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Phobia and Fear of COVID-19: origins, complications and management, a narrative review

M. Heiat[1], F. Heiat[2], M. Halaji[3], R. Ranjbar[4], Z. Tavangar Marvasti[5], E. Yaali-Jahromi[6], M.M. Azizi[1], S. Morteza Hosseini[7], T. Badri[8]

Key words: Corona phobia, Fear, Anxiety, Nosophobia, Social Panic
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Abstract

Introduction. *The outbreak of Coronavirus Disease 2019 (COVID-19) have changed into a global crisis. Psychologically, this process of alteration can lead to feelings of fear, insecurity, and anxiety. This fear and anxiety can be caused by a variety of factors. However, due to the lack of extensive studies at this time, there are little data on these conditions related to COVID-19. Therefore, in this narrative review, we have tried to identify the most important possible causes of anxiety and fear due to this disease, based on logical shreds of evidence. Then we tried to discuss the consequences and ways to manage and prevent them.*

Methods. *The current focus was on three major axes of corona-phobia, fear and anxiety. PubMed, Science Direct, Scopus, Google Scholar and authoritative news and information sources were considered as the data sources.*

Results. *Findings from the analysis of the results revealed that, in addition to the real and the logical reasons which belong to the intrinsic properties of SARS-CoV-2, some misleadings and misconceptions induced by media, governmental policies, public awareness level, and non-scientific speculations and contradictory data expressed by experts, researchers and scientific societies, could provide the way for the development of corona-phobia, and fear.*

Conclusions. *Each of these causal components, in its place, leads to some degrees of psychological disorders and subsequent consequences and complications. Finally, here we reviewed, summarized the previous research findings on how to prevent and manage this type of psychological disorder, and made comparisons.*

[1] *Baqiyatallah Research Center for Gastroenterology and Liver Diseases, Baqiyatallah University of Medical Sciences, Tehran, Iran*
[2] *Department of Physical Education and Sport Sciences, Fasa Branch, Islamic Azad University, Fasa, Iran*
[3] *Department of Microbiology, School of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran*
[4] *Molecular Biology Research Center, Systems Biology and Poisonings Institute, Baqiyatallah University of Medical Sciences, Tehran, Iran*
[5] *Department of Psychology and Educational Sciences, Fasa Branch, Islamic Azad University, Fasa, Iran*
[6] *Student research committee, Shiraz University of Medical Sciences, Shiraz, Iran*
[7] *Medicine, Quran and Hadith Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran*
[8] *Behavioral sciences Research Center, Lifestyle institute, Baqiyatallah University of Medical Sciences, Tehran, Iran*

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Introduction

Fear and phobia

"*Fear*" is an unpleasant instinctive feeling that is felt when a person is threatened by an external or internal stimulus. In fact, fear is a rational reaction to life threatening events (1). It can appear in a variety of physical forms. In other words, fear is an unpleasant internal emotion the source of which is known and can be a threat to a person's behavior or physiological system (2). This emotion, however, can sometimes manifest itself in an overly abnormal, irrational, and uncontrollable way caused by a real or unreal thing or situation. This is when we refer to fear as "*phobia*", as one of the anxiety disorders. So, phobia is rooted in the individual's subconscious (1).

Threatening stimuli, such as the outbreak of a disease can cause a fear response in the amygdala. It also releases stress hormones, such as cortisol and adrenaline (3) and stimulates the sympathetic nervous system. Another area that is closely related to the amygdala is the hippocampus. The hippocampus and the prefrontal cortex help the brain interpret the perceived threat (4).

Fear of diseases

Fear of disease or "*Nosophobia*" is a type of psychological disorder in which a person is afraid of getting a particular disease. People with this type of fear, even if they do not have any specific physical symptom, are constantly worried about being infected by a perilous disease. If anxiety about the disease is so severe, it could disrupt a person's daily life so that the person could be said to be suffering from degrees of Nosophobia (5). The risk of developing this disorder is higher in the current situation, when we are facing a coronavirus pandemic. Mood characteristics can be the cause and the controller of this disorder.

Groups of people at the risk of such disorder are: 1) Nervous people (self-critical, introverted, and narcissistic) and those who are sensitive to the events happen around; 2) People that do not easily ignore life issues so that anything can be a problem for them; 3) people who are very interested in processing matters; and 4) individuals with very low tolerance thresholds (6).

Psychological situation of COVID-19

Findings of recent studies have confirmed the meaningful psychological impact of the COVID-19 on people such as significant concerns among people in various countries, including Canada and the United States. About one-third of Canadians are concerned about COVID-19 and the same statistics are true for Americans. In surveys, a quarter of Americans are concerned more about the coronavirus than the 2014 Ebola virus outbreak (7).

Such psychological signs have been also observed among Chinese people in a recent survey to the extent that more than half of the respondents suffered from a moderate-to-severe psychological effects caused by the fear of this disease and about 75% of them are worried about their family members (8).

It seems that the effect of fear and anxiety on COVID-19 is multifaceted so that the person not only may cause problems for himself but also tends to harm others' well-being to alleviate the anxiety (9). Indeed, this causal COVID-19-related fear/anxiety is largely unknown due to the novelty of the disease. Therefore, understanding the influencing factors causing and exacerbating the anxiety and fear of COVID-19 may help researchers perform interventions to reduce troublesome behaviors. This process, in turn, will improve the quality of life, social functioning, and mental health. It also helps the process of dealing with COVID-19 speed up.

Necessity and aims of the research

To date, the relationship between fear of the COVID-19 disease, its control, and treatment management have not been

specifically studied. However, based on some studies in this field, destructive cycle of anxiety and fear of the disease can lead to secondary abnormal manifestations in a person's behavior and make it more difficult to be treated, which eventually worsens the situation (9). Therefore, this study intended to provide comprehensive and fundamental information to pave the way for crisis management through finding the possible causes of panic over the COVID-19 outbreak and discovering a logical link between this disease and the anxiety factors.

Methods

Searching strategy and Methodology

The main objective of the present study was mining the most important factors in Corona fear and phobia. To this end, a primary brainstorming followed by a vigorous searching procedure was conducted. After a comprehensive evaluation of corona fear and phobia, a research committee reviewed the content of the primary research. Ultimately, following the overall literature findings and the practical experiences of the expert committee members, the most related keywords were selected while the focus was on three major axes of corona-phobia, fear, and anxiety. PubMed, Science Direct, Scopus, Google Scholar, and authoritative news and information sources were considered as the data sources. The most meaningful reports related to the topic were gathered using a keywords list consisting of (COVID-19 OR 2019-nCoV OR severe acute respiratory syndrome coronavirus OR SARS-CoV-2) AND (anxiety OR fear OR phobia) AND (origin OR complications OR management) etc. The obtained data were organized and the most relevant data were extracted, categorized, and integrated. Data and informations were eventually wrapped up in the three content categories of origins, complications, and management.

Results

A brief overview of the global Corona feature

Recently, the outbreak of the coronavirus-2 has attracted worldwide attention. Lots of people are being quarantined every day. No first-line medication and/or vaccine has been introduced so far. Masks and gloves, known as available tools to prevent the spread of SARS-CoV-2, are scarce on the world markets, etc. Psychologically, when the circumstance changes, people feel insecure, anxious, and fearful (10). Recent studies have suggested a significant psychological effect of the COVID-19 outbreaks on humans. In the following, we will look at the most important origins, complications, and anxiety management created by this horrible epidemic.

Origins of anxiety of COVID-19

Rational reasons

a) Mortality, Rapid transmission

The fatality rates in respiratory diseases, such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS) are 10% and 35%, respectively (11). However, the fatality rate of COVID-19 around the world has been reported between 1 and 2% (11). Here, the points to consider are the power of COVID-19 epidemic (12), rapid person-to-person transmission (12), its unknown origin at the beginning (13), and the high reproduction property of the causative agent (14). The wide age range (48 to 65 years) of mortality (11, 15) is also a reflection of difference and unknown faces of the SARS-CoV-2.

b) Prolonged incubation period and large number of carriers with no symptoms

The incubation period of this disease is almost long (2 to 27 days). In another word, over 80% of people infected with SARS-CoV-2 do not have any specific clinical

symptoms (16-18). People are anxious about being infected with the virus through people who have caught the disease but have no pathological symptoms (people in an incubation period).

c) Intrinsic viral secrecy:

Many of the ambiguities about COVID-19 regarding its mortality risk factors, incubation period, viral shedding, and various symptoms have not been well-clarified (15). Studies have shown that most of patients often have symptoms, such as fever, shortness of breath, and cough, and some others have gastrointestinal symptoms, such as diarrhea, vomiting, anorexia, and abdominal pain (19-22).

Moreover, some researchers believe that gastrointestinal symptoms in patients with COVID-19 are highly infrequent, while the presence of gastrointestinal symptoms in COVID-19 patients is reported to be between 5 and 50% (23-25). These observations could greatly increase the likelihood of different faces of the new coronavirus, which in turn could lead to panic at different levels of society. Symptomatically, SARS-CoV-2 does not end here; it has been also reported that 40% of patients lose their olfactory sense (26). Joob et al. (27) in their study observed additional clinical manifestations including rash, which can result in mistaking this disease for Dengue fever. These additional symptoms are making the situation more complicated.

d) Unknown origin

Lack of accurate information on SARS-CoV-2 animal hosts has become another factor giving rise to the complexity of issue. Scientific reports published so far include hosts, such as bats (28), pangolins (29), cats (11), and dogs (30). This uncertainty has exponentially increased the range of variables and complicated problem-solving.

e) Lack of specific vaccines and medications

Since the beginning of 2020, more than 50 drugs have been proposed by various research groups around the world as potential drugs for COVID-19 treatment (31); however, none of them has been identified as the first-line treatment. On the other hand, despite extensive research to create a vaccine, only a limited number of vaccines have been able to obtain emergency use authorization, and their use has been associated with serious side effects. However large scale vaccine production is only expected sometime in the years to come (12). All of these conditions can logically create fear in the society.

Policies

Policies on treatment restrictions for patients with coronavirus have caused concern among people due to a relative lack of medical resources. For example, according to a report in the Guardian (32), guidelines have been developed to suggest ethical behaviours to hospitals so that if the number of patients in need of equipment and ventilators exceeds the number of available devices, physicians will be driven to treat patients accordingly, which means to give priority to younger people and to those who are more likely to survive (32).

Another discussed policy is *quarantine*, which has both positive and negative consequences. Quarantine is often an undesirable experience for those who have to live it. Separated from the family, loss of free movements, uncertainty about one's physical condition, lack of sufficient information about illness, boredom, etc., will also cause psychological problems, including phobia about the disease so that suicides have even been reported during quarantine (33-35).

Knowledge and awareness

Another factor that causes fear of COVID-19 is ignorance and lack of sufficient knowledge about this disease (36). On the other hand, a large amount of correct and incorrect information about the disease

and the risk of contracting it are easily available on the web; this can add to people's confusion (37), inducing lack of control over the situation, negative experiences, exaggerated judgments about the disease risk. Fear of death and pain (2) can also cause corona-phobia.

People with a history of chronic illnesses, such as cancer, high blood pressure, diabetes, and coronary heart disease have lower levels of immunity than healthy people; so, COVID-19 has a more severe effect on them. These patients are aware of the higher risk they are exposed to and consequently they experience more fear and stress (2), which could be shared with their relatives.

Many people panic at the news of increasing lethality in patients, quarantine, border closures, travel bans, disruptions in the supply of goods and services, the rapid spread of the virus, and its possible persistence in the environment. This feeling can induce devastating effects on the global economy. On the other hand, every day disturbing news about the disease developments on media has led some people to believe that theories on virus spread are deliberate. These conditions and news could in turn provide a nourishment for social media activities (38).

Rumors have different forms. Some of them are related to the conditions of the disease and the ways in which the disease is transmitted, a group of them are related to the methods of prevention and treatment, and some others are related to the death rate. Other circulating rumors have also suggested that pets could spread the coronavirus, which has concerned many pet owners to the extent that some of them even abandoned their animals on the streets (39).

Contradictory statements of medical authorities and experts

In the COVID-19 epidemic, which is a new disease with unknown dimensions, the opinions provided by researchers can either change the course of public behaviors or correct them. But if these views are contradictory, they can cause confusion and distress to human societies. This anxiety manifests itself in multiple public behaviors. For example, conflicting data about drugs to treat COVID-19, which are sometimes employed against each other can increase the anxiety in society. For example, there was general agreement that patients treated with angiotensin-II inhibitors, angiotensin receptor blockers (ARBs), or non-steroidal anti-inflammatory drugs (NSAIDs) had shown an increase in death-to-case rates. But suddenly the FDA announced that there was no scientific evidence supporting that COVID-19 symptoms worsens when NSAIDs are used (40). Although there is no evidence supporting the idea that vitamins D, C, and Zinc can help COVID-19 be treated or reduce mortality in patients with COVID-19, some researchers have insisted that taking vitamins D, C, and Zinc can reduce the risk of death from COVID-19 (41) in the elderly with a weaker immune system.

The use of the face mask is another contradictory policy against COVID-19. Wearing mask was common in Asian countries, including South Korea, China, and Japan (42), to fight influenza while there were different opinions about who should wear it. According to Feng et al. (42) some researchers believe that everyone should wear a mask, while others believe that only people with COVID-19 symptoms in addition to treatment staff should use masks. Wong et al. (43) also stated that there is no need for everyone to use mask. Only people with mild symptoms of COVID-19 should use N95 face-mask. China, finally decided that masks are necessary for all people (42). This uncertainty and lack of a common standard and comprehensive protocol can lead – and this happened - to the community misconduct. This, on the one hand, could result in the basic health measures to be neglected; on the other hand, it can intensify

obsession and anxiety among people in every community.

In addition, such confusion could lead to shortage of mask supply for the healthcare system because of being excessively consumed by the population (44).

Complications of anxiety of COVID-19

Globally the rapid spread of coronavirus and its high mortality rate have caused great concern and anxiety throughout the world and increased and exacerbated mental disorders. In a study performed by Asmundson et al. (7) it was reported that one-third of Canadian citizens were highly concerned about COVID-19 and 7% of them had drastic concerns. This has led them to adopt exaggerated hygienic behaviors. In another study, it was reported that 33% of Canadian citizens did not trust the ability of Canadian health administration to control the disease. Another study in the US (45) showed that 66% of people believed that COVID-19 is a serious threat. 56% was deeply concerned about this disease and 26% believed that the American government does not take necessary actions to control the epidemic. Ren et al. (9) further reported that the COVID-19 epidemic has caused great fear in people who had blamed the infected subjects for spreading the disease. Moreover, the consequential phobia has led many people across the word to blame Wuhan citizens to a point that some countries called "Chinese virus" or "Wuhan virus" the SARS-Cov-2 (9). Additionally, in a study conducted by Lima et al. in Brazil (46), the public quarantine was considered as the major cause for dread and mental disorders. In addition, the elderly with previous mental weakness showed more intensive symptoms and needed strong interventions. Similarly, Wang et al. declared that 53.8% of people had considered the mental impacts of this epidemic from moderate to severe (8): 16.5% of people had moderate to severe symptoms of depression and 28.8% suffered from moderate to severe symptoms of anxiety. Brooks et al. reported that the stigmas in the health staff who has been quarantined during SARS and Ebola outbreak were significantly higher than the stigmas of the ones who had not been quarantined even if some of them lost their jobs (47).

The resulting complications by quarantine should not be ignored. Financial damages can also cause problems during quarantine because people are unable to work and have to stop their professional activities without previous warning. The consequences of these damages and financial instabilities seem to be persistent and can subsequently cause anxiety, stress, and anger for months after quarantine (48, 49).

However, the people who used to be quarantined due to a suspected infection with Ebola received a compensation, but many of them believed that the compensation was not enough and consequently they were not satisfied. Many of them had to rely on their families to survive, which was usually unacceptable for them (50). This fear of financial damages and the feeling of being unable to financially support spouse and sons can cause a phobia. The presence of fears and anxieties in such situations is normal to some extent. But if the stress response is activated in people and they are unable to control it, they will be prone to diseases. Remaining in emergency situations for extended periods is not bearable for any living organisms. Stress hormones imbalance the genes order and cause disease. The brain cortex size triggers stressful reactions after overthinking about the problems. In fact, thoughts can heal a person or make him sick (51).

Apart from the common and tangible effects of anxiety, several physiological disorders are also likely during anxiety-producing situations. Scientific studies have also shown an association between stress and resistance to infection. Humans with

a high-stress index have appeared to be prone to cold viruses, the molecular basis of which includes the altered function of T lymphocytes and cells of the hypothalamic-pituitary-adrenal axis as well as changes in the production of cytokines and hormones by the immune system and brain (52).

How to know, prevent and manage the corona Phobia

Becoming aware and informed

Using comprehensive surveys and epidemiological studies with different parameters in different fields and extensive psychological evaluations, the true spread rate of anxiety, stigmas, awareness and outlook, behavior of the society, and generally the public mental healthcare about COVID-19 can be obtained (53). By relying on the obtained scientific knowledge, general policies could be determined and the mental conditions of the society could be managed. To gain sufficient knowledge by the public and the healthcare staff about the epidemic is essential. It can reduce both the anxiety and fear and provide better control over the situation. Studies have revealed that the public's knowledge and their outlook about this disease are very limited. Although small groups of people have been explored, they still acknowledged the fact that increasing public awareness and knowledge is better for controlling the disease and its consequences.

For instance, Geldsetzer et al. (44) reported that people's behavior is critical to control the disease and their behavior is influenced by their awareness, knowledge, and outlook about the situation. In Geldsetzer's et al. study, which was performed on groups of American and British people, it was revealed that people's knowledge about contagiousness and symptoms of virus is at an acceptable level. Still, there is a great deal of wrong information on social media about how to prevent the disease spread. In this study, parameters such as low mortality rates, being non-fatal to kids, and proper hygiene behavior, were considered as useful information to fight the negative outlook of people about the disease, but had to be provided by official sources (54).

Furthermore, in China another study conducted by Zhong et al. (55), in which the KAP (knowledge-attitude-practice) model was employed, revealed that the majority of people had enough information about COVID-19 and how to prevent it (accurate answers over 90%), almost all the participants (97.1%) were sure about the ability of China in controlling the disease. Almost everyone used a mask before going out. Also, it was found that socioeconomic factors and being female had a direct relationship with awareness, optimism, and proper behavior about the disease. Ren et al (9) also described in their study that public awareness and enough information about the disease can reduce the public fear and anxiety.

Following anxiety management techniques

The first and the most effective action to be taken in controlling fear is following the proper source of information because this can keep people away from rumor and show them a clear picture of the current situation.

The WHO has also provided useful recommendations to manage and control the anxiety caused by this disease. Having a positive and realistic view of the events, acquiring the necessary data through the approved centers, doing mindfulness exercises, relaxing the mind (yoga and meditation), choosing a healthy lifestyle, having physical activity and exercise, including exercise at home or walking in a secluded path away from the crowd, avoiding over-examining social media and following disturbing news, and eventually consulting with a counselor or psychologist

for professional help are the most important advices.

Expert opinion

The SARS-CoV-2 virus as the cause of COVID-19 disease is a multifaceted agent affecting many aspects of the human community, including health system, economics, society, politics, environment, and even the culture of nations. It has further disturbed the hegemony of the world and led experts to focus their knowledge on its control. All functional dimensions of COVID-19 crisis can be considered as new emerging events and difference from its ancestors. This can lead to irrational and unpredictable behaviors in human societies. Some parts of these irrational behaviors are due to low level of knowledge, phobia, and anxiety rooted in the unknown nature of this pathogen. Although, at the beginning of the present study, we came up with the same brilliant idea (an original or a systematic review study), after deep studies and a comprehensive literature review, it became clear that no valuable and citable studies have been so far done in this field. Therefore, at a specialized meeting, we presented the most important and fundamental issues of the corona-phobia in the form of a narrative review study. It is also noteworthy that every topic discussed in this article can be considered as source of an original study in a form of a mega-survey research project.

Conclusions

Corona-anxiety is obviously a severe disorder, but by recognizing all its dimensions through ideation, design, and purposeful epidemiological and psychological studies, it is possible to analyze this critical situation and to find out its obscure points and dark corners. By recruiting comprehensive knowledge, awareness, and intelligent use of powerful tools such as wide ranges of media, it will be practical to moderate and control society's psychological conditions and conquer corona-born anxiety. Furthermore, due to the serious health threat posed by this disease and the importance of public consciousness of preventive actions, strategies that disseminate accurate information are needed to limit the power of disease. Such approaches surely are reachable through health promotion and training programs in the context of reputable databases (56). This study tried to explore and present the terrible political, economic, social, and individual consequences of such anxiety in addition to introducing its rational and irrational sources. Indeed, the researchers quoted in this study tried, to the best of their possibilities, to pave the way for overcoming the scary situations cause by the COVID-19 disease.

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Riassunto

Fobia e paura del COVID-19: origini, complicanze e gestione: una revisione narrativa

Introduzione. L'insorgere della malattia da Coronavirus 2019 (COVID-19) dal 12 dicembre 2019 e la sua continuazione nel 2020 e nel 2021 si sono trasformati in una crisi globale. Psicologicamente, questo processo di alterazione può portare a sentimenti di paura, insicurezza e ansia. Questa paura e ansia possono essere causate da una varietà di fattori. Tuttavia, a causa della mancanza di studi approfonditi in questo momento, esistono pochi dati su queste condizioni relative a COVID-19. Pertanto, in questa revisione narrativa, abbiamo cercato di identificare le più importanti possibili cause di ansia e paura dovute a tale patologia, sulla base dell'evidenza ed abbiamo tentato di individuare le conseguenze ed i

modi per gestirle e prevenirle.

Metodi. L'attuale focus si sviluppava su tre assi principali: corona-fobia, paura e ansia. PubMed, Science Direct, Scopus, Google Scholar e autorevoli fonti di notizie e informazioni scientifiche sono state considerate come fonti di dati.

Risultati. I risultati dell'analisi hanno rivelato che, oltre alle ragioni reali e logiche che appartengono alle proprietà intrinseche di SARS-CoV-2, alcune fuorvianti idee sbagliate indotte dai media, dalle politiche governative, dal livello di consapevolezza pubblica, da speculazioni scientifiche e da dati contraddittori espressi da esperti, ricercatori e società scientifiche avrebbero potuto contribuire allo sviluppo della corona-fobia e della paura.

Conclusioni. Pertanto, ciascuno di questi fattori, avrebbe contribuito allo sviluppo di disturbi psicologici e alle conseguenti conseguenze e complicazioni. Infine, qui abbiamo esaminato e riassunto i risultati della ricerca precedente su come prevenire e gestire questo tipo di disturbo psicologico ed operato dei confronti.

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Corresponding author: Reza Ranjbar, Molecular Biology Research Center, Systems Biology and Poisonings Institute, Baqiyatallah University of Medical Sciences, Tehran, Iran
e-mail: ranjbarre@gmail.com