

Confinement Behavior

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Abstract: Some events are drivers for a change in the way we live life. When these events are not controllable, as has been the case with the coronavirus pandemic, everything is precipitated and the mechanisms of change are accelerated regardless of the type of culture, society, or economy in which they take place. Possibly it is the circumstances that directly affect the health of the population that are the most critical and are the ones that cause the greatest concern and change.

This is the first time in history that we have had the opportunity to study lockdown behavior at a global level, analyzing how it affects citizens' way of life. The most widespread restrictions in most countries of the world have revolved around increasing physical distance, lockdowns (total, by districts, or by specific areas), curfews (variable depending on the severity of the situation of each place), mandatory isolation in the case of testing positive for the infection, the suppression of all kinds of activities (cultural, sports, leisure), and the promotion of remote working to avoid, as much as possible, being in contact with others.

The two main characteristics of mandatory isolation are, on the one hand, complete physical isolation from family and friends and, on the other, the absolute restriction of free movement. Both measures, also being combined with other factors, can generate significant changes in the levels of anxiety and stress of confined people. This is due to these people experiencing emotions of fear regarding illness and death, the possible loss of their jobs, the consequent economic problems, and the probability of increasing their level of being sedentary as a result of not being able to go outside to exercise.

In this study, we propose, from a theoretical point of view, the precedents and consequences of lockdown behavior regarding the dimensions that we consider fundamental in people's lives. We analyze how lockdown influences lifestyle, from eating habits to sleeping patterns, digital behavior, physical activity, and emotional state, reaching the theoretical conclusion that all of these aspects can be significantly altered.

Keywords: Confinement, Lifestyle, Digital behavior, Emotional state, Physical activity.

INTRODUCTION

Some events have been propelling changes in the way we live life since the dawn of time. When these events are not controllable, as has been the case with the coronavirus pandemic, everything is precipitated and the mechanisms of change are accelerated regardless of the type of culture, society, or economy in which they happen. Possibly the events that have a direct impact on the health of the population are the most critical and are the ones that provoke the greatest concern and change.

The last pandemic (the unjustly named Spanish flu or Influenza) was one that broke out one hundred years ago, in 1918, and was particularly devastating. From then on, we have gone through different epidemics with varying degrees of severity, which have marked the course of the history of health for the whole world. These include, among many other health alert situations: the HIV/AIDS crisis that started in 1981, the

SARS epidemic of 2002, and the Ebola outbreak of 2014.

In the 21st century, we have had three recorded coronavirus epidemics: the SARS-CoV epidemic (acute respiratory syndrome) that began in China (Foshan) in 2002; the epidemic that is associated with the coronavirus, MERS-CoV (Middle East respiratory syndrome), which appeared in 2012 in Saudi Arabia; and the current SARS-CoV-2 or COVID-19 epidemic which we are currently living through.

One of the most important problems in the emergence of epidemics and pandemics is the way they appear. This is usually not associated with any controllable situation, which means that society has to adapt, in record time, to the changes that are necessary to try to mitigate their effects, especially in cases of serious illness and /or death.

The context of this latest pandemic dates back to the end of 2019, specifically in the month of December in the Chinese city of Wuhan, where a few cases of bilateral pneumonia with episodes of death were detected. The outbreak has been attributed to a market in the Chinese city that featured the sale of wild

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animals, among other questionable health and safety issues. However, to date, there is no certainty about the genesis of the virus.

During January 2020, isolated cases began to be reported in populations outside the first outbreak, specifically in Thailand and Japan. The cases were related to people who came from Wuhan or had been in the city. On January 21, 2020, the first coronavirus case was confirmed in the United States of America. On January 24, the first cases were confirmed in Europe, specifically in France, and the number of cases worldwide was counted at 1000 infected people. On March 11, 2020, the World Health Organization (WHO) declared that COVID-19 was a pandemic.

In Spain, the first case of coronavirus was declared in the Canary Island of La Gomera on January 31, where a German tourist was admitted to hospital. The second case, a British tourist, was confirmed on February 9 in Palma de Mallorca. The first cases in the peninsula were registered on February 25 in Barcelona, Madrid, and Castellón. One month later, on March 25, 2020, there were more than 42,000 infected and nearly 3,000 dead in the country.

The world is facing a pandemic about which practically everything is unknown. As such, it is necessary to look for strategies that can be used to mitigate the effects quickly and forcefully. As Piña-Ferrer [1] notes, in the face of uncertainty due to the lack of knowledge about the virus, the only possible vaccine is well-contrasted scientific information on how to protect oneself from infection. For Rodríguez *et al.* [2], the best strategy is to rely on disease prevention through self-care, lifestyle changes, and strict compliance with health regulations.

Practically every country in the world has taken drastic measures to contain the pandemic. According to Xiao *et al.* [3], the provisions have been geared toward trying to keep the virus from spreading and adequately caring for infected people in hospitals.

The most widespread restrictions in most countries around the world have revolved around increasing the physical, not social, distance between people [4], confinement measures (total, by districts, or by specific areas), curfews (variable depending on the severity of each place), mandatory isolation in the case of testing positive for the infection, the suppression of all kinds of activities (cultural, leisure), and the promotion of remote working to avoid having to be in contact with other people, among other actions [5, 6].

In this paper we propose, from a theoretical point of view, the precedents and consequences of confinement behavior in those dimensions that we consider fundamental in people's lives.

CONFINEMENT

The most noteworthy aspect of our research is the way in which the population studied was confined. The so-called quarantine (from the Latin *quadraginta*: four times ten) originated in Venice in the 14th century as a result of a bubonic plague epidemic that forced people to be isolated for approximately forty days, with the ultimate goal of reducing the spread of the disease.

According to Andreu [7], the quarantine period experienced in Spain, from March to June 2020, can be characterized by two important aspects: the complete physical isolation of family and friends, on the one hand, and the absolute restriction of movement, on the other. Both measures, also being combined with other factors, can generate significant changes in the levels of anxiety and stress of confined people. This is due to these people experiencing fear regarding illness and death, the possible loss of their jobs, the consequent economic problems, and the probability of increasing their level of being sedentary as a result of not being able to go outside to exercise.

Confinement has generated different problems, above all, because it is a completely unique and unexpected situation that has not been experienced before. Some authors understand confinement as a form of denial of one's own home, in the sense that living at home for months at a time can have the paradoxical effect of being deprived of it and of perceiving the home setting as something unpleasant [8].

In this same line, Fontana [9] notes that the participants of the study perceived that their rhythm of life was changed as a result of being confined. More specifically, they outlined that their leisure activities and free time had been affected. To correct this, the participants began to engage in new leisure activities that they had not previously done before.

Living in a state of confinement completely eradicates the routines of people's lives, but according to García del Castillo [10], the most worrying thing is the uncertainty of living under constant threat of:

- Contracting the virus with its possible consequences of persistent side effects and/or death.

- Being infected and not knowing it (asymptomatic), and being able to spread the virus to close and loved ones.
- Being sanctioned for not complying with any of the innumerable rules.
- Having to face an economic cataclysm that has unknown dimensions for the majority.
- The democratic system potentially capsizing.
- Feeling under constant surveillance.
- The scale of values of today's society potentially being destroyed.

Other authors [11] note that a state of prolonged confinement drastically changes people's quality of life and entails some feelings to be taken into account such as:

- Feelings of fear on a personal level and for loved ones in regard to possible contagion and/or death.
- Feelings of boredom and frustration in the face of the situation, which are aggravated, according to the authors, when there is a lack of networked means of communication.
- Feelings of distrust of the information provided by the health authorities.
- Feelings of fear of a possible lack of essential supplies for survival, increasing anxiety and stress.
- Feelings of frustration in the face of confinement that can lead to mental health problems.

The two major blocks of problems in prolonged confinement that have a direct impact on the population are, on the one hand, the maintenance of health in the face of the virus and its consequences and, on the other hand, the loss of quality of life [12].

The state of confinement studied in Spain, Italy, and the United Kingdom has a direct impact on quality of life [13]:

- The risk of suffering a mental health problem among the population studied, attributed to the state of confinement, is above 40%.
- Quality of life would be less impaired if the information coming from state health agencies

were more reliable, with over 65% believing that it is deficient and not focused on reporting a return to full normalcy.

- One of the big controversies and the confrontation between economics and health. More than 60% of the sample studied in these three countries agreed that the economy is as important as health itself.

CONFINEMENT AND LIFESTYLE

The usual way of life has been changed for more than five billion people worldwide because of pandemic confinement. The rest of the world's citizens have also had their lifestyles altered, but without having to be completely confined.

One of the first dimensions that can be altered by confinement is a person's way of eating, both qualitatively and quantitatively. According to Pellegrini *et al.* [14], people who were in a weight reduction program for obesity problems and who were progressing adequately gained weight significantly in confinement.

Weight gain in general is one of the issues generated in this situation. There is a significant increase in the consumption of sweet foods and desserts, sugary drinks, and junk food [15-17]. Likewise, the stress and anxiety of being confined cause people to eat more carbohydrates in search of a greater production of serotonin to try to improve mood [18].

In reference to the lifestyle dimension of tobacco, alcohol, and other drug uses, we found that there is great variability in research results. According to Villaseñor *et al.* [17], there was a decrease in tobacco consumption (11%) and alcohol consumption (30.9%) during confinement. In the study by Sinisterra *et al.* [16], tobacco consumption increased (42%) and alcohol consumption decreased (16%). Pérez-Rodrigo *et al.* [15] reported an increase in tobacco consumption (30%) and a decrease in alcohol consumption (44%).

According to OEDA [19], in a survey conducted with the Spanish population between 15 and 54 years of age, alcohol consumption decreased during confinement in all age ranges, with this decrease being more notable for people between 15 and 29 years of age. The decrease in binge drinking during confinement was significant: in the 15 to 19 years age range, it went from more than 37% before the pandemic to 19.9% during the pandemic, and in the 20

to 24 years age range, it went from 45% before the pandemic to 24.8% during the pandemic.

With reference to tobacco in this same survey [19], there was a slight decrease in consumption in all age ranges, being slightly higher for people between 15 and 24 years of age. It should be kept in mind that the majority of the population studied noted that they were not smokers, neither before nor during the pandemic (70%).

Leisure and free time activities has been one of the dimensions of lifestyle that has experienced the greatest change during total confinement. Since it was forbidden to go outside, the dynamics of leisure and free time associated with sporting and cultural events, etc., had to be replaced by entertainment inside the home.

According to Cencerrado and Yuste [20], leisure time at home was divided between watching TV, talking on the phone, cleaning and tidying up the house, cooking, using technology (computer/internet) and social networks, listening to music, watching series and movies, and reading. The authors found that reading had increased by more than twenty minutes on average compared to the previous time spent reading outside of confinement.

Possibly, what has had the greatest strength and importance during confinement in terms of leisure time was the use of ICTs [21]. The physical distance from family, friends, and acquaintances has led the vast majority of confined people to use them as a means of communication and approach to others in their free time.

According to García del Castillo *et al.* [12], the use of ICTs in leisure time has been mainly for communicating with friends and family (more than 80%), watching series, movies, and news (more than 68%), and listening to music (more than 61%).

Sexual relationships have also been altered by the state of confinement. In this dimension, sexual behavior patterns changed, and sexual violence increased in those cases where it had already existed previously [22].

The most frequent sexual behavior during this period of confinement was masturbation (more than 40%) and there was a significant increase in sexual appetite (more than 30%). In addition, for more than 33% of people, confinement worsened their sex life.

Cohabiting couples had greater stability in their sexual relationships [23].

The loss of intimacy at home worsened the sexual relations of couples as children and other cohabitants were at home 24 hours a day, which made it difficult to have a minimum amount of intimacy for sexual relations [24].

Another of the fundamental lifestyle dimensions that impacts people's quality of life is sleep behavior. Sleeping patterns are often sensitive to changes in other lifestyle dimensions, such as diet or the amount of physical activity being done.

In a study conducted by Cervantes [25], sleep hours varied downward during confinement from an average of 7.2 hours of sleep before the pandemic to 6.9 during the pandemic. The participants studied reported that before the pandemic more than 31% slept 8 hours a day, decreasing to 25% during the period of confinement. Overall, more than 52% of the sample studied said that their sleep quality was significantly worse during confinement.

Along the same lines, the study by Torres *et al.* [26], indicates that symptoms, in this case relating to sleep, may be more persistent and more acute due to the lack of reliable information on the actual duration of the process. In their sample, more than 58% of the respondents claimed that they were not sleeping an adequate amount of time.

In the research conducted by Sinisterra *et al.* [16], 62% of the sample studied said that their sleep patterns had changed during the period of mandatory confinement. Only 36% of the respondents said that their sleeping behavior had not changed at all, while 30% slept less and 34% slept more.

We can see that there is variability between studies in terms of sleep patterns during confinement. In the case of the study by Villaseñor *et al.* [17], one of the characteristics noted by the authors was that women said they slept less and with worse sleep quality than men, awakening more during the night.

In the case of the study by Perez-Rodrigo *et al.* [15], more than 37% of the sample reported not sleeping well. In the study by Ramirez *et al.* [27], sleep disturbances appeared in 30% of the sample studied, which had repercussions on other mental health problems.

For their part, Torales *et al.* [28] noted that more than 50% of the sample studied had insomnia problems among other psychological symptoms. Wang *et al.* [29] proposed a new term related to the pandemic and sleep, which they call "coronasomnia", referring to a significant change in sleep patterns, being mainly insomnia.

CONFINEMENT AND DIGITAL BEHAVIOR

It is an irrefutable fact that information and communication technologies (ICT) have changed everyone's way of life. With the situation of a prolonged period of confinement, ICTs have come to the forefront, playing a major role in most people's way of life.

ICTs, as noted by Marqués [30], can carry different functions:

- Communication function.
- Expression function.
- Information processing function.
- Information function.
- Management function.
- Diagnostic function.
- Didactic function.
- Formative function.
- Recreational function.

The characteristics of the coronavirus pandemic have led to a significant increase in digital behavior, given that the restrictions of physical distance between people have led to the use of technologies for a large number of activities: shopping, work, studies, medical, economic, and legal consultations, leisure, etc. From this point of view, people all over the world have found themselves in the obligation and need to resort to technologies in their daily lives.

In the work carried out by García del Castillo *et al.* [12], the use of ICTs during confinement was mainly oriented toward communication with friends and family (more than 80%), remote working (more than 71%), leisure (more than 60%), physical activity (more than 39%), and shopping (more than 17%). It is interesting to note that the majority of the sample studied affirmed that the use of ICTs in this period had improved the circumstances of confinement for their lives.

In relation to the educational system, a large part of the teaching procedure had to be reconstructed [31]. Education, at all levels, was not prepared for a distance-teaching development. As such, it had to resort to ICT to succeed despite the drawbacks: lack of equipment, lack of preparation of students and teachers, lack of experience in this type of training, among many other drawbacks.

Possibly the types of teaching that have been presented with the most difficulties have been Early Childhood Education (between 3 and 6 years of age) and Primary Education (between 6 and 12 years of age), given that the younger children need more direct attention from the teacher, as well as needing socialization processes with their classmates. According to Vicente *et al.* [32], the new educational paradigm that has been proposed includes, in addition to what is being taught, the actors who participate in them. In this way, communication and information exchange channels between students, teachers, and parents are enhanced, with the latter playing a much more active role in educational routines.

From the perspective of children's learning problems, according to González *et al.* [33], the psycho-pedagogical process during this pandemic has proven to be quite effective and productive. However, according to the authors, if possible, ICTs should not be a substitute for face-to-face instruction. For Velásquez *et al.* [34], ICTs make involuntary attention be more focused and help in the final psycho-pedagogical process.

Remote working has been another of the activities that have been enhanced during the period of confinement. According to Peiró and Soler [35], remote working refers to the performance of work activities outside the company's usual space, and may even involve there being different schedules. ICTs make it possible to carry out these work obligations. In Spain, in 2019, there were only a little more than 4% of remote workers registered. This number has increased to 34% with the pandemic crisis.

However, as the authors indicate, those workers who started remote working during the confinement have had to add more stress to the pre-existing stress they already suffered from due to the virus, since they have had to adapt to a very new situation that in many cases may exceed many of their capabilities.

E-commerce has been another aspect that has taken off because of the period of confinement. Online

purchases due to the impossibility of leaving the house have multiplied exponentially in this period through the use of ICTs. According to Campines *et al.* [36] many small and medium-sized companies have had to adapt to this system in an accelerated manner, with many of them innovating to try to maintain or promote their sales.

With regard to healthcare issues, we have seen that medical assistance for minor problems through the use of ICTs is possible and sustainable. According to Kemp *et al.* [37] found that for problems directly related to mental health, ICTs are widely used by professionals.

For a large majority of people ICTs are something of very common use for a multitude of activities in their daily lives. Possibly for this reason their use in issues related to mental health has also been favored. According to Liu *et al.* [38] some of the factors that facilitate the use of ICTs in mental health would be:

- There is no need to travel, with the consequent savings in time and resources.
- Consultation schedules are much more dynamic.
- There is a significant increase in privacy since patients do not meet with anyone in the consultation rooms.
- In general, the economic costs of consultations are lower.
- By consulting at home, patients are more relaxed and the therapy is easier for them.

On the part of psychologists, telepsychology has been the tool par excellence during confinement. As Traverso and Salem [39] note, the use of ICTs is based on safeguarding the privacy of clients and their confidentiality, while maintaining the same effectiveness and efficiency as in person.

CONFINEMENT AND EMOTIONAL STATE

According to the American Psychological Association [40], for a person to have balanced mental health, they need a good level of emotional adjustment, adequate coping mechanisms for daily stress, quality interpersonal relationships, and a good level of adjustment to changes in life.

The rapid spread of the virus through the general population provoked different degrees of anxiety and stress in people, which were related to the possibility of

contracting the disease and/or dying. With the period of confinement, this situation worsened significantly, due to changes in lifestyle, the lack of freedom to go out and be distracted, and low contact with family and friends, among many other variables.

Living with an unknown and uncontrolled virus alters the way of life and has consequences on the mental health of the population, due to its consequences at a social level and the high media coverage that makes its perception more dangerous.

There are many studies conducted in the confinement period that collect on problems of anxiety, stress, fear, anguish, depressive symptoms, and other mental health disorders [41-48].

In an interesting study by Sandín *et al.* [49] on the effects of confinement in the Spanish population, fears are grouped into three possible categories:

- [1] Fear of illness.
- [2] Fear of shortage of basic products.
- [3] Fear of unemployment.

In this line, the authors concluded that the greatest fears of the population studied are found in the first category, followed by the last. They also noted another series of issues, of which we could highlight:

- Fear of death (their own or that of family and/or friends).
- Fear of loneliness (forced isolation from others).
- Fears being more powerful among women, especially of the virus and its consequences.
- Younger people being afraid of infecting their loved ones and feeling vulnerable due to confinement.
- Being exposed to information from the media, uncertainty about the disease itself, and living in the company of people with pathologies are considered high-risk factors.
- Finally, the profile proposed by the authors with respect to the coronavirus is centered on stress, hopelessness, depressive symptoms (especially in women), anxiety, and sleep problems.

We found that a link is established between the period of confinement, health, and the economy. The

sources of stress are aggravated by being confined and unable to work, which can translate into a loss of employment, a reduction of job offers, and, of course, a drastic reduction in family income [50, 51].

However, it is interesting to note how the state of confinement has had a negative impact on young university students in relation to their emotional state. Gender differences appear, with female university students showing more irritability compared to males. Likewise, women need social support to manage academic stress while men need planning. For this reason, women who have lacked social support during this period due to confinement have shown higher stress indexes [52, 46].

Other studies [53] have reviewed family conflicts in a population of university students. They established the following issues:

- An increase in intrafamily violence.
- Bereavement due to the death of relatives.
- Difficulties in coexistence due to an invasion of personal space.
- Increased anxiety and stress due to family conflicts.

In their study, Yang *et al.* [48], in a sample of university students, concluded that students have been subjected to a high level of stress due to the pandemic that has had an impact on their general state of health. The factors that most directly influence these stress levels are: fear of contagion, academic load, and not attending classes in person.

In the study by Bridgland *et al.* [41], in a large sample of university students from several countries, it was observed that the pandemic has generated stress responses similar to post-traumatic stress. For more than 13% of the sample, it could even be diagnosed as post-traumatic stress.

CONFINEMENT AND PHYSICAL ACTIVITY

Regular physical activity is one of the main pillars significantly supporting health for people of all ages. Throughout life, a series of habits and behaviors are acquired in relation to physical activity, which are usually maintained over time and, in the best of cases, throughout life.

For the vast majority of people, physical activity is a behavior that takes place outside the home. Being

confined indoors has made it impossible for habits to change significantly. According to Irazusta and Ara [54], in a large and interesting study carried out on a sample of more than 13,000 university students, the forbidding of going outdoors for physical activity has generated sedentary behaviors (especially people increasing their screen time) which can become permanent behaviors after the end of the confinement period.

Physical activity is a natural way to combat coronavirus. In addition to the many health benefits, it strengthens the immune system and contributes to a milder inflammation of the lungs in the event of contracting the disease [55].

In general, confinement has taught us that it is not necessary to go outside or to a gym to perform physical activities as we have the possibility of doing them at home. This has triggered a significant phenomenon of doing physical exercise at home [7].

Being confined removes some of the possibilities that a person has to carry out physical activity [56]:

- Work.
- Household chores.
- Transportation.
- Leisure time.

The WHO itself [56] has established a series of possible recommendations in an attempt to generate new physical activity routines during confinement, with the ultimate aim of maintaining previous healthy habits or establishing new habits in order to achieve some physical exercise every day. The recommendations made by this institution can be summarized as follows:

- Online physical activity tutorials.
- Physical exercises carried out online with groups of friends.
- Work routines, study, and family activities that can be compatible with daily physical activities.

A paper by Chen *et al.* [57] notes physical activity measures to be implemented in confinement in order to avoid contagion and to maintain physical fitness and mental health balance:

- Physical activity tutorials through technologies.
- Tai Chi and yoga exercises.

- Going up and downstairs.
- Lifting weights at home (shopping, furniture, etc.).
- Getting up and sitting down.
- Squats and sit-ups.

As we can see, the general trend of recommendations regarding physical activity during confinement has been oriented towards maintaining an active mindset by performing safe physical exercises which have been adapted to each age and which are easy to execute [58-60].

The relationship between physical activity and mental health during a period of mandatory confinement has also been studied and it has been concluded that overall mental health improves when there is a sufficient and well-structured amount of daily activity [61, 56, 62].

Finally, at the level of physical activity and nutrition during confinement, emphasis should be placed on seeking maximum balance and following optimal nutritional recommendations in order to maintain physical fitness and weight gain [63, 18].

CONCLUSIONS

This is the first time in history that we have had the opportunity to study confinement behavior at a global level. We are now able to see how it affects all aspects of life through changes to many of the habits and customs that have always been carried out.

The most widespread restrictions in most countries around the world have revolved around increasing physical distance, confinement measures (total, by districts, or by specific areas), curfews (variable depending on the severity of the situation of each place), mandatory isolation in the case of testing positive for the infection, the suppression of all kinds of activities (cultural, sports, leisure), and the promotion of remote working to avoid, as much as possible, being in contact with others.

Confinement, in many cases, has not come to be understood as a vital necessity to fight the pandemic but rather as an obligation to modify our way of life through legal imperatives, which has led to a multitude of problems in interpersonal relationships, diet, sleeping patterns, physical exercise, and emotional stability.

Strictly speaking, the natural rhythm of life has been changed and this fact has had a direct impact on people's perception of reality, distorting many of the normal patterns of daily life; from within the home itself, which may now be perceived as an unpleasant environment, to the way of orienting leisure, childcare, and work.

Confinement behavior has altered the way we eat, increasing the consumption of sweet foods, carbohydrates, and sugary drinks, as well as the use of tobacco, alcohol, and other drugs. Sexual behavior has been worsened by the lack of intimacy in couples with children. Sleeping patterns have also been affected, with there being a reduction in the average hours of sleep per day.

Digital behavior has been significantly increased in basic matters such as interpersonal relationships, study, and work. Those who were outside the digital world have had to learn at an accelerated pace in order to stay connected with their surroundings and the world.

Emotional stability has been greatly changed, with there being an increase in stress and anxiety, the consumption of anxiolytics, and, in general, the fear of illness and death as a consequence of the pandemic itself. Academic and work performance and physical activity have been impaired.

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