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Uncertainty in Pandemic Times

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the insecurity of knowledge was the same as the security of no-knowledge

C. Bukowski

Abstract

The Covid-19 pandemic has burst upon us as a general test for humanity, for which we were woefully unprepared. We all faced the pandemic with little knowledge and no experience. It is the first pandemic of our lives. Over this period, we have seen a range of conflicting statements, positions and behaviours. On occasion, the scientific community and health professionals have failed to speak with a single voice to convey the urgency of the situation, as their views got lost and scattered in rivulets of opposing theories ranging from denying to ringing the alarm. So many elements were in place for the ‘perfect storm’ to get unleashed ... and it did. And as the pandemic wreaked its havoc, many health workers have paid a high price for their selfless dedication and professionalism. We have worked in the absence of clear-cut guidelines, in situations where even the cornerstones of medical ethics have faltered. On the other hand, the fruitful aspects of uncertainty also emerged.

Keywords: pandemic, uncertainty, risk, management, communication

1. Introduction

Uncertainty has always been inherent in human existence, part and parcel of our experience as we move through life. We are born with only one certainty, that of our death; we live our lives in the uncertainty of waiting. As in the ancient tale, we do not know whether ‘the Lady in Black’ will meet us at the market or at Samarra; she will decide.

As humans, we have a fundamental need to attempt to control and/or reduce uncertainty through the use of rules, norms, recommendations, prohibitions, safeguards, impediments, vetoes, even at the cost of limiting our freedom. However, the relentless change and transformation of society does not allow us to reach a stable condition of certainty. Evolution is continuous, and uncertainty follows evolution like a shadow. In the past, the concept of uncertainty was distinguished from that of risk, which denotes a state of measurable ‘uncertainty’ in which certain possible outcomes generate an undesirable effect or a significant loss and preventive measures can be planned [1]. Currently, the two terms are used interchangeably, and risk is often regarded as uncertainty [2], especially, as is often the case in today’s society, when many risks are not measurable and thus increase uncertainty [3].

According to Bauman [4], postmodern society is a society of uncertainty, in which the ongoing transformations have led to an ‘erosion of the certainties’ of modern society, and a loss of collective identities.

Castel [3] argues that current uncertainty is the effect of the gap between a socially constructed expectation of protections and a society's actual ability to make them work. As humans we constantly strive to reduce uncertainty by continually changing our environment; however North [2] observes that 'there is no guarantee that we will understand correctly the changes in the environment, develop the appropriate institutions, and implement policies to solve the new problems we will face.' The use of science and technology is certainly an important attempt to manage uncertainty and channel it into defined and controllable patterns. However, while science often offers solutions, it is often itself a cause of problems as it can cause 'a flood of particular, conditional, uncertain and detached detailed results (...) impossible to survey' [5]. Moreover, we often do not know the implications and consequences of innovations once they leave the laboratory and interact with other innovations in totally unpredictable ways [6]. Increased awareness of the risks associated with human choices also entails the need to assign responsibilities for decision-making processes and their consequences [5].

However, uncertainty also has its upsides.

While it generates anxiety, uncertainty can also fascinate and stimulate the senses and the mind. Socrates has taught us that accepting uncertainty makes us wise. His thought based on 'the knowledge of knowing nothing', the awareness of a definitive lack knowledge, and therefore of uncertainty, becomes a fundamental stimulus of the desire to know and remains a very topical warning. Thus, uncertainty asks us to search constantly, to fight against dogmas and the status quo and is a source of possibilities to be explored.

We should highlight the fruitfulness of uncertainty. When we are uncertain, we are always much more open to change, including unforeseen change. We respond to change more quickly by reprogramming our reactions, coming up with new solutions and rapid decisions, especially when confronted with an unforeseen emergency.

The spread of the Covid-19 pandemic has caused an unprecedented humanitarian emergency and has projected us into a global scene fraught with uncertainty.

The Covid-19 pandemic has burst upon us as a general test for humanity, for which we were woefully unprepared. We all faced the pandemic with little knowledge and no experience. We feel as if Nature put us to the test through an unknown virus. The Covid-19 virus has revealed itself as an unknown enemy that knew very well the frailties and limitations of our humanity and was able to hit our weak spots.

This article describes the uncertainty linked to three aspects of the pandemic response: management, medical treatment and news reporting.

2. Uncertainty in the management of the pandemic

The current Covid-19 pandemic is the first large-scale pandemic we have faced in our lifetime. The previous major pandemic dates back to the period from 1918 to 1922, exactly 100 years ago, so individuals living today have no previous experience to refer to.

A major role in the management of epidemics and pandemics has been assigned to the WHO. The WHO has played this role. Although at times its positions have been widely criticised, it is worth pointing out that the WHO had to grapple with a pandemic spread by a completely unknown virus.

The World Health Organisation (WHO) was established in Geneva in 1946 as a satellite organisation of the United Nations, with the aim, stated in its Constitution, of 'bringing all peoples to the highest attainable standard of health'. This objective is pursued through the WHO's own functions, which include, among others: to act as the

directing and co-ordinating authority on international health work; to furnish appropriate technical assistance and, in emergencies, necessary aid upon the request or acceptance of Governments; and to promote co-operation among scientific and professional groups which contribute to the advancement of health [7].

It may also propose conventions, agreements and regulations, and make recommendations with respect to international health matters and perform such duties as may be assigned thereby to the Organisation and are consistent with its objective. Each Member shall report annually on the action taken with respect to recommendations made to it by the Organisation and with respect to conventions, agreements and regulations. One of the instruments through which these functions are managed is the International Health Regulations (IHR) of 2005 (the first Regulations were adopted in 1969 and have since been revised several times). The IHR is an international legal instrument that aims to 'ensure the highest protection against the international spread of disease, avoiding unnecessary interference with international traffic and trade, by strengthening the surveillance of infectious diseases to identify, reduce or eliminate the sources of infection or contamination, improving airport sanitation and preventing the spread of disease vectors' [8].

A Public Health Emergency of International Concern (PHEIC) is a formal WHO declaration of 'an extraordinary event which is determined to constitute a public health risk to other States through the international spread of disease and to potentially require a coordinated international response'. A PHEIC is declared when a situation arises that is 'serious, sudden, unusual or unexpected' and 'carries implications for public health beyond the affected state's national border' and 'may require immediate international action'. Under the 2005 IHR, states have a legal duty to respond promptly to a PHEIC [9].

The WHO should be notified whenever the answer to at least two of the following four questions is yes: Is the public health impact of the event serious? Is the event unusual or unexpected? Is there a significant risk of international spread? Is there a significant risk of international travel or trade restrictions? [10].

WHO Member States have 24 hours within which to report potential PHEIC events to the WHO [10]. *A potential outbreak does not need to be reported by a Member State, since reports to the WHO may also be received informally* [11].

From 2009 to 2020, there have been six PHEIC declarations: the H1N1 (or swine flu) pandemic of 2009, the polio of 2014, the 2014 Ebola outbreak in Western Africa, the Zika virus outbreak of 2015–2016, the Ebola outbreak in Kivu of 2018–2020, and the COVID-19 pandemic of 30.01.2020 [12].

On 2 May 2021, a report by an independent panel, expressly requested by WHO Director-General Tedros Adhanom Ghebreyesus, confirmed the WHO's delay in declaring the new epidemic a 'public health emergency of international concern' (PHEIC) [13].

The report highlighted the time lost from 31 December 2019, the day the WHO received the first information from its China Country Office about a new 'pneumonia of unknown origin' reported in a press release of the Wuhan Municipal Health Commission, to 30 January 2020, the day the new outbreak was officially declared a PHEIC. Perhaps the PHEIC could have been declared as early as 22 January 2020, after the initial findings of the first mission of experts sent to Wuhan by the WHO, who spoke of human-to-human transmission of the virus, but also said that further investigation was needed to understand the extent of transmission [14]. *Taiwan warned the WHO of possible human-to-human transmission as early as 31 December 2019, but the WHO did not give the information any weight* [15].

The Emergency Committee (EC), made up of 15 independent experts as required by the International Health Regulations (IHR), was convened on 22 and 23 January, but failed to reach a consensus on the danger of the new outbreak, postponing the

decision to declare PHEIC. By that time, the virus had already spread to Thailand, Japan and the United States [16]. The PHEIC was declared on 30 January 2020, after a mission of the WHO Director-General to China and another meeting of the Emergency Committee. At that time there were 7818 confirmed cases globally in 19 countries in five WHO regions [17].

It is worth pointing out that this delay, which has been fully acknowledged by the WHO, stemmed, among other things, from uncertainties due to the lack of knowledge about the virus and has, in turn, created a cascade of further uncertainties.

The measures, recommendations and suggestions for managing the pandemic have not always followed a linear course, as they needed to be revised and updated as the scientific studies produced by the international scientific community provided increasing understanding and certainties about the virus.

One example among many of the shifting recommendation is the advice on face masks. On 6 April 2020 [18], the WHO advised that masks were useful in combating the spread of the virus when worn by sick people and were indispensable for health workers, but cautioned against their use in the wider community setting, stressing that there was no scientific evidence that masks could help healthy individuals to avoid infection, and warning of the false sense of security they might create. The guidance acknowledged that it was 'possible that people infected with COVID-19 could transmit the virus before symptoms develop'. It also admitted that 'Studies of influenza, influenza-like illness, and human coronaviruses provide evidence that the use of a medical mask can prevent the spread of infectious droplets from an infected person to someone else and potential contamination of the environment by these droplets (from an article published in Nature Medicine on 3 April 2020) [19], but added: 'there is limited evidence that wearing a medical mask by healthy individuals in the households or among contacts of a sick patient, or among attendees of mass gatherings may be beneficial as a preventive measure'. On 6 June, the advice changed, as it was stated that 'Masks alone are not enough, but they can help to protect oneself and others'. Therefore, they should certainly be worn in community settings 'because they provide a barrier to potentially infectious droplets' [20]. Then, in August 2020, the Director-General of the WHO himself launched the 'Mask Challenge' [21], inviting people to send in photos of themselves wearing a mask via social media under the message that 'everyone has a role to play in breaking the chains of transmission'. In Italy, Legislative Decree No 125 of October 2020 imposed the use of masks 'in all outdoor places except in those settings where isolation from other people is guaranteed continuously' [22].

In Italy, as in other countries, the management of the pandemic required, among other things, the adoption of restrictive measures never experienced before. In light of the grave threat to public health, 'extraordinary' measures were taken, which also entailed limiting individual freedom. Some restrictive measures such as isolation and quarantine are well-known health measures, defined as 'ordinary' because they had already been used in the past, in line with current health policies and not in conflict with individual freedom. However, the scale of the threat posed to the health of individuals and communities by Covid-19, the scarce scientific knowledge about the virus, and the rapid spread of the pandemic also required the taking of 'extraordinary' measures. These measures, grouped under the generic term of 'lockdown', included, among other things, 'stay at home' rules and curfews, the blocking of numerous work activities, the closure of all schools for all age groups, the prohibition of certain behaviours and activities, social distancing, and the use of personal protective equipment. All this happened in the context of a general and widespread climate of uncertainty that affected individuals, communities, policy-makers and health professionals, in the attempt to reduce the risk and the spread of the pandemic.

The certainties about daily routines, work and personal life were lost, as were those about protecting our health. But the impact was not only on the daily routines of one's life, which for better or for worse give us a framework of certainty and predictability to which we can anchor ourselves. We also lost certainty of the future: for a long time, no planning for the future was possible because the seriousness of the health emergency had swept away all certainties about it. Everyone may fall ill and die. Covid-19 has proven to be a very 'democratic' disease, as it has affected all social classes, age groups, ethnic groups and religious denominations. Above all, the lack of knowledge about the virus initially prevented full understanding of its means of transmissions, the measures to avoid infection and the most appropriate treatment for infected patients. Fear of death became ever more present and tangible. Throughout our lives, we are all aware that sooner or later we will die, yet we all live as if we were immortal, banishing reflection on the end of life to a distant future. The pandemic has forced us all to revise our thinking and acknowledge that death could come at any moment. Many people have experienced the impact of the disease either directly or through a loved one. Many have lost a family member or an acquaintance, and had the feeling that 'the bombs were falling closer and closer and it seemed impossible to get out unharmed'.

In 2020, the total number of deaths from all causes was the highest ever recorded in Italy since World War II: 746,146 deaths, 100,526 more than the annual average in the period 2015–2019 (+15.6%) [23].

Our certainties concerning our 'health status', also promoted by major health education campaigns, have collapsed. Health screening programmes, disease prevention and monitoring, access to hospital services and to the national health service, arrangements for visiting and assisting relatives staying in hospital, have all been suddenly wiped away leaving behind an empty space of bewilderment and confusion. Many patients feared that they would not be able to access healthcare. Some died in an ambulance while waiting to be admitted to hospital, others in their own homes waiting for an ambulance, the fate of many was decided by 'the lottery of life'.

The disruption of healthcare services caused by Covid-19 has impacted a number of specialties such as cardiology, paediatrics, oncology, neurology and psychiatry. The fallout is likely to continue for a long time [24].

A European study on the relationship between Covid and heart attack highlights the impact of delayed treatment and of the fear of going to hospital, leading to an estimated burden of 20,000 excess CVD deaths in Italy [25].

The link between patients and their families and that between health care workers and caregivers was disrupted during the hospitalisation of patients, going counter to more than 20 years of research and care practices highlighting the benefits of the healthcare provider-patient-family relationship [26]. Many patients have died in hospital, alone and in pain.

In the early stages of the pandemic, uncertainty mainly revolved around the 'health dimension', as many questions remained unanswered, or received contradictory, incomplete, inaccurate or misleading answers. The enemy to be fought was a little-known entity. As the lockdown dragged on, uncertainty also extended to the 'economic dimension' as individuals were hit by the shutdown and restriction of economic activities and the resulting economic crisis.

In EU, 2,7 million citizens lost their jobs last year as a result of the pandemic (Eurostat data). In Italy, the employment rate fell by 0.9% [27].

Initially, we all believed and hoped that the restrictions would be temporary, but the hope was dashed as fresh waves of the pandemic led to the restrictions being extended, wreaking havoc on the economy and opening up frightening prospects for individuals and society. The sheer duration of the pandemic has generated a dramatic value conflict between the need to save lives and the need to protect

livelihoods, plunging many individuals into a dispiriting health and financial uncertainty, and putting into sharp relief a circular and unsolvable existential dilemma, since there is no work without health and no health without work [28].

The pandemic also caught our **policy-makers and governments** by surprise. They too, experienced the uncertainty dictated by the unknown enemy, the virus. Policymakers did not know the virus and were unable to give clear indications of 'what to do' to guarantee citizens' safety. Many of the measures taken turned out to be ill-advised, no measure was risk-free, and many measures accompanied by reassuring statements were later found to be wrong and unsafe.

In 2005, the WHO had recommended its Member States to develop and constantly update their own influenza pandemic plans. Italy drafted its Pandemic Plan in 2006 (Agreement of the Standing Conference of the State Regions and Autonomous Provinces no. 2479 of 9 February 2006) [29].

The lack of clear and reliable information as to the actual revision status of the plan has fuelled doubts about the response to the Covid pandemic, which has often been inconsistent in affecting public compliance with the restrictions.

Each country has addressed the pandemic in its own way, developing its own national response. After China, Italy was the first country affected by the spread of the virus, giving other countries some extra time to plan their response, also in the light of the Italian experience. However, the different social, economic and health characteristics of each country did not always allow them to learn from the mistakes and/or experience of other countries. Thus, no uniform response was implemented on the basis of a collective process drawing on and combining the different experiences. Each country appeared to act according to an almost neurotic 'compulsion to repeat mistakes'.

The pandemic has shone a light on the inadequacies of health policies, which, in the wake of the globalisation of modern society, have often applied the McDonald business model to the health system, impacting its resources, increasing inequalities and affecting the fragile and vulnerable [30].

During the pandemic, many policymakers have taken advantage of the Covid issue to raise their profile and boost their votes, instead of focusing on the good of the community. Citizens were often given information that quickly proved to be false. Several politicians openly recommended irresponsible or unsafe behaviour, capitalising on discontent and impatience with restrictions and undermining the principles of collective responsibility and solidarity. Others have attempted to politicise the management of the pandemic. However, the pandemic has always resisted any political labelling, constantly reasserting its disturbing independence and uniqueness.

Uncertainty has also affected **health workers** who, for the first time in their lives, were confronted with a pandemic caused by a virus that they had never studied in their textbooks.

Patient management, treatment protocols and the management of healthcare facilities had to press the reset button: for all 'it was the first time'. Medical procedures were developed in the course of the pandemic through trial and error.

In addition to the uncertainties regarding treatment, the doctors faced other uncertainties.

The rapidly rising patient numbers soon led to shortages of ICU beds and produced situations recalling 'disaster medicine' [30, 31]. Well-established standards and procedures for the access to and termination of intensive care, routinely followed by health workers, proved inadequate to the sharp upsurge in demand. This made it necessary to set aside the criterion of the appropriateness and proportionality of care, and to introduce criteria of distributive justice and appropriate allocation of limited health resources, often applying the criterion of 'greater life expectancy' to select patients. Uncertainty affected the procedures and guidelines but also the

ethical principles of medicine, as health professionals were faced with new and unusual ethical challenges for which they were all unprepared [30]. Health workers faced the challenge with dedication and courage, attempting to make up for the scarcity of health care resources. They lost the certainty and hope of working in a safe manner; they knew that their work meant putting their lives at risk and those of their loved ones. Despite this, they continued to work and ... die. In the early stages of the pandemic, health workers had inadequate personal protective equipment, while later they had to learn how to use it correctly to protect their safety at work. Health workers have been called heroes, but many have also suffered assaults [32]. In Italy, approximately 450 health workers died, mainly during the early stages of the pandemic [33]. Some cases of suicide were also reported. More than 100,000 health workers were infected. Although other European countries were also affected by the pandemic, the number of deaths among healthcare workers in those countries is lower. Fortunately, the infection and death rates among healthcare workers have come to an abrupt halt with the start of the vaccination campaign.

3. Uncertainty related to treatment

The etiopathogenetic mechanisms of the Covid-19 infections were not initially clear. Moreover, in the early months of the pandemic, there was a ban on performing autopsies on patients who had died with Covid. This decision prevented and delayed key insights on the etiopathogenesis of the disease, which in turn can help to plan treatment. In the absence of a clear and known etiopathogenesis, there were no reliable guidelines for the patients' clinical management.

Health professionals made reasoned choices in the light of the knowledge and experience available at the time, and modified their treatment protocols as clinical evidence and scientific literature became available.

In a situation of high uncertainty, various drugs were alternatively recommended or prohibited. The virus has repeatedly refused to be pinned down.

Each covid unit followed its own protocol based on the results available at the time. However, developing a set of treatment recommendations based on a scientific rationale to reduce the risk of serious complications while ensuring adequate treatment safety was all but easy.

On 30 November 2020, the Ministry of Health published a guidance document on the home management of patients with SARS-Cov-2 infection [34]. On 10.12.2020, the Italian Medicines Agency (AIFA) issued guidance on the treatment of patients in hospital and at home, establishing the standard of care in light of the evidence available at that time [35].

Although the vaccine is not a treatment but a prophylactic measure against the disease, the arrival of the vaccine in record time was an extraordinary achievement and a fundamental breakthrough in controlling the pandemic.

However, vaccines too were and still are surrounded by many uncertainties.

The first uncertainty concerned the guarantee of immunisation. After the vaccines were approved by the regulatory body, the uncertainty concerned the availability of vaccines in different countries and in different parts of the same country. Distribution was patchy at first, beset by logistic and supply problems, and many people did not know whether or when they would receive their vaccine. This contributed to maintaining a general climate of uncertainty, while we were going through the third wave of the epidemic.

Another type of uncertainty concerned the priority order for accessing the vaccine. In Italy, especially in the first wave of the pandemic, many elderly people died: an entire generation, a heritage of culture and love, was wiped out by Covid-19.

The elderly population was classified as 'fragile' and was therefore given priority in the vaccination campaign. Another priority group was healthcare personnel. These were the only initial certainties as to the order of access to vaccines. For the rest of the Italian population, access to immunisation was not uniform across the different regions.

Lastly, particularly serious uncertainties and concerns have been and are still felt about the efficacy and safety of the vaccine.

As to efficacy, the level of actual 'protection' afforded by the vaccines has been hotly debated and bitterly disputed, fuelling controversy over disparities in treatment according to the type of vaccine used. Eventually, the regulatory authorities, on the basis of clinical evidence, have clarified the real efficacy of all the available vaccines. However, the appearance of virus variants has ushered in new uncertainty.

As to the vaccines' safety, too, the uncertainties are still many and evolving. Although side effects, even serious ones, were to be expected, it has proven difficult to maintain public confidence in vaccination and dispel uncertainties. In addition, in some cases (e.g. the Astra Zeneca vaccine), the rules issued by the authorities have fluctuated wildly.

4. Communication in a pandemic: the paradigm of uncertainty

One of the ways we try to control uncertainty is through knowledge, by continuously searching for useful information to reduce it. However, it is not always possible to obtain the kind of precise information that allows us to reduce and/or control uncertainty. Often the information is insufficient, limited, distorted or inaccurate, and ends up generating more uncertainty. We can define this type of uncertainty as 'cognitive uncertainty', since it is linked to the inability of human beings to collect, process and select information and knowledge' [36].

Cognitive uncertainty has mushroomed during the pandemic and still today fuels and maintains the many global uncertainties generated by Covid-19.

In January and February 2020, the news coming out of China and from the authorities was little, fragmented and uncoordinated. On the other hand, multiple and contradictory voices soon started revealing to the world what was happening. Especially at the beginning, there was no system to coordinate and clarify the flow of information.

The huge amount of data fed to the public has been dubbed an 'Infodemic' by the WHO [37]. This shorthand term was first used to refer to the overabundance of information and news published at a continuous rate during the SARS epidemic. The word is a neologism coined in 2003 by a journalist from the Washington Post, and is defined as '*a rapid and far-reaching spread of both accurate and inaccurate information about something, such as a disease. As facts, rumours, and fears mix and disperse, it becomes difficult to learn essential information about an issue.*' [38].

The trend to attention-grabbing news has been pervasive. The aim of many has been to provide continuous information, to produce scoops, often without proper fact-checking. Moreover, various pieces of news, which were accurate when published, were soon after rebutted by fresh scientific and clinical evidence.

The media outlets have ridden the waves of the pandemic as extensively and emphatically as possible. The aim of the media has been to supply a constant stream of news stories, often paying little attention to fact-checking.

In order to provide breaking news and keep the public glued to their screens, headlines or social media pages, the media have reported data and figures taken from the latest scientific studies on the coronavirus, often without checking the authenticity of the information, for example by publishing data from not yet peer-reviewed studies.

TV talk shows have mixed and mingled scientists with businesspeople, politicians, ubiquitous opinion-makers and commentators, all expounding about issues such as Covid swabs, treatments and vaccination campaigns.

The scientific world has been flooded with an incredible amount of data and studies. Some of the major, highly regarded scientific journals have published several studies on SARS Cov-2 and Covid-19 only to withdraw them a few months later.

Often, both the scientific community and health professionals have failed to speak with a single voice to convey the urgency of the situation, as their views got lost and scattered in rivulets of opposing theories ranging from denying to ringing the alarm, giving in to the seduction of fame. Many have vehemently advocated a position only to then reverse it with disquieting speed and ease. Rather than communicators, they have been skilful weavers of uncertainty.

The authorities too have failed to provide clear information. Sometimes, even political leaders such as heads of state have given wrong information on scientific issues related to the pandemic, sharing fake news or engaging in questionable behaviour. The political world appeared uncertain in its attempt to reconcile fundamental human values such as health, individual freedom and the economy. Communication often seemed to fuel the conflict of values and, consequently, uncertainty.

In Italy, in March 2020, the government chose to present data and information to citizens via Facebook live streams of the Prime Minister and daily press conferences on television, by the head of the Civil Protection authority, in what Mario Marangio calls the 'Institutional Phase' of communication in the time of Covid [39]. Live briefings on social media were a first for government-to = citizen communication in Italy.

In terms of communication style, the briefings often resorted to war imagery, liberally using words such as 'war', 'battle', 'fight', 'attack', 'defence', 'curfew'; treatments and vaccines became 'weapons' against the 'enemy', and citizens were exhorted to rally together in the fight against the 'common enemy'.

This language actually fuels the widespread feeling of uncertainty, since war is by definition a time steeped in uncertainty. Anyone who raises a doubt or asks a question about the Covid strategy, even in good faith, is immediately singled out as colluding with the enemy, as a problem to be solved or a voice to be silenced. But this attitude does not help dispel the citizens' uncertainties and legitimate doubts.

The understandable uncertainty of scientists, policymakers and the media in managing the huge mass of data has fuelled a flood of misinformation, fake news and conspiracy theories, which have on occasion generated violent results, such as the setting of 5G telephone towers on fire, the chasing and damaging of ambulances, and Covid denialist movements such as the 'anti-mask', 'anti-vaxxers' and 'anti-curfew' groups.

As stressed by the National Bioethics Committee (CNB), accurate information is crucial to encourage people to comply with the restrictions: when individuals are informed of the facts and scientific progress and trust that the public authorities are acting with absolute transparency, they are generally more likely to comply for their own sake and that of others [40]. However, accurate information has often been lacking.

5. Conclusions

As discussed, uncertainty has been a major feature of this pandemic. The process of containing uncertainty and/or risk through rules, standards, measures or

prescriptions, prohibitions and restrictions has not been easy. This process is necessarily flexible and fluid; it requires continuous adjustments as new clinical evidence emerges, and is still far from reducing uncertainty. The advancement of knowledge, which is a key factor in the process of reducing uncertainty, has been hampered by the changing nature of the pandemic, which has hindered the efforts to bring it under control. Science has once again proved fundamental in the response to the pandemic, thanks to breakthroughs such as the development of vaccines in record times.

Nevertheless, uncertainty has taken various forms and has given rise to a cascade of personal and social dimensions.

One consequence of uncertainty, on an individual level, is certainly anxiety. This is a complex psychopathological dimension characterised by the fearful expectation of a vague and terrible threat, stemming from real or perceived uncertainty, the loss of control over the external environment and the inner dimension. Anxiety differs from fear, which is an alarm response oriented to an identifiable and specific threat, and from distress, a condition of severe suffering, due to a catastrophic interpretation of reality and a sense of impending misfortune [38, 41]. These three conditions have often characterised the response of individuals to the pandemic disruption and the uncertainties it has caused.

Another particular dimension is the lack of trust. Trust is defined as '*reliance on or confidence in the dependability of someone or something. In interpersonal relationships, trust refers to the confidence that a person or group of people has in the reliability of another person or group; specifically, it is the degree to which each party feels that they can depend on the other party to do what they say they will do*' [41].

Sociology recognises that trust plays a role in informing and maintaining the social order and distinguishes three types: *systemic* or *institutional* trust, aimed at natural and social organisation; *personal* or *interpersonal* trust, aimed at others; and trust in oneself [42, 43].

The uncertainty surrounding the pandemic has undermined all aspects of trust. There has been a decline of trust in the institutions, which often seemed unable to protect citizens because of measures that were perceived as incomprehensible and unfair. There was often a widespread sense that official communication was distorted, incomplete or inaccurate. This led to the perception of being in a changeable and dangerous situation, with no clear answers. An unambiguous assessment of the facts, which is a basic element of trust, was not possible given the circumstances, but the lack of transparency in communication, the discordant and fluctuating positions also contributed to the loss of trust.

Interpersonal trust also weakened, partly because the social distancing rules imposed by the lockdown reduced the opportunities for interpersonal contact, enhancing the feeling of loneliness. Individuals focused on their self-interest, alienating themselves from the principles of solidarity and cooperation: the 'other' was often seen as a possible source of infection or demands.

Lastly, trust in oneself has been undermined by the persisting uncertainty and the individual and collective inability to bring the pandemic under control. Individuals have been burdened with anxiety and fears, losing awareness of their own and others' resources for overcoming the situation.

Moreover, distrust has heightened the difficulty in accepting the lockdown restrictions. Individuals had to balance the principle of individual freedom (understood as freedom in the choice of treatment and disease prevention measures) with the principle of solidarity, which must also take into account the health of others and requires the persons at lower risk to protect themselves in order to avoid infecting more fragile and vulnerable people.

Mistrust has contributed to fuelling a number of violent incidents having various forms and targets. Health workers and health facilities have often been threatened by denialists who accused them of sowing terror and falsifying pandemic data. These attacks were accompanied by smear campaigns on social media and discrimination of health workers, suspected to have spread the virus.

Numerous violent episodes by youths have also been reported: they are a cause of social alarm because they are probably the tip of an iceberg and an expression of widespread disaffection which seems likely to continue in the future.

The situation that has arisen reminds us of the condition described by Durkheim as 'anomie': a situation of unease and malaise in a society where social norms are absent or weak and conflicting [42]. The individual dimension of anomie involves a profound state of malaise, whereby individuals are unable to choose what to do, do not know what others expect from them and do not know what to expect from others. The objective dimension, referred to the social context, involves a strong risk of disruption of the social fabric and deviance [44, 45].

More than a year (18 months) after the start of the pandemic, uncertainty persists despite the major breakthrough of the vaccination campaign. We seem to be playing a dangerous game in which the rules are constantly changing, and we are constantly falling short in our attempt to 'build certainties'. The development of vaccines in record time does not seem to guarantee safety. Moreover, the pandemic has heightened inequalities and vulnerabilities.

The strong global inequalities in distribution of the vaccines do not bode well for overcoming the pandemic, as they allow continued circulation of the virus and the emergence of variants. It is worth noting that these inequalities also carry risks for the people on the apparently favoured side.

The present feeling of loss of confidence bears an uncanny resemblance to that described by Stefan Zweig in *The World of Yesterday* [46], where the author reminisces of a world in which '*everyone knew how much he possessed or what he was entitled to, what was permitted and what was forbidden. Everything had its norms, its definite measure and weight*', which strongly contrasts with our current uncertainty. It is fascinating, although not surprising to note, that 'conditions' reoccur in the world and that the conditions of 100 years ago are quite relevant to today's world. It is disturbing to realise that so much suffering still awaits us because '*only he who has experienced dawn and dusk, war and peace, ascent and decline, only he has truly lived*'.

Even today, a year and a half later, the pandemic is not over; uncertainty is still pervasive, amid the hope and expectation of a return to a normality that will never be the same again.

However, we also have the certainty that human beings are able to respond and take action even in conditions of uncertainty, even when they fear their own death. This is proven by the work of Italian health workers, who have paid a high tribute to the pandemic, and have earned a nomination to the Nobel Peace Prize. Health workers have followed the path of the fruitfulness of uncertainty.

The lesson for us is that we cannot stop. We must start anew; with humility to learn from our mistakes, responsibility to pursue our duty, solidarity to reduce inequalities and reach out to those in need.

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