



Definitions and Psychological Impacts of Quarantine and Strategies to Reduce It: A Review Paper

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Abstract

Context: Worldwide outbreak of coronavirus has been declared by the World Health Organization as a global emergency. Quarantine, as one of the first important health measures to control and spread epidemic diseases, is the focus of health authorities and policymakers in most societies. This study was designed to obtain the psychological impact of quarantine and strategies to reduce it.

Evidence Acquisition: This is a “narrative review” study done through advanced search with the keywords Quarantine, Home isolation, COVID-19, Coronavirus, Mental Health, Psychological effect in the Scopus, PubMed, Clinical Key, Google Scholar, ScienceDirect, Web of Science databases from 2019-2020. The articles were included in the study according to the inclusion and exclusion criteria. Systematic searching and screening of the titles resulted in 68 initial titles that decreased to 46 after reviewing the abstracts, and 19 articles were included in the final review.

Results: Quarantine can lead to psychosocial problems from feeling lonely to depression and anxiety disorders. Certain counseling, as well as educational and supportive interventions, can make this situation tolerable.

Conclusions: For acceptance and adherence to quarantine conditions, clear and transparent information about the disease and its prevalence and meeting the needs of people such as psychological, informational, and financial needs in each country are essential to reduce fear and anxiety.

Keywords: Coronavirus, Psychological Complications, Psychological Interventions, Quarantine, Review

1. Context

Along with wars and natural disasters, infectious and epidemic diseases have the highest number of deaths in human history (1). The novel coronavirus disease (COVID-19) was first reported in Wuhan, China, in December 2019, and considering the reports of numerous cases of patients in various countries around the world, the World Health Organization (WHO) has recognized and declared an emergency concerning global health (2). The severity of patients' clinical symptoms ranges from asymptomatic stage to infection leading to death (3). Regardless of pharmacological interventions, non-pharmacological interventions have an important role in delaying the epidemic, reducing its peak, and the prevalence of new cases over time (4). Non-pharmaceutical interventions (NPI) goes beyond such measures as self-isolation (SI), such as quarantining infected populations, closing borders, schools and workplaces, washing hands; cleaning surfaces; etc. (5).

Quarantine is said to be one of the oldest and most

effective means of controlling the spread of communicable diseases. It was widely used in Italy in the 14th century. Quarantine was successfully implemented as an effective measure during the Severe Acute Respiratory Syndrome (SARS) epidemic in 2003, and it has been recognized as an important component of pandemic influenza programs (6). Quarantine means separating and restricting the movement of people who are potentially exposed to a contagious disease to ensure that they do not become infected and to reduce the risk of transmitting the disease to others (7). Quarantine is often unpleasant for those who experience it. Separation from loved ones, loss of freedom, uncertainty about the health condition and illness can have significant effects; even cases of suicide have been reported (8).

In quarantine, the sense of autonomy and control over people's daily affairs is lost or minimized, leading to anxiety and confusion. The longer the quarantine period lasts, the more severe the psychological problems will be, and

the more durability they will have even after the quarantine expires (1). The results of a study on some medical staff working at the time of the Middle-east Respiratory Syndrome (MERS) epidemic showed they were at greater risk of developing Post-traumatic Stress Disorder (PTSD) symptoms even after time passed (9) The WHO recommends that immediate investigations be conducted in such situations (10).

Given the growing status of coronavirus, having successful quarantine as a public health measure requires us to reduce the adverse effects resulting from it, as much as possible. In this review study, the researchers examined the possible effects of quarantine on epidemics.

2. Evidence Acquisition

This study is a kind of review study, which has been conducted through advanced search with the keywords of Quarantine, Home isolation, COVID-19, Coronavirus, Mental Health, Psychological effect in ScienceDirect, Web of Science, Google Scholar, Clinical Key, Scopus, and PubMed databases from 2019 - 2020. The research has been approved by Gonabad University of Medical Sciences and is listed in Research System (as number A-10-1813-2). The inclusion criteria for articles were the English language, full-text available articles, and exclusion criteria were review articles, letters, other languages except for English, and the articles were evaluated based on answering three research questions as follows:

- How is the quarantine introduced in the articles reviewed?
- What are the effects or complications of quarantine?
- What strategies have been proposed to reduce the effects of quarantine?

Initial review of the studies yielded 68 initial titles that were restricted to 46 after reviewing the abstracts, and after studying the full texts, 19 articles were picked up for further investigation in the final review.

3. Results

Search results are reported in three domains (Table 1). Regarding the first research question and definition of quarantine, there were three references to quarantine history, two of which mentioned the outbreak of plague in Italy in the 14th century as the origin of the term. The Italian term quaranta, meaning forty, was used then for the policy of keeping ships from plague-stricken countries waiting off its port for 40 days to assure that no latent cases were aboard. In one case, it was stated that the time of waiting was 30 days for the ship and 40 days for the passengers

(6, 11). In another case, the history of quarantine was attributed to the outbreak of leprosy in Venice, Italy, in 1127 (12).

In the other studies, quarantine was defined as keeping at homes people with symptoms, or people in contact with sick people, as well as weak and vulnerable people. In some cases, it also included healthy people in the community to prevent them from exposure to infected people (1, 13).

Since the time frame for reviewing articles was limited to 2019 and 2020, most of the quarantine cases were related to the quarantine applied to Wuhan, China, because of COVID-19. These studies referred to travel restrictions as travel quarantine, which included the restriction or cancellation of overland air travel and public and private vehicles to areas of a high risk of the outbreak (14). Another factor considered in the quarantine definition was the time, which was considered in most studies, a 14-day time for respiratory infectious diseases (11, 22). This period was considered, especially for people diagnosed with diseases or those who were exposed to sick people, and in many cases, the time was unpredictable due to the epidemic conditions and recovery status in society, and it can be longer and undetermined (15). In one study, reference was made to the social distance, which included closing schools, office buildings, public markets, and canceling any public gathering (6).

3.1. Quarantine Effects and Complications

The results obtained in the studies on the second objective of this study are described in two parts, including individuals who were susceptible to quarantine-related disorders and then the social and psychological effects of quarantine:

3.1.1. Vulnerable People in Quarantine

Quarantine has more negative effects on children, people with disabilities, the elderly, people with chronic physical and mental illness. Low perception of children of quarantine conditions need for care and assistance for people with disabilities in daily affairs, less access for the elderly to internet services and smartphones, feeling lonely and left alone. A constant need for medication in chronic patients are the problems which make quarantine difficult and sometimes unbearable for these particular groups (15, 16, 21). Besides, as mental health services are more difficult to access in quarantine conditions, people in need of such services may become more anxious and depressed when quarantined (15). Physicians, healthcare professionals, and medical staff who are directly exposed to patients and quarantine conditions have also been identified as at risk for quarantine-related damages (17).

Table 1. The Results from the Review Study

Subjects	Findings
Definition of quarantine	
	-Keeping people with symptoms, or people in contact with sick people, as well as weak and vulnerable people (1, 13)
	-Keeping healthy people in the community at homes to prevent them from exposure to infected people (1, 13)
	-Travel quarantine (14)
	-Social distance which included closing schools, office buildings, public markets, and canceling any public gathering (6)
Effects of quarantine and complications	
	Vulnerable people in quarantine:
	-Children
	-People with disabilities and elderly
	-People with chronic physical and mental illness (15, 16)
	Quarantine psychosocial effects:
	-Anxiety and anger
	-Insomnia, anxiety, decreased concentration, irritability, and reduced energy and fatigue
	-Fear of death
	-Suicide and death (11, 15-18)
	-In long-term, washing hands frequently, avoiding crowds, obsessive-compulsive disorder and post-traumatic stress disorder (1, 16, 19)
Interventions or proposed to reduce the psychological impact of quarantine	
	-Highlighting the role of the media as a contributor to anxiety (11)
	-Providing mental health services (20)
	-Voluntary quarantine versus its compulsory nature (21)
	-Support the remote psychological intervention (16)
	-Structured letter therapy (15)

3.1.2. Quarantine Psychosocial Effects

Quarantine is usually an unpleasant condition for the individual, separation from loved ones, loss of freedom, uncertainty about illness and impatience can lead to different moods of anxiety and anger, and even suicide and death. Quarantine is associated with adverse psychological effects (16-18), and anxiety is one of the most common psychological problems reported during epidemics and in people under quarantine (11, 15). Serious concerns such as fear of death among patients, loneliness, and anger can also be found among quarantined people. Besides, people who are quarantined lose face-to-face communication and traditional social interactions, and this is a stressful phenomenon. Symptoms of insomnia, anxiety, anger, decreased concentration, irritability, and reduced energy and fatigue have also been reported, which should be regarded by experts (20). Change of some behaviors in the long-term, such as washing hands frequently and avoiding

crowds, which often return to normal very late, are among psychological symptoms of quarantine. Fear and horror can lead to negative psychological reactions, including adjustment disorder and depression during and after quarantine. Numerous studies have examined the negative effects of quarantine after it had ended and reported obsessive-compulsive disorder and post-traumatic stress disorder (16). Compulsory quarantine also has more negative psychological effects than voluntary self-quarantine does (1, 19).

What interventions and measures have been taken or proposed to reduce the psychological impact of quarantine?

In response to this question, the results of the study showed that decreasing the anxiety of people during the epidemic can have an impact on decision making and the practice of applied health laws. It was suggested that efforts should be made to eliminate or reduce any factor

that causes anxiety. For example, in a study highlighting the role of the media as a contributor to anxiety, it was suggested to receive news and information from reputable scientific sources only and avoid comments and experiences of non-professionals (11). One study addresses the role of age, gender, economic status, education, and marital status in managing anxiety during the quarantine. It suggested that efforts should be made to increase people's awareness and understanding of the current situation, and cooperation of people and the media with the government would be fruitful in enacting regulations related to crises. Furthermore, public oversight and participation can help with designing programs to prepare people for epidemics (1).

Providing mental health services in public hospitals and mental health centers across the country by employing mental health professionals and conducting psychological interventions as a team was suggested in another study (20). The other factors that have been cited as reducing the psychological problems of quarantine include the voluntary quarantine versus its compulsory nature. This requires that people have the necessary awareness and also to ensure that their needs (mental, nutritional and medical needs) are taken into account and that sufficient resources are available to meet them (21).

Another solution is to support the remote psychological intervention provided by the Internet technology, in particular the widespread use of networks and smartphones, for all individuals, especially for those who are quarantined as well as for the medical staff who provide them with healthcare (16). Structured letter therapy is proposed as an urgent way for public health, which plays an important role in a psychological intervention, such as recognizing emotional problems and stress. However, this approach is not recommended for some acute psychological problems (15).

4. Discussion

Most of the studies reviewed acknowledged that quarantine is one of the first public health measures to control and prevent further spread of respiratory infections caused by the coronavirus (3, 11, 14, 22). Although the WHO protocol defines quarantine (23), there was no clear description of the quarantine conditions and the eligible individuals in some of the papers reviewed, nor did they distinguished between the quarantine and isolation.

All of the papers that examined the factors affecting individuals in quarantine listed a set of personal, psychological, and social factors that could influence the acceptance, understanding, and continuation of quarantine conditions (15, 21). Although cultural and economic factors

appeared to be important factors in the acceptance and adherence to quarantine conditions and related issues, they were not addressed in the articles reviewed. This may, of course, be due to the authors' intentions in writing the articles under review, as all these papers were written in the 2019 and 2020 timeframes when the authors focused more on medical issues than on other factors.

It was also stated that in the quarantine the conditions of access to the resources needed (nutrition, communication, recreation, and health) are different from the usual ones and require interventions and programs to make it easier for people to tolerate the situation (11, 16), or to prevent any potential problems that one may face (fatigue, energy loss, depression, loneliness, fear of illness and death) (18, 20). Thus, quarantine seems to reduce the availability of timely psychological intervention, and routine counseling is also difficult in such a situation. In addition, special attention should be paid to the underlying disease, as some underlying diseases may have a significant impact on the final judgment by counselors and psychiatrists (15).

In general, for the quarantine to be accepted and continued, the support of the people of the society is needed, and this will be achieved if individuals are aware of and have access to accurate scientific information to the extent of public perception, and the government and local authorities take steps to ensure the comfort of people in quarantine. Items such as telephone counseling, access to health care resources, the use of Internet technology, especially the widespread use of networks and smartphones, educational programs for different groups (children, pupils, and students), focusing on credible information, allowing to express one's negative emotions, communicating with family, friends, and colleagues, maintaining regular life activities, and engaging in enjoyable activities are proposed as coping recommendations for quarantined individuals.

The current study had several limitations, such as the lack of access to some articles full text (due to US sanctions, which has included the Iranian scientific community), the lack of non-English language articles review, and the non-systematic nature of this review article.

5. Conclusion

Clear and explicit information about the disease and its prevalence and meeting the needs of people in each country to reduce fear and anxiety is essential for acceptance and adherence to quarantine conditions. In addition, since it is not possible to visit psychologists and specialists as in routine life, there should be easy and affordable ways to replace it. Care must be given to staff and those at risk of quarantine.

Footnotes

Authors' Contribution: Leila Sadeghmoghadam designed the study, collected the data, and drafted the manuscript. Matineh Khoshkhoo and Niloofar Saadati revised the manuscript and approved the final manuscript.

Conflict of Interests: The authors declare no conflict of interests.

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