COVID-19 and the construction of collective trauma through photographs and social media

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Abstract. The reactions to the SARS-CoV-2 pandemic have constituted, and continue to constitute, a real collective trauma. The sense of insecurity, new difficulties in the management of daily life and social relations, and sudden organizational changes in the world of work are just some of the factors that have had a strong impact on the lives of people around the world and have contributed to the construction of collective trauma. The events were extensively reported, in different ways and through different media. The images, especially photographs, represented an inexhaustible source of narration. Projected on television, printed in newspapers and magazines, and published through digital social media, they became part of our daily life, especially during the pandemic, and despite all the intrinsic limitations linked to photographic language they have become the main means of storytelling. This article reports some of the best-known photographs that have circulated on social media and in print and which have in some way fixed crucial points in the narrative of the pandemic, while at the same time generating collective trauma.

Keywords: COVID-19, Pandemic, collective trauma, social media, stratification and communication.

Riassunto. Le reazioni alla pandemia da SARS-CoV-2 hanno costituito, e continuano a costituire, un vero e proprio trauma collettivo. Il senso di insicurezza, le nuove difficoltà nella gestione della vita quotidiana e delle relazioni sociali, i repentini cambiamenti organizzativi nel mondo del lavoro rappresentano solo alcuni dei fattori che hanno avuto un forte impatto nella vita delle persone in tutto il mondo e hanno contribuito alla costruzione del trauma collettivo. Gli eventi sono stati ampiamente raccontati, in diversi modi e attraverso diversi mezzi. Le immagini, in particolare le fotografie, hanno rappresentato una fonte inesauribile di narrazione. Proiettate in televisione, stampate su giornali e riviste, pubblicate attraverso i social media digitali sono entrate a far parte del nostro quotidiano soprattutto durante la pandemia e nonostante tutti i limiti intrinseci legati al linguaggio fotografico sono diventate il principale mezzo di narrazione. In questo articolo vengono riportate alcune delle fotografie più note che sono circolate sui social media e sulla carta stampata e che hanno in qualche modo fissato dei punti cruciali nella narrazione della pandemia ma al contempo generando il trauma collettivo.

Parole chiave: COVID-19, pandemia, trauma collettivo, social media, stratificazione e comunicazione.

Collective trauma and the COVID-19 pandemic

The term collective trauma refers to the psychological reactions to a traumatic event that affect an entire society or group of people; it does not simply reflect a historical fact or the memory of a terrible event that has occurred (Alexander, 2012). It suggests that the tragedy is represented in the collective memory of the group and, like all forms of memory, includes not only a reproduction of the events, but also an ongoing reconstruction of the trauma in an attempt to make sense of it.

There are several types of collective trauma. Some are immediate and of relatively limited duration. One example is a natural disaster such as a hurricane. Others have an impact that manifests itself over the medium to long term, such as a pandemic, an economic recession or a military conflict (Alexander, 2012). The current SARS-CoV-2 pandemic falls within the parameters of a collective

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trauma of individuals worldwide. The immediate effects are of utmost concern, but it is also important to consider the long-term effects.

There are various features of the current environment that facilitate a perfect storm of stress factors. These traumas are chronic events with an ambiguous end point. We do not know how poorly things will go or when healing can really begin. Individuals face intense direct exposure to cascading events (e.g., personal illness or loss, social isolation, economic loss), with variable and sometimes conflicting policies dictating public responses. Simultaneously, these events are broadcast in real time on mainstream and social media, with people following news coverage repetitively and across multiple mediums.

The overlap of sensationalist media coverage in the context of repeated direct exposure has allegedly created a further crisis for public mental health (Cohen *et al.*, 2021).

Decades of research on collective trauma indicate that each of these crises can independently have mental health consequences for exposed individuals, ranging from short-term anxiety to long-term depression and post-traumatic stress disorder (PTSD). Although the 2003 SARS outbreak lasted less than a year, health workers caring for SARS patients and SARS survivors experienced significant mental health challenges. In Sierra Leone, clinically relevant rates of symptoms related to psychological disorders (anxiety, depression, PTSD) were observed among the general population exposed for one year to the 2014 Ebola infectious disease outbreak (Jalloh, 2018).

The trauma process can be defined as the distance that separates an event from its representation; Thompson (1998) refers to the 'process of representation' or 'spiral of signification' which comprises four dimensions that we can apply to the COVID-19 pandemic situation:

1) nature of the pain: What really happened with COVID-19?

2) nature of the victims: Which group was affected by the virus?

3) relationship between trauma victims and audience: Who listens to the victims' stories and how do people in front of the TV identify with patients?

4) attribution of responsibility: Who caused the virus, how did this turn into trauma, how do we overcome the emergency?

The Coronavirus Pandemic 2019 (COVID-19) has led to unprecedented risks for mental health globally. While psychological support is provided to patients and healthcare professionals, the general public's mental health also requires significant attention. This systematic review aims to synthesize the existing literature reporting the effects of COVID-19 on psychological outcomes in the overall population and on associated risk factors.

A systematic search was conducted on PubMed, Embase, Medline, Web of Science and Scopus from the beginning to 17 May 2020 following the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines. A manual search on Google Scholar was performed to identify additional relevant studies. Articles were selected according to predetermined eligibility criteria (Xiong *et al.*, 2020).

The rapidly changing situation has drastically altered people's lives, as well as multiple aspects of the global public and private economy. Downturns in tourism, aviation, agriculture, and the financial sector due to the COVID-19 outbreak have been reported, as massive reductions in supply and demand aspects of the economy have been imposed by governments internationally (Nicola *et al.*, 2020). It is predicted that the uncertainties and fears associated with the virus outbreak, coupled with mass lockdowns and economic recession, will lead to an increase in suicides and mental disorders associated with suicide. For example, McIntyre & Lee (2020) reported an expected increase from 418 to 2114 in Canadian suicide cases associated with unemployment. The previous result (i.e., the rising suicide trajectory) has also been reported in the United States, Pakistan, India, France, Germany and Italy (Mazza *et al.*, 2020). Separate lines of research have also reported an increase in psychological distress in the general population, in people with pre-existing mental disorders, as well as in healthcare workers (Hao *et al.*, 2020). Overall, there is an urgent call for more attention to be paid to public mental health and policies to assist people at this difficult time.

The aim of this systematic review was to summarise the existing literature reporting on the prevalence of symptoms of depression, anxiety, post-traumatic stress disorder (PTSD) and other forms of psychological distress in the general population during the COVID-19 pandemic. A further aim was to identify factors associated with psychological distress.

Relatively high rates of anxiety symptoms (from 6.33% to 50.9%), depression (from 14.6% to 48.3%), PTSD (from 7% to 53.8%), psychological distress (from 34.43% to 38%) and stress (from 8.1% to 81.9%) have been reported in the general population during the COVID-19 pandemic in China, Spain, Italy, Iran, the USA, Turkey, Nepal and Denmark. Risk factors associated with stress measures include female gender, younger age group (≤40 years), the presence of chronic/psychiatric illnesses, unemployment, student status and frequent exposure to social media/news about COVID-19[1] (Xiong et al., 2020).

Furthermore, exposure to social media or frequent exposure to news/information concerning COVID-19 was positively associated with anxiety symptoms. Regarding marital status, one study reported that married participants had higher levels of anxiety than unmarried participants (Gao et al, 2020). On the other hand, Lei et al. (2020) found that divorced/widowed participants developed more anxiety symptoms than single or married individuals. A prolonged quarantine period was also correlated with higher risks of anxiety symptoms. Intuitively, contact history with COVID-positive patients or objects may lead to more anxiety symptoms, as noted in one study (Moghanibashi-Mansourieh, 2020).

In addition to associated risk factors, studies have also identified factors that protect individuals from psychological illness symptoms during the pandemic. Timely dissemination by authorities of updated and accurate health information regarding COVID-19 has been found to be associated with lower levels of anxiety, stress, and depressive symptoms in the general public. Furthermore, the active adoption of precautionary measures that reduce the risk of infection, such as frequent hand washing, wearing masks and less contact with people, also predicted lower levels of psychological distress during the pandemic (Wang et al., 2020). Certain personality traits have been shown to correlate with positive psychological outcomes. Individuals with positive coping styles, secure and avoidant attachment styles usually presented fewer symptoms of anxiety and stress (Moccia et al., 2020). In another study, it has been found that participants with more social support and time to rest during the pandemic showed lower stress levels (Zhang & Ma, 2020).

Although trust is indispensable in a crisis, public suspicion towards scientific experts and government increases for several reasons, including access to multiple sources of conflicting information, a reduction in the use of scientific reasoning in decision-making processes and internal political struggles. Trust and credibility, demonstrated through empathy and caring, competence and experience, honesty and openness, dedication, and commitment, are essential elements of persuasive communication.

During the epidemic, there was a surge in the consumption of communication services. Since the first weeks of the emergency, high growth rates have been recorded in information consumption, both

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[1] The search terms used by Xiong et al. were: (COVID-19 OR SARS-CoV-2 OR Coronavirus 2 severe acute respiratory syndrome OR 2019nCoV OR HCoV-19) and (Mental health OR Psychological health OR Depression OR Anxiety OR PTSD OR PTSS OR POST traumatic stress disorder OR stress symptoms post-traumatic) AND (general population OR community). Data Extraction: A data extraction form was used to include the relevant data: Measurement Tools: A variety of scales (n = 19) were used in the studies reviewed to assess different adverse psychological outcomes. The *Beck Depression Inventory*-II (BDI-II), *Patient Health Questionnaire*-9/2 (PHQ-9/2), *Self-rating Depression Scales* (SDS), The *World Health Organization-Five Well-Being Index* (WHO-5) and *Center for Epidemiologic Studies Depression Scale* (CES-D) were used to measure depressive symptoms. The *Beck Anxiety Inventory* (BAI), the *Generalized Anxiety Disorder 7/2-item* (GAD-7/2), and the *Self-rating Anxiety Scale* (SAS) were used to assess anxiety symptoms. The *Depression, Anxiety, and Stress Scale-21 item* (DASS-21) was used to assess symptoms of depression, anxiety, and stress. The *Anxiety and Depression Scale* (HADS) was used to assess anxiety and depressive symptoms. Psychological distress was measured by the *Peritraumatic Distress Inventory* (CPDI) and the *Kessler Psychological Distress Scale* (K6/10). PTSD symptoms were assessed by the *Impact of Event Scale-Revised* (IES(-R), *PTSD Checklist* (PCL-(C)-2/5). The *Chinese Perceived Stress Scale* (CPSS-10) was used in one study to assess symptoms of stress.

in traditional media and online. Along with a generalized increase in the production of news about the new coronavirus and a non-negligible incidence of disinformation, the health emergency was accompanied by another emergency of global scope due to an excess of information that was not always accurate and correct. This has led national and international institutions, including the WHO, to take specific initiatives to tackle the infodemic situation responsible for disorientating the public.

In its report, AGCOM (2020) tends to point out how disinformation has inevitably created a divide, emphasising the difficulty of discerning between real and fake news, and how this situation has been further complicated by the absence of a consolidated scientific knowledge base on the subject.

It is in this context that citizens risk relying more and more on alternative and unqualified sources. In the early months of 2020, and especially in conjunction with the outbreak of the epidemic in Italy, the sites of disinformation sources (identified as such by external parties specialised in debunking activities) reached increasing portions of the public. In March, at the height of the medical emergency, over 30% of Italian internet users consulted disinformation sites, a rate almost 11 percentage points higher than in March 2019, accessing them directly or through redirection from social networks and search engines (AGCOM, 2020).

Misinformation about COVID-19 has posed and continues to pose a serious threat to global public health. If people are misled by unfounded claims about the nature and treatment of the disease, they are less likely to follow official health guidelines, and this can contribute to the spread of the pandemic and pose a danger to themselves and others. Health protection strategies such as hygiene, sanitation, social distancing, the use of protective equipment, travel restrictions and other measures will be less effective if distrust in public institutions becomes sufficiently widespread to substantially influence citizens' behaviour. Misinformation about COVID- 19 treatments may push people to try treatments that could harm them, while fears and mistrust about vaccines may undermine the effectiveness of a vaccination campaign.

News media professionals play a large role in the dissemination of misinformation and disinformation through their choices of who, what and how to disseminate. Choosing to uncritically disseminate statements and remarks made by influential people, without necessarily verifying the accuracy of these statements, may facilitate the spread of misinformation, and when this is repeated in the mainstream media, it is likely to gain credibility. In previous pandemics, such as the HIV/AIDS pandemic, misinformation and its effect on policy is estimated to have caused an additional 300,000 deaths in South Africa alone.

In Italy, various research institutes have focused on the role of media in the COVID-19 pandemic crisis and the ability to manage it. The mass media are not only capable of reflecting the current reality, but also of creating it: journalism is decisive for the exercise of power in modern societies and the way journalists convey news profoundly shapes the public debate and influences the public perception of risks. As social actors, the media participate in the management of emergencies because of their ability to support, or conversely to criticize, social control policies and other decisions taken. These observations are valid in an era characterised by an increasing central role of media communication and are increasingly true during a confinement (Mazzoni *et al.*, 2020).

The role of photography during the COVID-19 health emergency

According to Susan Sontag, to take a photograph means to appropriate the thing one is photographing. Through this action, one tries to establish a particular relationship with the world that gives a feeling of knowledge, and thus of power (Sontag, 1978). As a means of filtering the world, photographed images do not seem, unlike narratives, to be accounts or interpretations, but pieces of it, miniatures that anyone can produce or acquire. Photographs alter the proportions of the world, they are reduced, enlarged, cut, retouched, altered. They are used to provide evidence and proof of what happened or what one wants to make believe happened.

Photography has become one of the main mechanisms for expressing participation, for representing emotions; with its massive diffusion, however, it has established a chronic voyeuristic

relationship with the world that levels the significance of all events and gives them a kind of immortality and therefore importance that they would not otherwise have.

The type of reaction, including moral outrage, that a person may have when confronted with photographs of the oppressed, suffering and exploited depends on the existence of a relevant political consciousness and the degree of familiarity with these images. The more present the first factor and deficient the second, the more pronounced the emotion aroused will be. Photographs shock to the extent that they show something new. The more images of horror proliferate, the more the stakes will continue to rise.

It is one thing to suffer, quite another to live with the photographed images of suffering, which do not necessarily strengthen consciousness. Images sometimes paralyse, anaesthetise. When one has been repeatedly exposed to images, they paradoxically also become less real. It is as if the trauma of the photographed atrocities vanishes by seeing them repeatedly. The enormous photographic catalogue of misery and injustice in the world has made the horrific more normal by making it familiar.

The information that photographs can give took on importance at a time in history when it was believed that everyone was entitled to receive the news. Photographs were then seen as a way of providing information to people who were not so willing to read. The photographic image gave a new meaning to the concept of information. Everything can be separated from everything else, just by framing the subject differently. Through photographs, the world becomes a series of isolated particles, and history, past and present, an assortment of different anecdotes. The limitation of photographic knowledge of the world is that only that which narrates an operation can make us understand it. A photograph cannot reveal how something works. Knowledge attained through photographs risks being a form of sentimentality rather than true understanding (Sontag, 1978).

The COVID-19 pandemic has brought science to the forefront of the international public sphere. Never have so many newspaper articles been written, so many press conferences, so many minutes of news broadcasts in such a short time about a microscopic virus and the science dedicated to investigating it.

The pandemic has generated its own peculiar images. Doctors hidden behind large protective devices, rows of intubated patients in hospital intensive care units, nervous officials presenting the day's count of the infected and deceased, empty streets in usually busy cities and masked citizens queuing for the supermarket, as well as graphs and maps charting the unstoppable progression of the disease, scientists bent over lab benches rushing to produce reliable tests or effective vaccines, and the virus itself, a colourful stain covered with ominous nail-like spikes.

So, how is the COVID-19 pandemic visually represented in the media, government, and academia? What topics are conveyed by the images? What aspects of the pandemic do these images give visibility to? Are there differences in representation between these three sources of communication? Which points of view are shown and which are omitted? Are there differences between the visual images of COVID-19 and those of previous pandemics (influenza, AIDS)?

One of the studies examined focuses on Portugal and Spain (Delicado & Rowland, 2021), two countries with quite similar backgrounds (scientific, social, economic, and political) but quite different experiences with the pandemic: the first wave was much milder in Portugal than in Spain, but this was not the case with the second wave, although the mortality rate was still higher in Spain. At the time of the study, May 2021, Spain had a cumulative incidence (after 292 days) of 3,687.01 cases per 100,000 inhabitants, while Portugal had a cumulative incidence (after 286 days) of 3,354.22 cases per 100,000 inhabitants. Mortality figures are more distinct: 54.09 per 1,000 inhabitants in Portugal and almost twice as many (101.46) in Spain (Dong *et al.*, 2020).

The study seeks to identify the type and content of images used to illustrate online information about the pandemic, particularly from the websites of political institutions, research organisations and the media. By examining a sample of 600 images, it aims to identify the messages conveyed and the effects these images are intended to provoke, and to highlight differences in the representations between the three sources of communication. Differences and similarities with images of previous pandemics (influence, AIDS) are examined.

The sample containing 600 images was classified by type of website and by the content the images show. The content was aggregated into three main types: science, medicine, and social aspects.

The analysis of the images of the three types of websites from Portugal and Spain allowed us to explore the multiple forms of representation of a pandemic.

It has been observed that, as in previous pandemics, the visual representation of the virus, with its distinctive features, available at an earlier stage than in the past, is a useful shortcut for identifying all pandemic-related website content. Stylised drawings or photographs under an electron microscope signal that what people are about to read is about COVID-19 as a disease, a research topic, an object of political intervention or a cause of social impact.

The scientific dimension of the pandemic is still very much represented by people in white coats and protective goggles, lab benches or microscopes and DNA helices. Despite the hard work of epidemiologists, mathematicians, biostatisticians, engineers, economists, and sociologists, they still do not have their own symbols and hallmarks. The data they produce appear in the form of graphs, maps, and other illustrations of scientific results.

The medical side of COVID-19 is present in the images of intensive care units, doctors in protective suits and unconscious patients connected to respirators. A further cause of panic is the visual impact created by the statistics represented by ever-increasing curves and ever-expanding spots on the maps.

Some graphical representations have the explicit aim of inducing behavioural change through prescriptive illustrations of protective measures in different contexts or, otherwise, of what to do in the event of contagion.

The social aspects of the pandemic are mostly depicted by evocative images of the impacts of lockdown measures (strangely empty streets, shops with their shutters down and commuters wearing surgical masks) and preventive measures particularly focused on hygiene (washing hands and disinfecting shopping trolleys) and healthy eating. What digital technologies have become and how often they feature in illustrations of the pandemic is unprecedented.

Therefore, what is new in the visual representation of the COVID-19 pandemic? Not everything, as there are many legacies of previous pandemics (AIDS, the 1918 Flu Pandemic, even Ebola) and stereotypical ways of showing science. What is unprecedented, however, is the speed with which science has been able to produce photographs of a new virus, how widespread the graphic representations of pandemic data have become, and the exceptional images of once animated and now empty cities. Just as invisible as the virus are the ways in which it is transmitted. This infographic attempts to make this invisibility visible, providing useful tips for concerned citizens.

Another study investigated how exposure to images related to SARS-CoV-2 can influence emotions and shape risk perception related to COVID-19 (Li et al., 2022). Seventy images depicting SARS-CoV-2 were collected from the websites of CDC, NIAID and third-party organisations in early 2020. First, a group of 492 adults recruited by Amazon Mechanical Turk (MTurk) were shown the images and asked to rate their fear and aversion levels for each image. The results of this pre-test identified images that evoked high, medium, and low levels of fear and aversion, which were then used as therapeutic stimuli for an online experiment with a national sample of 500 US adults.

Visual representations of SARS-CoV-2 not only portray how the virus may 'look', but also convey metaphorical meanings that may subsequently evoke negative emotions, such as disgust and fear. Disgust is a unique emotion that initially evolved as an effective mechanism for rejecting harmful substances ingested orally (Rozin & Fallon, 1987). Similarly, fear, which is 'an intermediate variable between sets of context-dependent stimuli and sets of behavioural responses', helps humans avoid or cope with threat (Ralph, 2013). Both emotions have evolutionary significance in protecting humans from exposure to infectious diseases (Curtis, 2004).

The 500 participants in the online survey were demographically varied and representative of the national population. The results of factorial analyses of variance showed that participants did not report significantly different levels of fear after viewing the images. However, exposure to the image was associated with a significant difference in disgust. In addition, older, non-white individuals, as well as those with lower household income, reported higher levels of fear when viewing the images;

however, female, non-white individuals, as well as those with lower educational attainment and household income reported higher levels of disgust when viewing the images. Image exposure was not associated with any significant change in participants' perception of COVID-19 risk. However, females, older and non-white individuals were likely to report a higher level of risk perception after viewing the images.

Pre-existing feelings towards COVID-19 were strongly related to the fear resulting from exposure to the image. Specifically, those who felt more negatively about COVID-19 perceived more fear after seeing the images than those who felt less negatively. An analysis of covariance suggested that the interactive effects between feelings towards COVID-19 and image exposure on fear were significant. Specifically, the relationship between pre-existing feeling and individuals' fear was more significant among those who viewed Group 1 images (i.e., images that evoked the highest level of disgust in the pre-test) than among those who viewed Group 3 images (i.e., images that evoked the lowest level of disgust in the pre-test). In other words, people's fear was polarised according to their pre-existing feelings towards COVID-19 after viewing the images that evoked the highest level of disgust.

Image representations of science, ranging from symbols, photographs, illustrations, or data graphs, are increasingly used as effective tools for public communication. When it comes to health and medicine, images can help non-experts recognise the physical forms of living organisms or delineate invisible objects such as bacteria or viruses. If properly designed, scientific images can attract attention, stimulate curiosity, facilitate understanding and increase confidence in the message conveyed (Gigante, 2018). As Rosello (1998) argued in an analysis of HIV images, scientific images could indicate that "some people know how to work very hard to convey knowledge, truth" and thus arouse feelings of mastery or even "aesthetic appreciation and intellectual pleasure ".

An emblematic photo was taken on 2 December 1991 that immortalised the immunologist Fernando Aiuti who, after reading the umpteenth erroneous and misleading piece of information in the *Il Mattino di Napoli* newspaper, that HIV could be contracted simply by kissing, decided to kiss his HIV-positive patient Rosaria Iardino during a congress at the Cagliari trade fair (you can see the photo in many web sites, for example this one: "The kiss that changed the medicine", https://steemit.com/science/@riccc96/il-bacio-che-cambio-la-medicina-the-kiss-that-changed-the-medicine). The image went around the world and *La Stampa* called it "the greatest awareness campaign against the stigma towards HIV-positive people". But did it really work?

Another photo, also related to HIV, published by the *New York Post* on 6 October 1987, shows Gaetan Dugas in the foreground with the headline 'The man who gave us AIDS' (Murphy, 2016). Gaetan had no problem telling the CDC (*Centers for Disease Control and Prevention*) sociologist the names of some of his sexual partners over the past three years. This was to be instrumental in defining the epidemiology of the transmission of the infection, but on the other hand it led to a growing hatred of homosexuals, so much so that the disease was renamed GRID (Gay Related Immune Deficiency). The Lancet journal spoke of a 'gay compromise syndrome', while national newspapers in several countries used expressions such as 'gay cancer' (Division of Infection Disease, North Carolina).

About 40 years have passed since the spread of AIDS and there have been many campaigns to raise awareness and provide information about the virus and the disease that can result from it, but too much fake news still continues to circulate and the stigma towards HIV-positive people remains high.

During the SARS-CoV-2 pandemic, images more than anything else represented the main tool for attempting to tell the story of what was going on, and thanks to their rapid and ubiquitous dissemination, they contributed in one way to a sense of the scale of the problem and in another to increased unease. The use of images (Conti, 2016) allows us to grasp and analyze the world and to access the mass of information that our society produces, in every moment, in visual form (Conti, 2016).

To mark the crossing of the 3 million COVID-19 death threshold worldwide, Associated Press asked 15 photographers in 13 different countries to choose the image they had taken that best represented the pandemic (Winfield, 2021; see all the photos in this article by Nicole Winfield: http://bit.ly/3OaUZ5C)

Also in Italy, the photos that were taken and became famous abroad thanks to social networks and traditional media, have marked the months of the pandemic, and marked some milestones. From the first cases of positivity to the virus in Codogno and Vo' Euganeo on 21 February 2020 to the hope of vaccines, the photos have marked time and fixed some moments of other people's lives in the collective memory (you can see all the photos in an article in *Sky TG-24* [2020], which has selected the symbolic photos of the SARS-CoV-2 pandemic).

The layering of trauma through social media

An arena of the new millennium, which is potentially capable of attributing and recognising the status of trauma to an event, is represented by digital social media. They possess specific linguistic and semantic codes through which communication occurs very quickly and spreads everywhere.

Trauma, in this case, is the product of a complex and articulated work of social production of meaning. It is not the events that are traumatic but their representations. These are the product of an articulated process of social construction that winds around what Alexander (2012) calls the spiral of signification. In order to convince the wider audience that it has itself been traumatised by an experience or event; the carrier group must be successful in the work of meaning-making. The key to success in the spiral of signification lies in the effectiveness with which the 'performance' is represented within what Alexander calls institutional arenas, specific social situations with their own codes, specific languages. It is necessary for each of these arenas to treat the event according to its own linguistic and semantic codes in order for it to be attributed and recognised the status of trauma. Collective identities, effectively invested by the spiral of signification, will now appear reoriented and redefined according to the new grand narrative of the group's social history (Alexander, 2012).

They identify specific social situations, create a group identity, a social identity, in which, similarly to face-to-face contexts, individuals act as members of social groups. They create and share content, engage in discussions, and participate in a range of activities that by definition are social. Social identity in the online context describes the self-concept that results from identification with social groups or categories that individuals experience online.

Such identities are dynamic and have the ability to influence thinking, emotions, and behaviour, both online and offline (Pacilli *et al.*, 2021).

Social media, on an individual basis, are used to keep in touch with friends and family. This, however, can be expanded to include the use of social media as a networking tool for career options, finding people around the world with similar interests and simply as a means to vent one's frustrations/emotions. Although these applications are still used today for similar purposes, they were certainly used more frequently due to the forced isolation caused by the pandemic. People who disliked using social media and avoided it at all costs as a method of communication reluctantly gave in to trying these platforms to stay in touch with their loved ones. Whether through direct messaging features available on various apps or by posting pictures of their daily lives, people try to portray their lives as best they can on these virtual platforms. The way social media were used before and during the pandemic has a strong relationship with the idea of the social self (Pérez – Fuentes, et. al., 2020).

Most notably with the pandemic, social media brought to light another layer of health care. Various healthcare professionals created public accounts on social media platforms, such as *YouTube*, *Facebook*, *Instagram*, *Twitter*, and *TikTok*, to provide information/updates on what was happening with the pandemic, social distancing guidelines and vaccine updates. In a peer-reviewed article published before COVID-19, Zhao & Zhou (2020) explored the various benefits and risks of being an active social media user. Some of these benefits include increased interactions with others, the availability of more accessible information, social support, and the potential to influence many health-related policies.

Social media platforms are among the most widely used sources of information in the world. The easy and cheap access to the Internet and the large number of registered users on these platforms make them one of the easiest and most effective ways to disseminate information. During major

events, the general result is usually an increased search for information, whether it is about a sporting event, a disease or a natural disaster.

A good example of this is the peak of information searches on Internet and social media platforms in China that precedes the peak of incidence in COVID-19 cases by 10-14 days, with which Internet and social media searches have a proven correlation with disease incidence (Abd-Alrazaq *et al*., 2020; Li *et al*., 2020)

Social media platforms have also become useful for the lay public to maintain communication with friends and family to reduce the isolation and boredom that have been associated with anxiety and long-term distress, thus becoming an important recommendation for isolation at home to help reduce psychological distress impact (Brooks *et al*., 2020).

Some of the most striking features of social media platforms in this pandemic has been the rapid spread of protocols regionally, nationally, and internationally. Sharing protocols on treatment, personal protective equipment or even proposals for equitable allocation in settings with scarce medical resources have now become the new normal (Emanuel et. al., 2020).

This allows centres with less capacity to develop protocols at a sufficiently fast rate to be able to implement or adapt the protocols of others to their particular situation or resources in a minimum of time, which was unthinkable 20 years ago when most social media platforms had not yet come into existence.

Social media has the great advantage of rapid dissemination of educational content in the COVID-19 era, e.g. Chan *et al*. (2020) developed an infographic on airway management in patients with suspected or confirmed COVID-19. It was shared via Twitter and WeChat, requests for its translation into more than ten languages were received within days, and the distribution allowed the infographic to be adapted to the particularities of each healthcare setting.

Faster dissemination of information on preventive measures has much potential. A recent study by Basch *et al*. (2020) evaluated the 100 most viewed videos on YouTube with the word 'coronavirus', which together had over 165 million views as of 5 March 2020, 85% of which belonged to news channels; It was found that less than ⅓ of the videos mentioned recommended prevention measures, less than half mentioned frequent symptoms, yet almost 90% commented on deaths, anxiety, and quarantine status. This study leaves us with an important reflection on the missed opportunities for dissemination of quality information on infection prevention and frequent symptoms of COVID-19 on platforms such as YouTube, which are increasingly consulted as a source of information.

As far as publications are concerned, studies have shown that the dissemination of scientific literature on social media platforms (*Facebook*, *Twitter*, etc.) increases the number of downloads, queries and citations of these articles (Eysenbach, 2011) which, with COVID-19 are features that undoubtedly enabled a rapid dissemination of knowledge worldwide, as well as significantly reduced editorial time from months of processing to days or weeks of receipt.

Another advantage of social media platforms during the COVID-19 pandemic was the possibility of organising collaborative research projects, surveys, and multi-centre studies. Finally, another advantage of social media platforms is the support of continuing medical education through live and recorded online webinars via platforms such as YouTube, Skype or Zoom.

Among the disadvantages, there is the possibility that the information transmitted is out of date, not peer-reviewed, invalid, incorrect, not applicable to our environment, or even false.

Another major obstacle for social media and the dissemination of information are 'bubble filters', a concept coined by Eli Pariser (2011), which tells of a 'personalised ecosystem' towards the user, in which algorithms, through data collected from the same user, predict their preferences and produce results considered suitable for that user. These bubbles produce a cycle of similar content that prevents the user from seeing other sources to counteract the information. This concept applies to any scenario or disease that is consulted in Internet search engines or on social media platforms such as Facebook and Twitter.

Finally, probably the worst face of social media is the possibility of spreading incorrect, alarmist and exaggerated information that can cause fear, stress, depression, and anxiety in people with or without underlying psychiatric illnesses.

A study by Wang *et al.* (2020) in China, conducting an online survey with 1,210 responses, found that 53.8 per cent of respondents considered the psychological impact of the epidemic to be moderate or severe; a research group also created and validated a scale called the 'Fear of COVID-19 Scale' (Ahorsu *et al.*, 2020) to assess the level of stress and anxiety in the population and to establish appropriate measures to prevent associated consequences, such as post-traumatic stress disorder (PTSD), which was the most common psychiatric consequence after the Severe Acute Respiratory Syndrome (SARS) epidemic in Asia in 2003, followed by depressive disorders (Mak *et al.*, 2009). Other more serious illnesses or events such as suicides have already been reported in parts of the world such as India, Great Britain, Germany and Italy (Thakur – Jain, 2020).

As of 30 April 2020, there were more than 8,000 articles on PubMed containing the word "COVID-19", which tells us about the tsunami of information less than four months after its appearance in China; with all the attention poured into the media, the avalanche of data becomes unsustainable, and has been called 'Infodemia' (Zarocostas, 2020; Hua & Shaw, 2020).

Moreover, as fast as information travels, so does misinformation, which is why some authors have suggested creating working groups to combat myths and misinformation in social media platforms (Depoux *et al.*, 2020). In this way, the World Health Organisation (WHO) has developed an exclusive section on its website designed to dispel myths related to the coronavirus (United Nations, 2020).

Linked to this same problem, the 'lay' public has access to the results of preliminary and in-vitro studies through the news at practically the same time as this information is available to the medical community, which combined with the generalised fear of the virus and overwhelmed healthcare systems, generates pressure on patients to request such experimental treatments for themselves or their families, and doctors may feel obliged to try them, even when there is no high-quality evidence to support their use for these purposes.

The latest observations suggest that the enormous amount of information about COVID-19 generated on social media has overwhelmed users and had a strong impact on their psychological well-being (Islam *et al.*, 2020). Therefore, COVID-19 is not only a global pandemic, but also an 'infodemic' (Laato *et al.*, 2020). Generation Z (people born in the period from the mid-1990s to the early 2010s) grew up as a generation of digital natives and the main force behind the use of social media, but its members generally experience an above-average level of information overload. However, information overload related to COVID-19 on social media and its impact on Generation Z remains little explored.

Although most observations show that the lockdown led to increased use of social media among Generation Z, research published in Science Direct by Liu *et al.* (2021) in May found that, after the initial phase of the lockdown, young people called for a 'detoxification' from social media. Generation Z's intention to disengage from social media developed during this period and was reflected in a decline in social media use at a later stage of the lockdown.

Research findings indicate that perceived COVID-19 information overload on social media increased social media fatigue and fear of COVID-19. Generation Z users were exposed to a large amount of information about COVID-19 on social media during the pandemic lockdown, firstly due to the urgency and lack of precedent of COVID-19 and secondly due to the crucial role of social media in information consumption during the pandemic. As the amount of information, misinformation (false information created without the intention to harm others), disinformation (false information deliberately created to harm a person, group, organisation, or country) about COVID-19 increased on social media, Gen Z was, as the main group of social media users, likely overloaded with information about the pandemic (Islam et. al., 2020). From the users' perspective, this information overload triggered psychological distress, thus leading to user fatigue in relation to social media. This evidence is consistent with previous studies and underlines the detrimental effects of pandemic information overload on the psychological well-being of individual social media users during a global health crisis (Zhang *et al.*, 2016).

Furthermore, COVID-19 information overload on social media not only affected the psychological state of social media users associated with the platforms they accessed (i.e., social media), but also their feelings and perceptions regarding the event they were informed about (i.e., COVID-19). Information overload on social media exacerbated users' concerns about the uncertainty and continuation of COVID-19 (Mertens *et al.*, 2020). Generation Z has limited life experience and a relatively low ability to digest information effectively. According to the study, the enormous amount of complex information related to COVID-19 exceeded the information processing capacity of Generation Z members and further hindered their ability to develop an unbiased assessment of COVID-19, which led to a higher level of fear of the coronavirus pandemic.

Conclusions

The COVID-19 global pandemic is the first tragic event, in this age of technology and digital social connection, to be shared by the entire world. We have all experienced the full impact of this collective experience in real time. The countless individual tragedies caused by the virus have come together in a cumulative and reciprocal loss, and altogether have represented a collective decline in the state of well-being, to which few have remained immune.

The common effects of trauma are represented by loss of action, feeling physical and mental overwhelmed, altered perceptions of safety and, of course, a significant psychological response.

In this framework of collective trauma construction, the narration of the traumatic event and the multiple subsequent events played, and continues to play, a significant role. Communication was essential, especially considering the massive use of photographs, subsequently posted on social networks. This allowed the collective trauma to be shaped by the inherent characteristics of photographic language and social media. The COVID-19 pandemic has many of the characteristics of collective trauma. The global dimensions of a public health crisis, its rapid expansion and the instantaneous circulation of images describing profound human tragedies have started the process of constructing collective trauma. As Demertzis & Eyerman (2020) state, there are elements of the collective trauma present simultaneously: (a) emotionality; (b) attribution of blame; (c) identity formation processes; (d) defense mechanisms). Furthermore, the pandemic is: global, risky and uncertain, highly mediatized and traumatic. Demertzis & Eyerman (2020), in full health emergency in 2020, stated that it was not possible to declare the cultural trauma at that time due to the non-retrospective view. To date it could be said that the collective trauma exists.

The collective trauma was further amplified by the disinformation that was triggered on digital platforms. This framework, as a key reading of the formation of collective trauma, proved to be as much a threat to global public health as the virus itself.

The possible dissemination of false data, myths and pessimistic information combined with quarantine states can lead to anxiety, depression, and other psychological consequences. Therefore, it is advisable not to contribute to infodemics and to use social media ethically and responsibly when disseminating information. Nevertheless, there is an upside, if properly used social media present can be a valuable tool to help during a pandemic. Important new information can be disseminated quickly, such as the sharing of diagnostic, treatment and follow-up protocols, making it possible to compare different approaches from other parts of the world to fit our own context and available resources.

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