



Overview of behavioural and psychological consequences of COVID 19

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Purpose of review

The paper aims to provide an overview of the psychological and behavioural impacts of the COVID-19 pandemic, with a focus on variations in behavioural response in different geographical areas due to the existence of different social-cultural contexts.

Recent findings

Whilst anxiety, depression and economic stressors are common findings worldwide, specific behavioural responses are heavily influenced by government stances, misinformation, conspiratorialism and competing demands of resource scarcity. This has led to very different understandings of the pandemic even in geographically close areas, and more so when comparing disparate regions such as Africa, South America and Europe. The paper also comments on the absence of robust evidence regarding increases of suicidality and violence on a global level, whilst noting evidence certainly exists in specific regions.

Summary

The psychological and behavioural impact of COVID is heavily influenced by the local lens. Beyond a very broad brush approaches, expected behaviours from one area cannot easily be extrapolated to others. Where possible, clinicians should be guided by local data, ideally placing expectations of responses in a cultural context.

Keywords

behavioural, conspiratorialism, COVID, global, misinformation

INTRODUCTION

The purpose of this review is to provide a broad overview of behavioural and psychological responses to the COVID-19 pandemic amongst the general adult population. It first discusses globally relevant phenomena including emotional responses, suicidality, violence and conspiratorialism. It then discusses geographical variations of response, taking into account cultural, political and economic factors. Particular note is made of areas under-represented in literature.

GLOBAL COMMONALITIES

Many responses of the general population to the COVID-19 pandemic match predictions based on previous respiratory epidemics. Systematic reviews have shown a cross-culturally raised prevalence of symptoms of anxiety and depression [1[■],2[■],3]. Individual studies suggested higher risks sometimes linked to the female gender and lower socio-economic status [4[■],5[■]]. There are global concerns about both direct risks of infection and longer-term

economic consequences. Social distancing has disrupted traditional means of dealing with mortality-related grief potentially causing its prolongation; though the breadth of that impact is filtered through age demographics [6[■]–8[■]]. It has also been linked to negative changes in diet and exercise [9[■]]. Unfortunately attempts to globally aggregate such information have been skewed by disproportionate national representation due to the staggered chronology of the pandemic.

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KEY POINTS

- The COVID pandemic has been associated with raised symptoms of anxiety/depression cross-culturally.
- Predictions that suicide rates will rise globally have not yet been supported by robust data.
- Misinformation or conspiratorialism has influenced responses across much of the world, often taking on racial overtones.
- In Africa, COVID is one of several coexisting crises, with disproportionate long-term gendered and economic impacts.
- In South America, responses have been disparate and linked to local political factors.

Many attempts to assess the COVID-linked emotional valences focused upon social networks. These have shown online discourse focused upon fear and anger, although positive emotions were also noted [10,11[■],12]. Given unequal global social media uptake, it is unclear how representative this is of the global population. Preexisting temperament has been demonstrated to affect behaviour and distress related to the pandemic. One study suggested depressive, anxious and cyclothymic temperaments and insecure-anxious attachment predisposed to developing significant distress [13[■]]. A further study of COVID-19 recoverees concurred with this [14]. Openness, conscientiousness, agreeableness and neuroticism, alongside actual and perceived COVID risk, contributed to likelihood to shelter in place [15[■]]. Preexisting temperament includes a genetic component, which has also been shown to affect COVID-distress response [16].

Based on previous epidemics, predictions of social isolation, and rising unemployment there was a belief suicide rates would rise [17,18[■], 19,20[■]]. This is little evidence this eventuated, particularly in socioeconomically advantaged countries [21,22,23[■],24[■]]. It has been posited a 'pulling together' phenomenon may have accounted for initially reduced suicide rates in countries such as Norway or Japan [24[■]]. There was a similar expectation of increased levels of partner violence, based on factors including increased exposure to perpetrators, stress, increased alcohol consumption, and reduced access overstretched support or emergency services. However whilst there has been significant regional evidence, there is a paucity of high-quality data on the topic [25,26[■]].

A rise in conspiratorialism mediated by governmental actions was commonplace. It has been suggested that high volumes of information, the

presence of negative emotions and external blame attribution increased conspiratorialism, whilst raised perception of self-control reduced it [27[■]]. It was suggested preventive behaviours were supported by conspiratorial individuals more when not government driven, although mitigated by concerns of risk to self [28[■]]. Studies showed negative links between belief in conspiracies and health protective behaviours [29[■]]. It has not been uncommon for COVID-linked misinformation to adopt racial overtones. As COVID is often asymptomatic, racial traits may have been used to identify purported carriers. Social stigma has appeared to spread along racial and class lines rather than actual infection status [30[■],31]. There are suggestions scapegoating is further exacerbated by online bots, with the points of division subject to regional variation. For example, American bots focused on race and nationality, whereas Phillipine bots focused on gender and religion [32]. Finally, perceptions of scarcity and uncertainty appeared to drive panic buying behaviours, reported in countries including the USA, UK, India, China and North Korea [33]. Suggested contributing factors include perceived threats, scarcity, and fears of the unknown, which trigger purchasing as an attempt to reassert control. All would be common in a combined pandemic and global recession [34[■]]. An overall increase in alcohol and substance use has also been noted, although less than predicted by expert opinion [26[■]].

GEOGRAPHICAL VARIATION

Africa

The psychosocial challenges of the African response to COVID have been very different from those in the Western World, with COVID presenting as one of a multiplicity of crises. Whilst quarantining in some African countries has led to increased levels of loneliness, in others it can seem economically unfeasible [35,36[■]]. This is particularly true in countries with food scarcity. Adherence to guidelines has often had to compete with other life necessities, such as in Sub-Saharan Africa where hygiene has been hampered by shortages of clean water [37]. Regarding guideline implementation, much of the information provided within Africa has been identified as inadequate and often recycled from previous epidemics [38]. Due partially to low levels of internet access and health literacy, the impacts of the infodemic in Africa has been filtered through religious and community leaders [36[■]]. This has provoked development of cultural innovations, such as the provision of information in easily memorised song form in Ghana [39]. On occasions treatment is

available, trust is likely impeded by the vast African market for counterfeit and substandard drugs. This is estimated to be worth approximately \$30.5 billion, with 18.7% of drugs substandard [40,41]. The potential for fake vaccines is a particular concern. Whilst the Lome initiative addressing this was signed in January 2020, by the time the pandemic struck safeguards were not fully implemented [42]. Economically, the close ties between China and Africa via importation and mining predicts a rise in local commodity prices. Combined with the simultaneous withdrawal of Chinese investment, cessation of tourism and a reduction in oil prices this has potentially disastrous psychosocial impact for communities established during the Sino-African boom [43].

The gendered impacts of COVID have been particularly stark in Africa. Disruption to education and its associated protections have disproportionately affected females. In Kenya, there has been a sharp increase in adolescents presenting to health facilities, with the causative abuse being referred to as a 'shadow pandemic' [44]. Reduced African access to contraceptives due to lockdowns is expected to contribute to seven million unintended pregnancies [45]. Despite these factors, morbidity and mortality rates in Africa have been favourable compared to Europe and the United States, potentially due to a low average population age and a COVID-protective climate [46]. Africa is thus likely to represent an area where the long-term societal impacts of COVID are disproportionate to its physical health sequelae.

Asia

A preponderance of early COVID studies focused on China, and the impacts from strict lockdowns imposed by the centralised government. These showed increases in anxiety and depressive symptoms that were more significant in women and worsened with lockdown [47,48]. Some later studies have interestingly reported further worsening of symptoms in the 'resolution' phase of COVID, potentially due to economic impacts [49]. In contrast to China's legally enforced lockdown, Japanese law generally only grants governments the power of request in administering lockdowns, with adherence dependent on peer pressure [50]. Japan may have been expected to traverse the pandemic well due its robust health system, preexisting mask use and socially distanced customs. However by the late 2020 COVID was spreading rapidly nonetheless. Blame was cast upon guideline fatigue and a governmental program to increase domestic tourism [51]. This reversal led to increased levels of

psychological distress, alongside a reversal in the initial decline in suicide rates [52,53,54]. It was noted that much of the increase in suicide rate was found amongst females and younger workers, with these groups disproportionately affected by unemployment.

Despite a high initial disease burden, experience with the 2015 MERS outbreak left South Korea well-positioned for COVID. It is suggested this experience helped to drive adherence even with non governmentally enforced guidelines [55]. The pandemic was generally localised to specific clusters, with the extent of psychosocial distress linked to local COVID prevalence [56]. In Thailand, early surveys showed good understanding of COVID and its prevention alongside low levels of community transmission [57]. Early response was also marked by levels of community volunteering higher than global norms [58]. Whilst initially Thai citizens received COVID-related information heavily from social media, studies suggested over time they were more likely to receive it from television, with concomitant increases in evidence-based behaviour. Interestingly, anxiety levels were not consistently affected by gender [59]. Follow-up studies have not been repeated since Thailand's second wave. The impact of COVID on the subcontinent has been well studied and will not be discussed in depth. Despite locking down 1.3 billion people, within India social distancing recommendations were often difficult to follow amongst the urban poor [60]. Sudden lockdowns caused forced movement of migrant workers, second only in scale to the 1947 partition. Such workers were often isolated and particularly socially vulnerable [60,61]. Postquarantine ostracisation further exacerbated this [62]. Despite localised success stories, much of India reports heightened COVID-linked anxiety and economic insecurity [63]. In Bangladesh, urban respondents reported an income drop of 75%, with associated reduction in food intake [64]. In the Dhaka slums, crowding was endemic, water security variable, and up to 16 families may share a bathroom. Following new government charges for tests and fake testing scandals, testing rates dropped, rendering information unreliable even for researchers, let alone the average citizen [65]. Like India, Pakistan has struggled with misinformation, including theories COVID is an anti-Muslim conspiracy [66]. One survey showed 82% of participants were concerned that social media was driving panic [67]. Due to fear of COVID-linked stigma, residents in some areas were hesitant to seek assistance for other medical conditions [68]. As in other areas of the globe, altruistic fear for family outweighed fear for self, and economic impacts limited guideline adherence.

Europe and North America

North American and European components of studies generally matched global trends regarding raised levels of anxiety, low mood, violence and fears of economic disruption, with associated impacts on diet and exercise [2^{••},3,9^{••},69]. These will consequently not be described in detail. However, one significant factor driving differences was the United States government response to COVID, which has been described as ‘maladaptive denial’ of both facts and implications [70[•]]. Belief in the pandemic became linked to political affiliation, with mask wearing becoming a political statement [70[•],71]. Preexisting divisions exacerbated under the combined strain of the pandemic and events such as the death of George Floyd. Rather than the virus acting as a ‘great equaliser’, black communities bore a disproportionate number of cases of COVID [72[•]]. This was complicated by their lower trust levels in medical professions [73]. It was suggested that the online-heavy nature of American society rendered in particularly vulnerable to misinformation-driven division. In contrast, Canada underwent a ‘rare moment of cross-partisan consensus’ [74]. Rather than absolute scepticism, opposition supporters split between whether there had been a government over or under reaction [75[•]]. Canada and the USA nevertheless shared increased racially motivated violence and discrimination against people of East Asian background [76–78]. Though many surveyed linked this only to recent rhetoric, this echoed historical themes associating Asians with infection [79].

Within Europe, COVID-related worries began as consistently high, but decreased during reopening. Loneliness was more prevalent in youth [80^{••}]. Inactivity and negative dietary changes linked to quarantine, including emotional eating, were noted in much of Europe [9^{••},81,82,83[•],84]. Some countries reported a differing perception of time within lockdown [85^{••}]. Whilst early in the pandemic in Western Europe there was increased political support for status quo institutions and democracy, by April the 5G coronavirus conspiracy had reached the same online footprint as information supporting quarantine measures. One Polish study suggested 56% of the population believed at least one COVID-linked conspiracy theory, whereas in Britain telephone engineers were directly assaulted [86,87,88^{••},89^{••}]. In contrast with America, when British antisemitism rose it appeared to be outside partisan divides; this may also be true in other European areas [90].

Oceania

Oceania has been a region lesser affected by COVID. Nations including Micronesia, Samoa and Vanuatu

remained transmission free, whereas Kiribati, Palau, Tonga and Tuvalu remain virus free [91]. Kiribati and Palau nonetheless instituted states of emergency. Research on COVID’s psychological impacts in these countries is scarce. New Zealand was lauded for exemplary pandemic management, utilising a ‘go early go hard’ strategy to eliminate community transmission whilst incidentally reducing all cause-mortality [92,93[•],94,95^{••}]. Initial restrictions were the highest of any high-income country [96]. Lockdown surveys of distress, wellbeing and violence paralleled international trends, though some showed higher happiness with quarantine conditions [93[•],95^{••}]. There has been little published research into New Zealand mental health since local elimination of COVID. Australia, whilst initially managing COVID well, has struggled with repeated lockdowns. Due to the distances involved, the closure of state borders, and the local nature of clusters, experiences within Australia appear highly varied. Initial psychological responses paralleled other Western Countries, including socioeconomic vulnerabilities. Gender influence was also noted [22,97,98]. An exception to the Oceania trend is Papua New Guinea, where misinformation has reduced uptake of the ‘new normal’. This was exacerbated by political divisions, including the leader of the opposition calling for a suspension of vaccine provision, citing natural Papuan immunity [99]. In this climate is unclear if efforts to modify cultural practises that risk COVID spread, such as haus kraii rites, will be successful.

South America

The psychological reaction to COVID in South America has been disparate and politically driven. In Brazil, the president argued against self-isolation and that Brazilians had the strength to ward off the virus [100^{••}]. Limited water supplies and rampant disinformation led to the virus disproportionately harming the socioeconomically disadvantaged. This is particularly true amongst enclaves of *quilombolas*, and indigenous groups recently identified as ‘at risk of genocide’, who have perceived COVID as an existential threat [101]. In other areas, drug dealers and militia enforced social distancing measures, forming para-states. In contrast, Chilean public health measures were widespread, albeit impaired by housing shortages, profound social unrest and high levels of alcohol and substance abuse. Despite the potentially mitigating public support of lockdowns, COVID appears to have worsened moods, sensations of loneliness, and to have only further exacerbated economic anxiety [102,103,104^{••}]. In Argentina, studies had shown the populace preferred low levels of social distance than other countries, holding

numerous customs that could thus spread COVID. There was a suggestion this may leave them unusually susceptible to distancing-related loneliness, though this has not been robustly demonstrated [105,106[¶]]. Whilst the populace has broadly accepted restrictions, notably regularly applauding health workers during the early pandemic, implementation was marred by concerns of associated gendered violence, mandating a governmental response [107[¶]].

CONCLUSION

Whilst experiences of anxiety, low mood and fears of economic instability exist worldwide, considerable regional variation remains. In some countries, COVID is one crisis amongst many, whilst in others the argument is whether it is a crisis at all. Variable government attitudes, misinformation and resource scarcity appear three major factors that contribute to geographical differences in psychosocial response worth further investigation.

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Conflicts of interest

There are no conflicts of interest.

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- of special interest
- of outstanding interest

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