

COVID-19 and global mental health: The mutual impact of clinical and socio-cultural realities

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Introduction

The broad scope of sequelae and areas of reflection generated by the COVID-19 pandemic make it one of the most complex phenomena in mankind's history. Practically every discipline in the fields of science, social studies, creativity, religion, arts and philosophy, has devoted intense efforts to explorations and research on the pandemic's meaning and impact [1,2]. Statistical figures are a reference platform documenting such realities and inducing different forms of analysis, projections, and speculations about the nature, consequences, and management of future global disasters [3].

A fundamental area of study in this context has obviously been health and, specifically, mental health in all its dimensions [4]. The main challenge has been the need to elaborate universally valid pronouncements in a field whose basic components follow unique socio-cultural norms in different regions, continents, countries, and territories [5,6]. Such was one of the purposes of the COMET-G study and its four articles about COVID-19 in the global scenario, covering 55,589 participants from 40 countries in five continents, and inquiring about rates of distress, depression, suicidality and other conditions, their relations with lifestyle and socio-demographic variables, and their specific impact on health professionals and vulnerable populations.

The main purposes of this commentary are to examine persistent aspects of the pandemic conveyed by updating research efforts, and to focus on the complex dynamics of clinical mental health realities and socio-cultural features of diverse populations. It includes brief reviews on epidemiological and geographic data, specific clinical conditions, vulnerabilities, clinical services (including vaccinations), and educational/training trends. The article also attempts to emphasize culturally-based aspects of population behaviors, social responses and their eventual distortions resulting from collective driving forces, tensions and uncertainties. Diseases as agents of change is another implicit thesis of the analysis [7].

Global Impact and Epidemiological Data

A cogent contribution to the prevalence of psychiatric and neurological conditions after COVID-19 infection, and to the delineation of their risk trajectories [8], reported findings in 1,487,712 patients out of an electronic health records network of almost 90 million cases collected from hospitals, primary care and specialists in USA, Australia, UK, Spain, Bulgaria, India, Malaysia, and Taiwan. While risks of mood and anxiety disorders returned to baseline after 1-2 months, those of cognitive deficits, dementia, psychoses, and epilepsy were still increased at the end of 2-years. These trajectories were more often seen in children and older adults although the former had a finite risk horizon, while many of the latter died, particularly those diagnosed with dementia or seizures.

After the emergence of the delta variant, increased risks of ischemic stroke, epilepsy, cognitive deficits, insomnia and anxiety disorders were observed. Pressures on the health care systems may continue, even with less severe virus variants.

The design and further use of instruments in clinic-epidemiological studies is a crucial step to ensure precision and information validity. In COVID-19, a limited but original effort in such direction was the revalidation of a scale measuring perceived fatalistic ideas among 886 participants from 13 Latin American, Spanish-speaking countries [9]. The purpose was to have the 7-item scale available as an indicator of emotional predispositions before the infection. The quantification of fatalistic perceptions (i.e., viral dissemination, possible mental health complications, religious interferences, and the possibility of death) could become a valid anticipation of psychopathological outcomes in victims of pandemics and other disastrous events.

Realities in Continents and Countries

A systematic literature review and meta-analysis of mental disorders in different subpopulations in *Latin America* [10] included 62 studies and 196,950 participants. The main findings reported prevalences of anxiety (35%), depression (35%), distress (32%) and insomnia (35%), with higher figures in South American (36%) compared to Central American (28%) countries, and in Portuguese-(40%) vs. Spanish-speaking (30%) countries. University students (45%), and general population (37%) were more affected than general and frontline healthcare workers (34 and 33%, respectively). An interesting feature is that high-quality studies reported a higher prevalence of symptoms (42%) than those of medium quality (31%). It is also important to mention that the average percentages of this study, almost double up those of the COMET-G overall findings, and of large countries like China (25%) [11] and Spain (20%) [12].

A brief review of longitudinal studies in individual countries follows. *Chile*, a mid-to-high income country in South America, had a significant increase in psychological distress (particularly moderate to severe anxiety and depressive symptoms) between pandemic waves 1 (22.6%) and 2 (27%) [13]. Loneliness and isolation, women, concerns about living conditions (overcrowding, lower incomes), history of chronic medical illnesses (diabetes, obesity, hypertension, etc.) and previous mental health symptoms were significantly associated to the main findings, thus confirming significant vulnerability levels. In addition, younger people may be particularly affected by social contact deprivation due to closure of educational institutions and difficulties in distance learning [14].

Although Perú has about 33 million inhabitants, its COVID-19 mortality was the highest in the world; equally high levels of comorbidity militate against a deficient healthcare system and the dramatic finding of only one non-poor person out of 20 killed by COVID-19 [15]. The pandemic led to 100,000 orphans in Peru vs. 250,000 in the U.S., a country with a ten times higher overall population [16,17].

Focused on the provision of outpatient psychiatric care to patients with severe mental disorders, and on the assessment of regular inpatient general medical care during the first year of COVID-19, a *German* study [18] compares two large cohorts (> 735,000 patients) with severe mental disorders diagnosed before and after the pandemic. Facing “an unprecedented and unclear situation”,

hospitals had to “repurpose” their main tasks mainly for COVID-19 management. Except for a noticeable drop in January 2021, the overall impact of the second lockdown (December 2020-May 2021) was stronger *vis-à-vis* cancellation of appointments, check-ups and preventive consultations; however, psychiatric care had utilization rates almost equal to those of the pre-pandemic period. Reasons for these relatively mild consequences may have been the implementation of digital and telemedical services, and the quick disposition of psychiatrists to compensate the shortage of inpatient treatment options.

An online survey, one year after the peak of the COVID-19 outbreak in *China* [19], responded to by 771 subjects, showed significant levels of stress associated with anxiety and depression; it also revealed the impact of resilience, i.e., the process of adapting well in the face of adversity [20], and social support based on the post-traumatic growth, a reinforcing process of self-appreciation and emotional development after surviving traumatic experiences [21]. The public/mental health implications of these findings are significant.

Finally, an *Iranian* qualitative study on the perception of stress by healthcare professionals [22] detected anxiety, guilt feelings, depression, and anger reactions, with uncertainties and preparation shortcomings as the two main stress sources. These circumstances (closely related to an insufficient public information and education about the disease) affected the actions of healthcare workers and had a powerful impact on the communities’ quality of life and levels of determination or ambiguity [23].

Specific Clinical Conditions

Studies on clinical conditions during the COVID-19 pandemic, mention depression, anxiety, distress, and post-traumatic stress disorders as the predominant diagnostic categories in different socio-demographic populations. A systematic review and meta-analysis of 42 relevant studies on pediatric emergency department visits across 18 countries, covering a period of 3 years (Jan 1, 2020-Dec 19, 2022) [24], showed an increase in suicidal attempts and suicidal ideation, and good evidence of a slight change in self-harm behaviors, with higher numbers among girls and older adolescents (16-17 years). Interestingly, there was a reduction in visits “for all other mental illness indications (e.g., depression, psychosis)”, even though the relationship between depression and suicidal behaviors cannot be ignored. The “sex paradox of suicide, whereby girls are more likely to attempt suicide and engage mental health care, yet boys are more likely to die by suicide”, is noted.

A summary of publications about the impact of COVID-19 on mood disorders and suicide is provided by Ciachella *et al.* [25]. People with pre-existing psychiatric diagnosis and other medical conditions exhibited significant clinical worsening, lockdowns were associated with increased loneliness and poor perceived social support, feelings of distress were only slightly relieved by social media and virtual communities’ interventions [26]. Like the post-traumatic growth mentioned above, “psychological antibodies” such as life satisfaction and well-being dimensions (personal growth, self-acceptance and positive relations, long professional experience, adequate training, and clear guidelines) were found to buffer the pandemic’s impact.

An increase in substance use-related outpatient visits and its mental health effects has been reported. It included physicians and

other health professionals [27], mostly as a result of high levels of anxiety and depression, exacerbated by COVID-19: from 17.1% two years earlier, to 30.8% shortly before the pandemic, and to 39.8% in 2021.

Similarly, patients with personality disorders experienced worsening of their symptoms during the pandemic, exhibiting greater general psychopathological manifestations, and more severe anxiety symptoms than schizophrenic patients [28]. This Italian study used linear regression models with different instruments to assess the probands at the pandemic's outbreak, first lockdown period, and reopening. Psychometric scores showed a significant worsening, particularly during the lockdown. From another perspective [29], some personality traits (not disorders) show significant clinical relevance, particularly in terms of beliefs on individual control and competence, by correlating with symptoms of mental distress and positive screening for post-traumatic stress disorder (PTSD). This Vienna study highlighted the low ability self-concept, low internality, and high social and fatalistic externality in PTSD participants; other tests showed missing alternatives for action, low self-confidence and self-awareness, extreme dependency on powerful others, high helplessness, passivity, dependence, intense fatalism and insufficient coping strategies. The "metacognitive power" [30] of self- and external perception, i.e., suggestibility, was brought up by the fact that participants with low internality scores and positive PTSD screening were significantly more likely to report symptoms of a COVID-19 infection without being ill.

The neuropsychiatric sequelae of COVID-19 constitute a heterogeneous set of conditions awaiting more consistent clinical and epidemiological inquiries. Taquet *et al.* [31,32] have analyzed electronic healthcare records of hundreds of thousands of COVID-19 patients; nevertheless, identifying the risks for neuropsychiatric sequelae as transient or persistent is a complex objective [33] in view of time variations, connections with severity of COVID-19, symptom/types and other "confounders". About cognitive consequences, a cohort study from South America [34] found significant differences between 45 post-COVID-19 patients and 45 controls in memory, attention, executive functions and language performances; it is suggested that post-COVID-19 cognitive symptoms may persist for months after disease remission; simple screening may be insufficient, thus formal cognitive/neuropsychological assessments must be performed.

All previous findings clearly point out the great variety of mental conditions present in COVID-19. We are not only discussing specific nosologic categories, but also clinical, symptomatic features that may operate as warnings of ulterior events. Such is the case of "psychological fatigue" [35], a well-documented finding of three online cross-sectional survey studies conducted between April 2020 and March 2021, in 18,180 Spaniard subjects. Through the formal appearance of increasing prevalence of anxiety, stress, and depression, the authors conclude that COVID-19-triggered status shapes up, particularly among middle-aged and older adults who show a "progressive and constant increase" of clinical conditions throughout the pandemic waves. Admittedly, this requires further sanctions including the evaluation of pre-morbid personality features, i.e., fragility, resilience degrees and the identification of characteristic psychiatric symptoms, beyond the enumeration of traits or characterological features.

Vulnerability and Vulnerable Populations

Another critical area in the study of the impact of health-threatening events is the identification and delineation of human groups and communities most likely to be affected. With COVID-19, it was clear from the beginning that the pandemic would cause its most devastating sequelae in well-known vulnerable populations, although the severity and magnitude of such impact could not be easily predicted. The socio-epidemiological literature has consistently identified vulnerability with the deterioration of the so-called social determinants of health and mental health [36-38] whose self-reinforcing features result in a dynamic multiplication of vulnerability factors and vicious circles of mixed pathological events. Studied target populations, in which multifaceted vulnerabilities exert a powerful impact, include poor, deprived communities, early and late age and gender subgroups, and healthcare workers and professionals directly involved in care of COVID-patients.

Poverty, the lowest extreme of SES was, as expected, the most powerful vulnerability factor for mental health problems during the pandemic. Its links with other social determinants made it also a nuclear trigger of pervasive vicious-circle processes. A study in South America [39] documented worsening poverty conditions "especially in the rural areas where people lost their livelihood and access to healthcare facilities". Like in many other regions, poverty itself and the further infectious sequelae worsened the affected indigenous subpopulations' health conditions, reinforced discrimination, loneliness, and the subsequent emergence of stigmatizing behaviors.

Aloneness or *social isolation* presents three key interrelated facets (emotional, social and existential loneliness) and interacts with risk and protective factors; conversely, the term solitude reflects alleviating mechanisms alongside common social methods, focused policies and interventions that may provide "a positive opposite to the most negative feelings of loneliness" [40].

Age and aging constitute a vulnerability factor that goes beyond a mere physical impact by introducing, among the elderly, a deep sense of loneliness, a "silent epidemic" during COVID-19 times, and subsequent worsening of their mental health. As in many other areas, women aged 70 and older, reported more severe loneliness, lack of in-person communications and increased mental symptoms like depression, stress and anxiety [41]. In turn, the global prevalence of depressive and anxiety symptoms among children and adolescents increased considerably during COVID-19. A meta-analysis of 29 studies including 80,879 participants [42] pooled prevalence estimates of elevated depression (25.2%) and anxiety (20.5%) patients, the former with higher levels in older children, and anxiety among girls doubling pre-pandemic estimates.

Gender issues are clear risk factors, exemplified by the case of non-binary individuals whose vulnerability was evidenced during the pandemic [42], but has not been a specific subject of study in the last two years. During such period, *healthcare workers (HCWs) and professionals* have become one of the most vulnerable (and studied) groups in the COVID-19 context. This is understandable given the impact of contagiousness, transmission and deaths, and the inevitable reduction in numbers and availability of service provisions. A comprehensive global literature search of 40 systematic reviews, with data from 1,828 primary studies and 3,245,768 participants [43] emphasized, in addition to the best-known diagnoses, the high occurrence of symptoms such as insomnia, burnout, fear of

infection (96.6%), and diagnoses like obsessive-compulsive disorder, somatizations, phobias and substance abuse. Highest anxiety levels (predominantly reported by nurses) were found in the U.K., highest depression in the Middle East, and stress in the Eastern Mediterranean region. Stress-related symptoms included acute stress, distress (78%) and PTSD (71.5%). HCWs in emergency units were obviously exposed to traumatic stressors such as the burden of rapid decision-making, management of patient and family concerns, unexpected daily caseloads, and high fatality rates [44].

A variety of publications show physicians (including residents and other trainees), nurses, and paramedics as serious victims of the pandemic's detrimental psychological impact translated into an increased incidence of depression and anxiety, and an elevated risk of suicide, now regarded as an occupational hazard in the healthcare industry [45]. An interesting concomitant finding in a Peruvian study of 542 health professionals surveyed with standardized self-assessment instruments, revealed abundant histories of adverse childhood experiences [46], with early sexual abuse history as modulating/potentiating risk factors of mood and anxiety disorders. Female HCWs had a higher prevalence of emotional abuse, whereas men reported a higher prevalence of sexual abuse. This study cited comparable findings in Spain, Canada, China, and Australia.

Post-traumatic stress disorder (PTSD) as a thoroughly delineated clinical entity in HCWs is a matter of debate, not only due to the role that the time factor plays for symptom assessment and diagnosis, but also because of scarce follow-up studies. Furthermore, as a British cross-sectional study asserts, the prevalence estimates of PTSD were considerably lower when assessed using diagnostic interviews compared with screening tools [47]. Once again, however, nurses, younger HCWs, women and individuals exposed to morally injurious events were at increased risk for this and other disorders. Additional studies [48] help to understand the occupational determinants of emotional involvement in HCWs, and the risk of "burnout syndromes", as objective of preventive efforts.

Provision of Services

Confronted with unknown and serious challenges from a pandemic that uncovered a series of structural deficiencies and generated uncertainties, governments started to formulate control measures and service initiatives. Obviously, high income countries acted faster and more effectively than others. Such was the case of the United States where public and private healthcare establishments and organizations set themselves into action. Of particular significance were those aimed at improving health outcomes among the disproportionately affected racial and ethnic minorities, mostly residing in metropolitan areas. The connection of these initiatives with the social determinants of health allows social accountability, interprofessional actions and community-oriented educational efforts. In Florida, for instance, the integration of systematic assessments and tailored response services, focus on underserved patients, and a clear understanding of the social implications of the disaster, guided the response of a community organization [49]. "Education, navigation, remote symptom and risk assessments, and home monitoring were a central plank in our early efforts", point out the authors, a holistic approach nourished by "the support of a broad interdisciplinary team, longstanding relationships, and the trust with household and community partners".

A radically different scenario is described in two reports from

Perú, a middle-income country in South America. A qualitative study conducted between September 2021 and February 2022 [50] evaluated services provided by four Community Mental Health Centers, essentially based on telephone calls to monitor the users' clinical course [51]. A singular observation of this and other studies is the dilemmatic assessment of technological resources in the so-called developing countries: on one side, advantages of telehealth and overall virtual services, and on another, doubts about their capacity to reproduce positive user-provider therapeutic links; the same applies to difficulties in the accurate evaluation of mental signs and symptoms *vs.* the continuity in the provision of services, or, ultimately, the need of high investments by not always sufficient public budget resources.

Mental health care plans and programs require a panel of interventions that encompass prevention measures, promotion of mental wellbeing, and cultivation of resilience [52]. The management of overwhelming experiences such as loneliness typifies these complexities. So-called "meaningful activities" (artistic endeavors, physical/sport activities, writing or storytelling) aimed at the increase of leisure, demand at times high concentration levels to allow the participant to "enter a state of flow", become absorbed and focused, and experience momentary enjoyment [53].

An essential component of the healthcare resources used in the fight against the virus has been, and still is, the use of vaccines. There is evidence that vaccinating against COVID-19 improved measurably the psychological well-being of participants [54]. Adults who received at least one dose of the vaccine reported a 7% relative reduction in mental distress, partially explained by declining risk perceptions of acquisition of the infection, hospitalization, and even death. These effects became stronger up to at least eight weeks following vaccination and differed due to factors such as race or ethnicity: the largest distress reductions were observed among American Indians and Alaska natives.

Other aspects of the vaccination acceptance *vs.* refusal process are examined in a study conducted in Poland, but also substantiated by a literature review [55]. Out of 1,001 responses to a survey/questionnaire using social media, 243 people declared that they would not vaccinate, a reluctance that was associated to loss of income, problematic access to health care, and calling daily life restrictions "excessive" and damaging. In turn, readiness to vaccinate was related to greater certainty about effectiveness, a hypothetical "collectivist attitude" and belonging to medical professions or suffering from chronic diseases and greater levels of anxiety, insomnia, social and somatic dysfunction.

A variety of additional factors play a decisive role in the public acceptance of vaccination: greater disposition to follow the new healthcare and prevention rules, less news-following (therefore, a reduced level of information), paradoxical impact of the "infodemic" [56], opposite results from a "fake-news"-reinforced suggestibility [57] and parallel conspiracy theories [58]. The many faces of misinformation include ignorance, disease minimization and misinterpretations frequently enhanced by extreme religious perspectives. The supposed (and wrong) naming of people guilty of "conspiring" through "virus fabrication" or "planned world dissemination" fostered by political animosities, as well as false cures, "miraculous" or "useless" medications, and suggestions like diet changes have proliferated.

Education and Training Facts and Actions

The worldwide disruptions caused by the COVID-19 pandemic in many areas of human life reached, sometimes with dramatic intensity, the fields of medical education and training, particularly in LMICs. Remote, technology-based teaching in replacement of face-to-face, classroom-based didactics was probably the most radical change. A report from Curacao, about the nature and impact of such changes in the teaching-learning process of basic science medical students compared the advantages of the well-validated face-to-face teaching with the innovative strategies of teaching and training in virtual environments [59]. Online teaching platforms following synchronous (real-time) and asynchronous (recorded) procedures in the context of active learning strategies, gave form to a concurrent quantitative and qualitative research project. After overcoming technological difficulties and challenges, online fatigue and lack of personal interactions, remote teaching advantages were the availability, convenience and flexibility of many resources, time saving, a variety of student locations and opportunities for “introvert and shy students to become very communicative and interact well”. The disadvantages included limited hands-on experiences and personal interactions, difficulties to track students’ attendance, and enhancement of procrastination and lack of motivation among them. The “constructive alignment” of learning objectives, teaching strategies and assessment methods using small group approaches (i.e., case-based discussions, virtual labs, interviewing skills, physical examination videos, etc.) led, in this study, to no statistically significant differences between on-campus and remote teaching. These advantages were somewhat confirmed by an experimental study from China [60] focused on the measurement of students’ visual attention levels during presentation of “text + commentary” course designs.

With the pandemic as a mirror to social situations of countries and communities around the world, the field of social psychiatry has undoubtedly been privileged by multiple and deeper topics of teaching, learning and research. New data on mental disorders prevalence, governments and people responses to a wide range of decisions and collective behavior changes, vaccinations, health care programs in general and mental health interventions in particular, social entities (family, communities, neighborhoods), and degrees of social cohesion, have been documented [61]. All these lessons to individuals and collectivities, policymakers and administrators are relevant sources for medical educators to cultivate vital preparedness at all levels, and for researchers to explore instruments of response and prevention. Side by side, the ethical considerations of the impact and management of COVID-19 realities such as public emergencies, socio-cultural changes, psychological and legal aspects of administrative measures, and the ultimate view of a new “social culture” will, quite probably, generate new definitions of normality, social policies, stronger clinical and pedagogical challenges, and subsequent ambiguities [62].

Discussion and Conclusions

It is extremely important to be aware and foster the study of a series of sometimes radical socio-cultural changes resulting from the pandemic. They include individual and group-based habits, the strengthened relevance of the social determinants of mental health, particularly in connection with their etio-pathogenic role, the old and new vulnerability factors, and the new definitions of “otherness”

and “alterity” with marked impact on social fields like solidarity and empathy, or discrimination and rejection [38]. All these new notions will generate significant changes in humanity’s “collective memory” and global mental health policies [63].

This socio-cultural impact has been enriched by positive features such as the above mentioned reinforcement of solidarity as an instrument of human warmth and closeness, of the family’s presence and values, of genuine religious and spiritual perspectives. In addition, the role of constructive memories, the search and recognition of authentic heroes in the fight against the virus, and the stronger notions of resilience as an emotional dynamic, a clinic-therapeutic force, and an existential resource, are crucially meaningful [64]. All these are topics of much needed, consistent and durable research initiatives both, at local, national and international levels. The same approach is critically important in the handling of regrettable negative repercussions: increased levels of rejection, xenophobia, hatred and resentment among and between social, political, ethno-racial or religious groups; pessimism, dark and unrealistic expectations, loneliness, self-abandonment and death.

It is probable that mental health has been more profoundly disturbed by the pandemic than physical health. To risk factors of sociodemographic, economic/financial, political or clinical nature, emotional/behavioral consequences of negligence or imposed isolating measures, the maneuvering of “post-crisis forgetfulness”, and the aggravation of predisposing personality features, must be added [65,66]. Equity and social justice concerns, subsequent clinical events, from typical –and expected– pictures of depression, anxiety or stress to personality disorders, panic, agitation, acute psychoses, and substance abuse, through psychosomatic conditions, will demand constant attention and care measures from health authorities and care centers. And, as said, even psychiatrists and other mental health professionals will require increasing self-care levels [67].

The COVID-19 pandemic “presents an opportunity to reinvent our health systems by diversifying and expanding our workforce, infrastructure, service delivery, funding and policies, and by incorporating mental health in every aspect of our response” [66]. This “societal approach”, nourished by sources of equity and social justice must result in solid and lasting innovations [68]. The World Health Organization has clearly proclaimed that “There is no health without mental health”: we can persuasively add that “There is no mental health without a thoroughly authentic socio-cultural focus” [69]. Clinical care, preventive measures, promotional policies, educational and training opportunities, and collaborative research programs must be part of ongoing efforts to face future challenges to universal health.

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