigorously and consistently. Especially when it comes to children and adolescents, as these age groups contribute disproportionately to the spread of the infection. According to the North American Infection Control Agency, schools serve as "amplifiers" for seasonal influenza epidemics, with children playing a significant role in the introduction and transmission of the virus. Thus, schools and preschools are hotspots for the spread of such a disease.

Therefore, the Risk Communication tool is perhaps the most efficient and cost-effective method for managing pandemics in current times, as it helps other additional methods, such as vaccines, antivirals, hygienic practices and distance / isolation to be more efficient. But one thing is clear: psychological factors are important in the

development of risk communication messages and these factors determine the impact of such messages (Lima et al., 2020; Wang et al, 2020).

### **Behavioral methods**

Communicable diseases, such as the ones responsible for pandemics, have existed since the time when the human species was essentially in its hunter and gatherer stage. But it was only approximately ten thousand years ago, when man began to live in communities, and domesticate animals, that outbreaks of diseases such as malaria, tuberculosis, leprosy, influenza, measles and others, appeared (Lunn et al., 2020). Humans at the time had little, if any, immunity to their viruses and bacteria, and certainly no knowledge of how they could spread so easily. No one, around 1000 AD, could have imagined that it was microorganisms that caused these diseases. What has happened since then is that the more interactive civilizations became, forming cities and establishing trade routes, the greater the likelihood of an increasing pandemic.

In Modern Times, people started to not only move quickly and regularly, but also living in densely populated cities, these factors increased the risk and spread of viruses. Besides that, according to Dong (2020) the speed of the communication process, practically in real time, causes the media to overestimate the risk of panic, leading people, who may be infected, to travel from one place to another, in an attempt to prevent the disease. However, this displacement only contributes to the spread of the virus. Strictly speaking, in cases of pandemics, months or years pass before vaccines become available, even in the highly technological scenario in which we operate. In the meantime, clinics and hospitals may be overloaded, a fact that can be accompanied by the lack of human resources to provide social services, due to both demand and disease.

In truth, scholars of the pandemic trajectory, such as the current one, COVID-19, understand that our behaviors increase the possibilities of pandemic outbreaks, making it an almost catastrophic event. Many of us try to deal with untrue beliefs about health and illness in such a way that, in doing so, only potentiate human fears, anxieties and vulnerabilities, leading us to even disseminate it, unconsciously and quickly. In other words, these unhealthy health practices can, ironically, spread the pandemic across the globe.

As we are clearly observing with COVID-19, people do not have pre-existing immunity to the pathogens which cause pandemics. Efficient drug treatments are not available immediately. In Brazil, particularly, the insistent offer from the (currently militarized) Ministry of Health, chloroquine and hydroxychloroquine, despite medical and

scientific evidence which recommend not using them, are clear examples of inappropriate measures that are more harmful than helpful. Vaccines, if available, and behavioral methods, such as wearing a mask and quarantine, are first-line interventions to reduce the morbidity and mortality of a people (Duan, 2020).

Behavioral methods, namely, forms of behavior control and supervision, also include hygienic practices, such as washing hands, and social distancing, such as avoiding large social gatherings. Interestingly, in Lima et al (2020) public health agencies have devoted few resources to specifically address the psychological factors that influence emotional reactions related to a pandemic. Some of these are: fear, anxiety, stress and behavioral problems such as non-adherence to hygiene and social isolation practices, avoidance and stigmatization of infected people (Xiao et al, 2020).

However, health authorities neglect the psychological factors related to pandemic infections, even though there is a huge scientific literature indicating that these factors are the most important in the absence of effective drugs and vaccines. These factors often play a vital role, such as, adherence to vaccinations (if available) and social distancing (see case of São Paulo decreeing long holidays), both of which are essential behaviors to contain the spread of infection. Even the non-adherence to vaccination against COVID-19, when it created, will be a major problem even during the pandemic (Wang et al, 2020).

Thus, behavioral methods are legitimate tools to counteract the various social problems associated with the sequelae resulting from pandemic outbreaks of this magnitude (Lunn et al, 2020). In this scenario, we understand that health authorities, whether they operate at a municipal, state or national level, should pay more attention and detail to behavioral tools as endo, at the moment, the most effective in the absence of vaccines, drugs and treatments for this. The latter, of course, will be found, but the time it will take to be real will not be short, and the struggle for life will continue.

### **Coronavirus**

Since the end of December 2019, the Chinese city of Wuhan has registered a new pneumonia caused by COVID-19, which has spread to all Chinese provinces as well as around the world. On January 30, 2020, the World Health Organization (WHO), calling its members for an emergency meeting, declared that there was a global outbreak of COVID-19, which demanded immediate public policies of an international scope. In this context, according to the Behavioral Immune System (BIS) theory, people are likely to develop negative emotions (aversion, anxiety and depression) about the fact, as well as negative cognitive assessment for their self-protection. Threatened by potential diseases, these

same people tend, in general, to develop escapist behavior verified by their avoidance of symptomatic third parties, strictly obeying social norms of conformity. According to this theory, and similar ones, public health emergencies trigger more negative emotions, affecting cognitive assessments.

In order to explore the impacts of COVID-19 on people's mental health, Li et al. (2020), analyzed Weibos posts (Chinese word for microblogs) by 17,865 users, paying special attention to the frequency of words, as well as the scores of emotional indicators (anxiety, depression, indignation and happiness) and the scores of cognitive indicators (judgment of social risk and life satisfaction) of the data collected. The analyzes aimed to verify the differences in the same group of applicants before and after the declaration made by WHO. The results showed that negative emotions and sensitivity to social risks increased, while positive emotions and satisfaction with life decreased. Furthermore, people were more concerned with their family and health than with leisure and friends.

In turn, Lai et al. (2020), measured the degree of symptoms of depression, anxiety, insomnia and stress in 1257 health professionals, from 34 Chinese hospitals, between January 29 and February 3, 2020. For that, Chinese versions of the Health Questionnaire were applied Patient Scale, a Generalized Anxiety Disorder Scale, an Insomnia Severity Index and an Events Impact Scale. Of the total participants, 764 were nurses, 493 were doctors, 760 of whom worked in hospitals in Wuhan and 522 were health professionals on the front lines. The data showed that a large proportion of participants registered symptoms of depression (50.4%), anxiety (44.6%), insomnia (34%) and stress (71.5%). It is noteworthy that nurses, women, frontline workers and those working in Wuhan recorded more severe degrees of all measures of symptoms associated with mental health than any other workers in general.

Additionally, in Wang et al. (2020), we report the application of an Anxiety Self-Assessment Scale and a Depression Self-Assessment Scale in 605 participants. The data showed that the risk of anxiety for women was 3.01 times compared to that for men. Compared with people under 40, the risk of anxiety for those over 40 was 0.40 times higher. Compared to people with master's degrees and above, those with a bachelor's degree had a risk of depression 0.39 times higher. Compared to professionals, industrial workers and other employees were at risk of depression 0.31 times and 0.38 times higher than the general population.

Finally, in Qiu et al. (2020), an online questionnaire, called the COVID-19 Peritraumatic Stress Index, was applied, capturing the frequency of anxiety, depression, specific phobias, cognitive change, compulsive and escapist behavior, as well as physical

symptoms and loss of social functioning in last week, on a scale ranging from 0 to 10. A total of 53,730 valid questionnaires were obtained from 36 Chinese provinces. Of these, almost 35% experienced psychological stress and women showed higher scores than their male counterparts. Also, people between 18 and 30 years old, and above 60 years old, had higher scores on the questionnaire.

Together, these studies demonstrate that preventive interventions should be given to more vulnerable groups, such as young people and the elderly, in addition to special attention should also be given to health professionals directly engaged in the diagnosis, treatment and care of patients with COVID-19 (Duan, 2020).

### **Social isolation**

With the consolidation of COVID-19 as a major public health problem in China in January 2020, it quickly became a pandemic, and soon, approximately one billion Chinese, according to Brooks (2020), began to face several restrictions due to varying degrees of confinement, such as a ban on public transport, commerce and work, soon followed by quarantine on those returning from abroad, in which many people were prevented from working and traveling in the usual way. Similarly, countless other countries, albeit at different times, have adopted the social approach to contain the COVID-19 pandemic, to the point that several scholars report that the ideal social isolation rate in Brazil would be 40%. In reality, regardless of the nation in which this restriction was imposed, there has never been such a massive quarantine or isolation period involving millions of people simultaneously, without an end in sight. And this fact in itself is already an emotional and affective dimension that affects the resilience of every citizen's mental health (Xiao et al, 2020).

Certainly, social isolation is an important "vaccine" for the collective protection of physical health, preventing the spread of the virus. However, it is also true that the longer we are socially isolated, the greater the risks of being affected by psychiatric, psychological and cognitive disorders such as mood swings, depression, irritability, anxiety, fear, anger, insomnia, changes in appetite, as well as subjective well-being among others.

Considering the role of social isolation in the health conditions of adults after the total isolation determined by the Chinese government for a month, Dr. Stephen Zhang, from the University of Adelaide, Australia, and a team undertook a study (2020) to identify adults, with previously existing health problems, and others, which stopped working because of confinement, as being the most vulnerable to worsening physical and mental

health. To do so, they assessed the individual health of 369 adults living in 64 Chinese cities, which had varying degrees of confirmed coronavirus rates. The scales used were: Survey on Physical and Mental Health Functions, Psychological Stress Scale and Life Satisfaction Scale, all of them psychometric instruments already validated for the Chinese population.

Of all the participants, 27% worked in their offices, 38% worked at home and 25% stopped working due to the virus outbreak. The data categorically revealed that those who stopped working registered worsening in physical and mental conditions, as well as, the highest level of stress. In addition, the severity of COVID-19 in the city in which these individuals lived predicted their satisfaction with life, pointing to a relationship that is contingent on the chronic health problems pre-existing in these individuals and also dependent on the number of hours spent on the practice. physical exercise. In other words, adults who stopped working during the pandemic outbreak experienced a worsening of physical and mental health conditions, in addition to becoming more stressed.

In the words of Dr. Zhang (2020), the data show the need to pay attention to the health of people who were not infected with the virus, especially those who stopped working during the outbreak and were in total isolation. The authors also point out that, physically active people, may be more susceptible to subjective well-being during the outbreak. As a result, public health policies should consider introducing restrictive measures to contain COVID-19 that can benefit the understanding of such implications for the health and subjective well-being of those involved.

### **Psychological factors**

According to Taylor (2019), the current methods used to manage pandemic outbreaks mostly consist of behavioral or educational interventions, aimed at promoting adherence to vaccination programs, hygiene practices and social distance, rather than other things. By their very nature, in such procedures, various psychological factors play a key role in achieving some degree of success, since excessive emotional stress, which is associated with potential for actual infection, becomes a problem of great clinical and public significance. In addition, psychological factors are relevant to understanding, and addressing, the destructive behavioral patterns that can arise as a result of serious and widespread infection. We will then briefly describe some of these psychological responses to an epidemic.

The first reactions are those associated with damage, loss and change. Many people are resilient to stress, for many who live with epidemic outbreaks of countless other events, no less stressful, will emerge over the course of living with people affected by COVID-19, or subject to the groups most vulnerable to it<sup>\*\*\*</sup>. In this context, fear will weaken some more intensely than others, while third parties will try to seek the emotional balance demanded by the situation. Experts even claim that the psychological trauma is likely to be much greater than the medical trauma per se. That is, the psychological effects of the pandemic will be more pronounced and widespread, as well as lasting, than the somatic effects of the infection itself. To the point that, for some, the psychological effects of a COVID-19 type epidemic will persist long after they have recovered from the virus, as well as, for other people, also involved in the care of others affected, to pass the same.

Obviously, people react to psychological stressors, such as fear, indifference, fatalism, anxiety, depression and the like, very differently from each other. Among these, according to Cyrus et al (2020), some may become so anxious that they experience significant clinical levels of stress, avoidance and functional impairment, even reaching such a high degree of such behavior that they require specific treatment for their emotional disorder.

Repetitive checking of vital signs and measurement of symptoms associated with COVID-19 may occur in response to the emerging threat of infection. In turn, excessive checking, which though clinically unnecessary, characterizes people obsessed with their own health. Such behaviors can, however, overburden the health system, as has been happening in different hospitals or UBDSs in different Brazilian municipalities, some of which are already overcrowded and which unfortunately are having to establish criteria in choosing who should be hospitalized or not.

Still according to Taylor (2019), mental disorders can be triggered, or exacerbated, by stressful events related to the pandemic, including mood, anxiety and post-traumatic stress disorders. The latter can even be aggravated by exposure to mortality caused by the pandemic, including deaths of close and other vulnerable relatives. Likewise, severe depression or mourning can occur in people who have lost close relatives. Also, feelings of guilt arising from cases of individuals believing that it was possible to save a loved one who did not make it, as well as for having accidentally spread the virus.

Another set of psychological reactions refers to the desperate search for miracle cures and folk remedies. A fact found by researchers is the existence of individuals who, in the face of a real danger, such as contamination by COVID-19, are highly irrational in their decision making. In these cases, people desperately look for folk remedies to protect



their loved ones, including different teas, vinegar and salt baths, and abuse of tobacco and alcoholic beverages, in addition to excessive consumption of vitamin C and D pills that end up disappearing from pharmacies. It is also interesting that, during the pandemic, individuals engage in all types of superstitious behavior, hoping to keep themselves and theirs safe. Novenas (catholic prayer), offerings, promises, images, and punishments and other similar rites are arranged in order to achieve a cure for the problem.

In times of pandemic, Taylor (2019) notes, therefore, that anxious and depressed, or psychologically disturbed people, are more likely to act desperately to prevent themselves and their loved ones from becoming infected. Consequentially, a great search for substances and miraculous elements is expected, accompanied by an exacerbation of negative behaviors, during the epidemic outbreak. Our reality has mirrored that precisely. Death, in this scenario, becomes generalized as a mere statistic.

### **Social psychological factors**

Beliefs, fears and worries about illnesses, like diseases, spread through social media in a collective fashion. In turn, beliefs also influence the spread of the infection. If there is a widespread spread of acceptance of the importance of "hand-washing behavior", for example, this will mitigate the pandemic's progression. Generally, beliefs and fears spread in three main ways: (1st) transmission of information, such as those spread through media coverage, such as texts and images, or as verbal information received from others, such as rumors and hoaxes ; (2nd) direct personal experiences, including conditioned events, such as exposure to trauma ; and (3rd) observational learning, such as witnessing others resisting against the response to some stimuli. Specifically, a rumor , as defined in the social sciences, refers to "a story, or part of information, of unknown reliability, transmitted from person to person", that is, improvised news spreading quickly when the demand for information exceeds supply, as occurs in periods of uncertainty regarding important topics, such as pandemic outbreaks, for example.

Rumors can spread when they help people find meaning in ambiguous situations, such as the threat of infection, offering guidance on how to face perceived risks, just as it happens on person-to-person advice (Taylor, 2019, *The Psychology of Pandemics*) . They can also appear anonymously, causing uncertainty about the credibility of the information. Traditionally, rumors have been disseminated orally, but now they are mainly spread through social and regular media. Whether they are true, false or mixed, the rumors can, as they progress, be diminished or simplified, with omission of details; the opposite also occurs. Once changed, they seek to be adjusted to the social stereotypes of

a population. Throughout a pandemic, rumors can be spread maliciously, or to promote stereotypes and stigmas, of infected people and regions.

In turn, observational learning reveals how it is possible to highlight how important your connection to emotions is, including fear, anxiety and aggression. Observational learning also involves acquiring information, skills and behaviors from observing the actions of others. Fears can be acquired through observational learning, such as seeing or hearing people showing fear of something, such as the fear of a pandemic. Observational learning can also include seeing frightened faces, noticing behavioral postures, listening to other complain due to misfortunes, hearing shouting, facing moving restrictions, vaccination campaigns, etc. Evidence also suggests that some combination of observational learning and information transmission plays an important role in fear relating to a pandemic.

In this context, the press tries to deal with a vast amount of new information, filtering and distributing it, in a few columns on daily newspapers and in a few bits in nightly news programs. Such news channels can both reflect and reinforce the community's anxieties and concerns. Television media, for example, has been constantly accused of exaggerating existing perils and even creating an exaggerated public panic or fear. Complicating this scenario even further, the exhaustive coverage generated by the media can also lead the public to manifest the most diverse reactions as they browse and consume content. An example? Some people react with excessive fear, while others simply dismiss the new reports as a gross exaggeration. Both types of reactions are very common.

The effect known as collective media fatigue (zoom fatigue) can then weaken the efforts of health organizations, as these attempt to contain the spread of the infection. In any case, sensational news can promote anxiety, fear and worry, leading to social problems which in turn lead to desensitization as a diminished emotional response in relation to negative media content sets in. People can follow the recommended health precautions during the initial phase of the pandemic, but they become relaxed over time when they desensitize themselves against the new reports released by the media. Concerning social media platforms, such as Twitter, Facebook, YouTube, etc., there is a great source of health information in the world, which has been allowing us to create very useful content aimed at controlling and preventing pandemic outbreaks, as well as publicizing health hazards throughout the pandemic.

However, there is a big problem in this regard: many users make decisions about what information to share and where to share, which selectively shifts the media's focus on some areas while ignoring other equally crucial ones, and that is when they are not

creating their own content, without any basis in valid scientific literature. This, of course, increases problems with the spread of excessive fear. Beliefs, rumors, misinformation and fear can then quickly through social media. Particularly, through individuals' social media content.

### **Personality factors**

In order to better understand the reasons underlying the various psychological reactions, manifested in reaction to, and throughout, a pandemic, it is important to consider people's personality and vulnerability factors. Scholars of pandemic psychology (Taylor, 2019) have suggested that several personality traits may be connected to the negative emotions associated with responses or reactions to stressors triggering pandemic outbreaks. One of these traits is negative emotionality, also known as neuroticism, a general tendency for people to become easily stressed by aversive stimuli. The literature reveals that people who score high on this trait often tend to experience negative emotions, such as anxiety, irritability and depression, in response to stressful factors. Negative emotionality is a risk factor for various types of anxiety and mood disorders, as well as, it is a factor associated with the person's general health. People who score high on the negative emotional trait also tend to misinterpret bodily sensations as indicators of serious illness.

The anxiety and harm avoidance traits are two other personality traits investigated in relation to pandemic outbreaks. The anxiety trait is the predisposition to experience anxiety. People scoring high in it tend to see the world as dangerous and threatening. On the other hand, damage avoidance refers to the tendency to avoid potential risk. People who score high in this trait tend to be fearful and worry excessively about the disease and its contagion. Harm avoidance and anxiety are traits usually correlated with anxiety disorders, with mood changes, obsessive-compulsive disorders, psychosomatic disorders and health anxiety.

Another trait investigated by Taylor (2019) has been the overestimation of the threat. People who score, or score high, on the trait of overestimation of the threat tend to overestimate the cost, the harm of the infection and the likelihood of aversive events, seeing themselves as being especially vulnerable to them. Overestimation of the threat is associated with a range of clinical conditions, particularly anxiety disorders and obsessive-compulsive disorders. Studies have shown that overestimating the threat predicts anxiety in response to outbreaks. Another interesting feature that has been investigated is the uncertainty about intolerance. People with a high level of uncertainty about tolerance

have a strong desire for predictability, tending to strongly endorse statements such as "I am always ahead to avoid surprises". Also, a high degree of intolerance to uncertainty is associated with disorders related to anxiety and mood, as well as obsessive-compulsive disorders and the tendency to worry excessively about themselves. One way to reduce such intolerance to uncertainty has been the adoption, by these people, of behaviors such as continuous checking and testing to ensure that they are in good health and have not contracted the infection.

Finally, there is a trait known as unrealistic optimism. People with this trait tend to strongly believe that positive events occur more likely to them than to others, while negative events occur more to others than to them. Such people also tend to underestimate the dangers, such as, for example, diseases and difficulties in general, whose existence they accept, but without believing that they can be affected by them. They tend to unrealistic optimism, seeing themselves as not susceptible to infection.

Thus, people with high scores on these traits are more likely to become more stressed by the threat posed by the Coronavirus pandemic. Particularly in relation to health-related anxiety.

### **Anxiety to health**

Health Anxiety refers to the tendency to become alarmed by health-related stimuli, including, but not limited to, infectious diseases, ranging from mild to severe and can be either a condition or a trait. When drawn, it is a relatively long-lasting trend. According to Taylor (2019), some people have very low levels of health anxiety. And their lack of concern about health risks can lead to maladaptive behavior, such as neglecting to take the necessary precautions about their own health. Excessively low health concerns can be associated with an unrealistic bias of optimism. People who are not concerned about infections tend to neglect the recommended guidelines for good hygienic behavior, such as washing hands after using toilets, tending to be non-adherent to social detachment.

On the other hand, Health Anxiety at a high level is characterized by an exaggerated anxiety, or concern about one's own health. People with excessively high levels of health anxiety, compared to less anxious people, tend to become overly alarmed about all types of perceived threats in relation to it, overestimating the probability and severity of becoming ill. The perception of vulnerability can then contribute to the development of excessive health anxiety. Several cognitive and behavioral factors play an important role in the severity of health anxiety. Some of them are: misinterpretation of health-related

stimuli, distorted or poorly adapted beliefs, processes of attention and memory, and poorly adaptive behaviors. Let us deal with them.

Regarding misinterpretations of health-related stimuli, it is assumed, in Taylor (2019), that excessive anxiety about health is triggered by misinterpretations about health-related stimuli. Such stimuli include: (1) bodily changes or sensations that may or may not be indicative of illness, such as fatigue or muscle pain; (2) direct observations related to other people's health, such as watching others cough, or sneeze, as well as, watching others become concerned about being sick; and (3) more abstract forms of health-related information, such as warnings from a doctor, advice from friends or family members, and information from social or mass media, such as reports in newspapers about specific diseases.

Regarding distorted or poorly adapted beliefs, interpretations of health-related stimuli are influenced by mnemonic processes such as reminiscences of past experiences (My muscle pains in the past have always meant that I was getting sick) and long-lasting beliefs (My stiffness in neck is always a sign of serious illness). Also learned experiences, such as being hospitalized as a child, can lead some people to mistakenly believe that their health is fragile. Thus, people with excessive Health Anxiety tend to believe that all bodily sensations, or even bodily changes, are potential signs of illness. In relation to attentive processes, these are important cognitive factors in modeling the intensity of health anxiety. People with excessive Health Anxiety tend to be hypervigilant to body changes and sensations, that is, they pay close attention to their own bodies, and are likely to perceive benign body concerns.

Regarding poorly adaptive and adaptive coping, he considers that people's interpretations influence or not whether they seek only treatment, or appropriate treatment. People may have erroneous beliefs about what constitutes effective treatment. Some believe that they only need symptomatic relief, such as cough suppressant medications, which can be ineffective if the underlying disease needs to be treated. In addition, people with a high level of Health Anxiety sometimes see doctors' offices more as sources of disease than as auxiliary resources for disease relief. People with excessive health anxieties, particularly about infections, tend to engage in poorly adaptive safety behaviors, such as excessive hand washing and repeatedly seeking confirmation of their good health. People with excessive Health Anxiety also tend to engage in "doctor shopping sprees", that is, the search for consultations with various doctors, in order to guarantee themselves that they are not infected during a pandemic. Obviously, such

behaviors overload the health system, increasing the likelihood that the patient may receive conflicting or confusing medical advice.

Finally, treating health anxiety involves managing dysfunctional beliefs and maladaptive behaviors. In these cases, any management involves a process of reducing the suffering of people with Health Anxiety, because some of them, with a lower level of this disorder, may fail to engage in basic hygiene measures, or to simply wash their hands, because they do not realize that their health is at risk, while others, conversely, engage in maladaptive behaviors, such as excessive avoidance, being more likely to engage in search of persistent, repetitive and unnecessary medical care.

### **Final considerations**

The most effective tools currently available for managing a pandemic include the risk communication process, vaccines and active medications, hygienic practices and social detachment. Underneath these tools and the fundamental condition for them to reach the planned objectives are the psychological factors that play an essential role in the success or failure of each of these methods.

Strictly speaking, psychological factors are important in the development of risk communication messages and, in addition, these factors determine the impact of such messages. Psychological factors are also important in ensuring adherence to vaccinations, hygienic habits and social distancing.

It has been clear that non-adherence to hygienic practices, social detachment (isolation) constitute a major problem throughout the pandemic, perhaps, until the emergence of drugs that quickly relieve symptoms, continuous and regular testing, and the winning of vaccines for use on a large scale (Xiao et al, 2020).

Among the psychological factors are the personality characteristics that have been shown to be predictors of the severity of pandemic outbreaks

The purpose of risk communication is to provide the public with the necessary information in order to allow it to make more informed and qualified decisions about appropriate actions needed to protect people's health and safety. Ideally, risk communication should contain information regarding coping methods, strategies for dealing with stigmatization in general, guidance on how to deal with stress when assuming new roles in the family due to social distancing or loss of loved ones, guidance on building resilience; and psychoeducational materials on grief, anxiety and depression, helplessness, apathy, frustration, anger and volatility, as well as publicizing actions on

hygiene practices, social distancing, as well as on adherence to the practice of vaccination when it becomes available.

Based on Taylor (2019, *The Psychology of Pandemics*), in order to be effective, risk communication must contain information that is perceived as credible and made available in a way that encourages adherence to the recommendations contained in the written or oral messages, guidelines, and/or imagery. People are more likely to adhere to the health-related recommendations if the following conditions are met: 1st) if one believes that the disease is serious and that the recommended actions are effective to reduce the risk of infection; 2nd) if one is concerned with contracting the disease and believes that they are susceptible to infection; 3rd) if health authorities are perceived as reliable and provide clear and sufficient information; and 4th) if there are few perceived barriers to implementing recommended health behaviors.

Efforts to persuade people to adopt preventive behaviors, such as hygienic practices, distancing or social isolation, as well as wanting to be vaccinated, may involve logical or emotional appeals. Logical, refer to facts and statistics; emotional, aim to evoke emotions to motivate behavioral changes. Emotionally appealing messages often include vivid and concrete elements, evoking images and personal characteristics. Various surveys indicate that emotional appeals, compared to logical appeals, are better remembered and are more likely to encourage people to seek health-related information. Emotional appeals seem to exercise their power due to induced emotions, such as fear, being used by people to estimate the risk of a given infection. In other words, an emotional appeal that elicits fear will tend to increase the perception of a given risk by an individual.

Another important aspect, which affects the perceived risk, is the psychological distance, a concept that refers to the perceived distance between the ego and an object or experience. For a given health threat, for example, a given virus, the shorter the perceived psychological distance, the greater the perceived threat. The psychological distance varies over four dimensions, namely: 1st) spatial distance, that is, the physical proximity of the threat of the disease to the person; 2nd) temporal distance, which refers to two temporal parameters: (a) how fast the threat can reach them and (b) the temporal origin, or how recent the threat is; 3rd) social distance, which is defined by the nature of social relations. In other words, people are more likely to contract pathogens from people who are socially close to them, as they are contact more often; and, finally, 4th) probabilistic distance, which refers to the chance of finding an infectious agent, determined by factors such as the prevalence of agents in the environment.

It is also important, in risk communication, to handle the rumors and hoaxes, which can quickly be spread, including fake news that are circulated as they contain bad information and disagreements when disclosing real events, thus leading to chaos, such as was observed with a statement from a director of the World Health Organization (WHO), which was misinterpreted by many, regarding the possibility of contagion by asymptomatic individuals. In fact, the efficient and rapid refutation of false rumors by health officials reduces uncertainty and other negative psychological reactions associated with it. These authorities should indeed reflect confidence and knowledge in the area.

Finally, it is important to make it clear that the risk communication of programs involving community adherence to preventive actions must be conducted considering the cultural sensitivity of a community, as credible and competent information regarding public health must be conveyed in various types of media by both national and international leaders.

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**RESUMO:**

Este trabalho trata das reações psicológicas e cognitivas que se estabelecem em indivíduos vivenciadores da pandemia da COVID-19 em quatro perspectivas, a saber: isolamento social, fatores psicológicos, fatores de personalidade e métodos comportamentais, estabelecidas interdisciplinarmente no âmbito das Ciências Sociais e Humanas e Saúde Pública/Coletiva. Apresenta-se, também, resultados parciais obtidos com o desenvolvimento da pesquisa bibliográfica voltada ao estudo do impacto da COVID-19 em ambientes de comunicação, jornalismo e/ou educação social individual e coletiva.

**PALAVRAS-CHAVE:** Reações Psicológicas; Reações Cognitivas; COVID-19; Corona vírus; Saúde Pública.

**RESUMEN:**

Este trabajo aborda las reacciones psicológicas y cognitivas que se establecen en las personas que experimentan la pandemia COVID-19 en cuatro perspectivas, a saber: aislamiento social, factores psicológicos, factores de personalidad y métodos de comportamiento, establecidos interdisciplinariamente dentro del alcance de las Ciencias Sociales y Humanas y Salud pública / colectiva. También presenta resultados parciales obtenidos con el desarrollo de la investigación bibliográfica dirigida a estudiar el impacto de COVID-19 en entornos de comunicación, periodismo y / o educación social individual y colectiva.

**PALABRAS-CLAVES:** Reacciones psicológicas; Reacciones cognitivas; COVID-19; Coronavirus; Salud pública.