Published online 2021 October 19.

**Review Article** 



# Non-medical Interventions to Reduce the Burden of Psychosocial and Economic Impacts of COVID-19 Pandemic: A Scope Review

Sajjad Azmand<sup>1,2</sup>, Hassan Joulaei <sup>10</sup> and Maryam Fatemi <sup>10</sup>,

Received 2021 July 25; Revised 2021 August 30; Accepted 2021 October 01.

#### **Abstract**

**Context:** COVID-19, like the other pandemics, apart from its impacts on peoples' health, has had diverse huge impacts on psychosocio-economic aspects of societies globally. Hence, applying appropriate interventions to reduce the indirect burden of this pandemic is as important as patients' care.

**Objectives:** In this study, we aimed to review the main interventions against the economic and psychosocial impacts of the COVID-19 pandemic.

**Method:** This scope review was conducted to determine what measures have been taken by governments against different non-medical (economic and psychosocial) consequences of the COVID-19 pandemic. The authors reviewed the relevant articles published from December 2019 to December 2020 through three databases of PubMed/MEDLINE, Scopus, and Google Scholar. The interventions in three areas of economic, social, or psychological were exerted, and in the review of the articles, the country and the target population were considered. Finally, the results were categorized and presented descriptively.

**Results:** Regarding the negative consequences of the COVID-19 pandemic in psychosocial and economic aspects of societies, governments, especially in developed countries, have established measures to reduce the burdens of these consequences. Apart from interventions related to the general population, at-risk and vulnerable groups and also those with low socio-economic status are specific target populations for interventions.

**Conclusions:** The future of the COVID-19 pandemic is uncertain and unpredictable. Governments and their decisions will play a vital role in determining the trend of the pandemic. Therefore, it is the responsibility of governments, especially in lower-middle-income countries (LMICs), to support vulnerable people and protect them against the devastating socio-economic and psychological effects of this pandemic using all their capacity.

Keywords: COVID-19 Pandemic, Psychosocial Intervention, Economic

#### 1. Context

Pandemics are among the severe challenges faced by public health. About nine major pandemics have occurred in the recent century, with at least 59 million deaths (1). The latest occurrence announced by World Health Organization (WHO) in 2019 is the COVID-19 pandemic, which, apart from its physiological impacts on general health similar to other pandemics, has had massive psycho-socio-economic implications for societies. Studies have shown that anxiety and depression have increased by 32 and 33% in the general population during this outbreak (2). Changing the psychological level of different communities arises from some components, such as quarantine, physical distancing, fear of stigmatization, heavy workload in medical settings, etc. (3, 4). The COVID-19 pandemic has also been as-

sociated with some other adverse consequences, including the escalation of violence, especially domestic violence targeting women (5), and deterioration of the psychological situation of people with pre-existing mental health conditions (6).

Economic indicators show the extent of pandemic effects. For example, evidence indicates that it affects gross domestic product (GDP), given the critical conditions prevailing in many countries. Several studies and involved organizations have reported a decline in GDP from 2 to 7.2%. Developing countries suffer from a more server GDP decline (7), while the global economy has experienced an average decline of 6.7% in per capita terms in 2020 (8).

The unemployment rate is another indicator that has been affected by drastic changes during the pandemic. De-

<sup>&</sup>lt;sup>1</sup>Health Policy Research Center, Institute of Health, Shiraz University of Medical Sciences, Shiraz, Iran

<sup>&</sup>lt;sup>2</sup>Department of Medical Ethics and Philosophy of Health, Shiraz University of Medical Sciences, Shiraz, Iran

<sup>&</sup>lt;sup>3</sup>Shiraz HIV/AIDS Research Center, Institute of Health, Shiraz University of Medical Sciences, Shiraz, Iran

<sup>\*</sup>Corresponding author: Shiraz HIV/AIDS Research Center, Institute of Health, Shiraz University of Medical Sciences, Shiraz, Iran. Email: maryamfatemi89@yahoo.com

spite the reports of work improvement in many countries in 2019, the stoppage of this trend occurred in 2020 (9). Europe's unemployed youth population has been estimated to increase from 2.8 to 4.8 million in 2020 displaying a general 26% unemployment rate (10). Likewise, according to the International Labour Organization (ILO) report, in 2020, 8.8% of working hours worldwide were lost compared to the winter of 2019, equivalent to 255 million fulltime jobs (11).

This significance of the statistics becomes more prominent considering the COVID-19 cases and their related mortality rates. The mortality rate due to COVID-19 has a positive correlation with the unemployment rate while displaying a negative correlation with GDP (12, 13). The association between the COVID-19 situation and socioeconomic indicators resembles a vicious circle.

Another aspect of COVID-19 is the social effects among different communities. This pandemic involves everyone, even though some groups or communities are more vulnerable than others. Generally, people who suffer from inequality and poor access to social resources are more susceptible to health hazards. Current evidence confirms that people with low socioeconomic status have a poor situation about the COVID-19 outbreak. For example, one study from Massachusetts demonstrated that cities with more poverty, lower-income, and the high unemployment rates had a higher rate of COVID-19 (14). Race and ethnicity indicate households' socioeconomic status; according to the UK Biobank data, minorities, such as black and Asian participants were affected by the COVID-19 almost twofold (15). Evidence shows that the black population in the U.S. makes 33% of COVID-19 cases while they are just 18% of the U.S. population (16).

These broad consequences of the COVID-19 pandemic in different aspects of human life escalate inequality. Thus, essential measures and interventions should be designed by health policymakers to manage these effects.

#### 2. Objectives

This study was done to review the main interventions against psychosocial and economic outcomes of the COVID-19 pandemic.

#### 3. Method

# 3.1. Study Type and Design

This scoping review aimed to determine the measures taken by governments against different non-medical (economic, social, and psychological) implications of the COVID-19 pandemic. All English papers published between

December 2019 and December 2020 were eligible to be included in the study. The inclusion criteria included an intervention that has been taken and not merely a recommendation or suggestion, an intervention by governments or at least with governmental support, economic, social, or psychological interventions, and an intervention exerted in response to the COVID-19 pandemic. All letters to the editor, unofficial reports, or presented abstracts in the conferences, and seminars were excluded. The fellow diagram of the search strategy and screening of the documents is illustrated in Figure 1.

## 3.2. Search Strategy

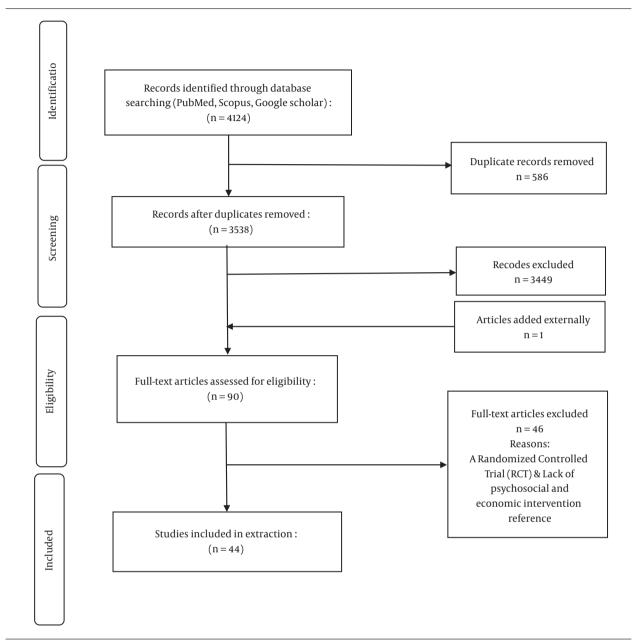
To identify the relevant papers, three databases, including PubMed/MEDLINE, Scopus, and Google Scholar, were searched based on the following keywords: Coronavirus OR COVID-19, AND [("economic" OR "economic intervention") OR ("social" OR "social intervention") OR ("Psychological Intervention" OR "mental health intervention" OR "Psychological Support" OR "psychological distress" OR "psychological care" OR "psychological stress" OR "psychological impact.]. Some article references were used to search the grey literature after searching the databases.

Two authors, SA and MF, reviewed the literature from January 2021 to April 2021 independently, according to the above criteria, and selected the related citations. Then, they reviewed the final articles and extracted several components, including the exerted interventions, the intervention area (economic, social, or psychological), the geography of intervention, and the target population. Conflicts between two reviewers were resolved by the third author (HJ). Finally, the results were categorized and presented descriptively.

## 4. Results

Initially, 4124 citations were searched and inserted into the EndNote. Duplicates were removed, and a total of 3538 titles and abstracts were reviewed. After the completion of the title and abstract screening, 90 full texts were considered potentially relevant and reviewed. Subsequently, 44 citations fulfilled the eligibility criteria and were included (Figure 1).

Regarding the negative psychosocial and economic effects of the COVID-19 pandemic, governments have established measures in these areas to manage some of its burdens. Apart from interventions related to the general population, at-risk and vulnerable groups, such as those with low socioeconomic status, are specific targets of the interventions. According to our findings, three types of



 $\textbf{Figure 1.} \ \textbf{PRISMA flow diagram of the search strategy and screening of the documents}$ 

the taken supportive-economic measures involve providing compensation for income and revenue losses, reducing payments, and guaranteed measures.

Quarantine and shutting down businesses damage businesses and household income; hence, governments have taken significant measures to compensate for these damages. Some measures include offering cash payments to vulnerable groups, such as workers, financial and nutrition grants, lending, subsidizing and capital injection, and similar aids. Also, other economic actions focus on reducing the amounts that business owners and individuals should pay, such as deferring or suspending taxes and reducing the rate of social security contributions. The third type of action involves quarantine measures to support economically vulnerable groups and individuals by guaranteeing the reimbursement of loans or buying the products. Table 1 shows a more detailed description of these measures.

Countries	Group	Intervention
Ireland, New Zealand, Australia, USA, South Korea, Sweden, Japan, UK, Italy, Spain (17); South Africa (18, 19); China (17, 20) Eswatini, Zimbabwe (21) Peru, Kyrgyzstan (22); Portugal (23) Nigeria (24)	General population	Income support measures for household
UK, Germany, Italy, China, Hong Kong, Ireland, Australia, Spain, France, Japan (17) South Africa (19) Egypt (25)	General population	Loan and product guarantees
South Korea, USA, Australia, Hong Kong, New Zealand, China, Italy, Germany, UK, Japan, France, Sweden, Spain (17); Italy (23)	General population	Adjusting tax policies by deferring or suspending
Japan, France, USA, , Ireland, Spain, New Zealand (17); South Africa (19) Spain, Greece, Portugal (23) Nigeria (24); Egypt (25)	General population	Supporting industries and businesses by loans, subsidies, and capital injections
Sweden, South Korea (17) Spain, Portugal (23)	General population	Reducing the rate of social security contributions
UK, Japan, South Korea, Spain, Sweden (17)	General population	Increasing the loans and capital injection
France, Germany, Hong Kong (17)	General population	Employment protection
Italy, Germany, Sweden, UK (17) Ghana (26)	General population	Different interventions (subsidies welfare support, covering the rental reduction, Direct grants, deferral of debt payments, and paying electricity bills)
Italy, Germany (17), Nigeria, Kenya (18), China (40), Greece, Portugal (23), Egypt (25), Bangladesh (27)	Low socioeconomic people	Supporting workers (covering the lost hours of short-time workers, cash payment to workers, and supporting workers by loans or guaranteeing loans)
African countries (28)	General population	Interventions in the energy sector (free electricity provision, reduction of electricity costs, suspension of bill payments, support for oil and gas, tax exemption on energy bills, incentives for renewable, etc.)
China (20)	General population	Supporting different insurances and special unemployment insurance
Sweden (18)	General population	Supporting students

Rather than the economic interventions, some literature mentioned social support by governments for different groups. Generally, at-risk and vulnerable groups are the target population in governments' social support measures and some not-for-profit and non-governmental organizations (NGO). The following measures can be mentioned in the social area: (1) supporting domestic violence victims; (2) providing shelters and nutrition for refugees and the homeless; and (3) supporting workers, especially migrant workers, and providing the necessary arrangements for the elderly.

Psychological effects are some of the most pervasive undesirable consequences of the COVID-19 epidemic; thus, governments and some NGOs intervene in this area to manage and mitigate these effects. Establishing virtual ways and telecommunication is the main approach in confronting to psychological effects of the epidemic condition. Virtual platforms have been used to educate the general population and high-risk groups to confront stress and anxiety resulting from corona conditions. Video conferences, individual interviews by virtual networking platforms, and exchanging text and video messages are some examples of psychological interventions for increasing social connections against physical distancing. COVID-19 cases, patients with a history of psychological disorders, and older adults as high-risk groups have received special attention through the interventions and actions. Details about social and psychological interventions are illustrated in Table 2.

# 5. Discussion

The literature review involved interventions exerted in non-medical consequences of the COVID-19 pandemic. Since the effects of this pandemic are not limited to the medical sector, governments have taken different measures to manage other effects. These interventions, in this review, are discussed into three categories, including economic, social, and psychological measures.

## 5.1. Economic Interventions

Economic interventions mainly focus on the general population, targeting the impoverished households by cash payment, loan guarantee, deferring and suspending taxes, increasing loan injection, covering the rental reduction, and suspension of bill payment. Also, many interventions intend to support industries and businesses, including product guarantees, adjusting tax policies, loans, subsidies, and capital injection, reducing the rate of social security contribution, and employment protections. Among countries that have addressed the economic interventions are 19 high-income countries, six upper-middle-income countries (64). Therefore, more financial resources provide a

Country	Group	Intervention	
UK (18); France (29); U.S. (30)	At-risk population (domestic violence Victims, HIV+ patients, Children, Patients with chronic diseases, Elderly, pregnant women, and prisoners)	Supporting domestic violence victims (providing guidelines, determining the place and phone number for referral, granting funds to organizations for preventing, and responding to domestic violence victims)	
Ghana (26)	At-risk population	Supporting elderly (provision of foodstuffs and meals, educating about COVID-19 and its preventive measures, learning how to use social media, supporting by insurance, allocating special funds by the government, and providing social support by NGOs)	
Sweden, Lebanon (18)	People with Low socioeconomic status	Supporting refugees (Providing shelters and Providing foods and personal protection equipment)	
IRAN (31); U.S. (32)	At-risk population	Supporting prisoners (releasing 70000 prisoners to reduce in-custody transmission and intersectional efforts to reduce prisoner's population in COVID-19era)	
Bangladesh (27); Kuwait (33)	People with Low socioeconomic status	Supporting migrant workers (free access to testing and treatment for COVID-19, providing information on COVID-19, covering basic necessities by community volunteers, charity organizations, donors, and non-profit organizations, mutual agreement between the government and employers to continue paying, Increasing diplomatic activity to support migrant workers)	
U.S. (34)	People with low socioeconomic status (Hispanic)	Providing digital content to guide Latino about COVID-19 and decrease inequalities	
U.S. (35)	People with Low socioeconomic status	supporting COVID-19 positive cases in low-income families through the "Test-to-Care" projec (remote clinical care, providing essential information, and provision of food and sanitation items)	
U.S. (36-38)	General population	Organized Telepsychology support through social media platforms (texting and video calls to Engage the patients in self-care behaviors, such as getting recommended sleep and exercise	
	At-risk population	Virtual communication platforms to engage women in self-care behaviors (e.g., adequate sleep, physical activity, and healthy eating), and their partners to have emotional support, being outdoors, gratitude, and adhering to structures and routines.	
India (39)	People with Low socioeconomic status	$Provision \ of \ foods \ for \ vulnerable \ groups \ (poor \ households, migrants, homeless, etc.)$	
Spain (23)	People with Low socioeconomic status	ban on cutting water, energy, or gas supplies to vulnerable consumers	
Canada (40)	People with low socioeconomic status	converting local schools or community centers into temporary shelters and providing hote for homeless people	
Canada (41, 42)	General population	text messaging service to encourage people for self-reported stress, anxiety, depression, and contamination/hand hygiene obsessive-compulsive symptoms & Use of Asynchronous Virtual Mental Health (AVMH) Resources	
	At-risk population	Intervention Network COVID-19 Home-isolation Activities Together (SPIN-CHAT) text messaging (Text4Hope-Cancer Care) as a convenient, cost-effective, and accessible population-level mental health intervention; A virtual neurologic examination (VNE) for Mental Status Examination and Cognitive Testing	
Pakistan (43)	General population	Providing various activities that people can undertake for a healthy lifestyle, like sports, yoga, music, arts, and mindfulness through the mental health telemedicine helpline & socie media platforms, such as Facebook and YouTube; Establishment Tele-clinics called the mental health telemedicine helpline to deliver mental health service	
Tunisia (44); India (45); Australia (46, 47)	General population	Online Mental Health Services, helpline, Text messaging, chat, telephone, and videoconferencing	
Spain (48)	At-risk population	Using the city's municipal shelter, covering lodging and maintenance necessities as a consequence of the reduction in the capacity of the pre-existing resources	
China (49-54)	General population	Using social media platforms, such as Facebook or Snap-chat to reduce stress and anxiety; Psychological assistance hotline team to offer guidance and supervision to callers to help	
	At-risk population	Encouraging patients to express feelings; Expressing patients' understanding and comfort; Giving knowledge and information about COVID; Providing some simple relaxation techniques, and offering the self-emotional management skills (such as listening to music a a way of distraction when in a bad mood)	
Ireland (55)	At-risk population	Holding online therapeutic triad CBT sessions amongst children with mental disorders and their parents	
Italy (56, 57)	General population	$\label{thm:continuous} Virtual\ acceptance\ and\ commitment-based\ the rapy\ (ACT)\ to\ promote\ psychological\ flexibility\ and\ mental\ health$	
	At-risk population	Access to personal health records from the hospital in a remote fashion (smart-working)	
Germany (58, 59)	General population	Coping with Corona: Extended Psychosomatic care in Essen' (CoPE) is. an online training program using psychotherapeutic techniques of mindfulness and CBT	
Portuguese (60); South Korea (61); Hungary (62)	General population	A telephone-based intervention to promote cognitive-emotional regulation and emotional stabilization, allowing a better acceptance of the experience and more efficient use of personal resources	
Malaysia (63)	General population	An online Ultra Brief Psychological Interventions (UBPI), including empathy, mindfulness, emotional regulation, and problem-solving skills	

better ground for implementing economic measures in wealthier countries.

## 5.2. Social Supports

Unlike economic interventions, social supports are mostly allocated to vulnerable, low-income, and at-risk groups. In this review, in the social areas, governments try to protect vulnerable groups against infection by preparing appropriate shelters or providing personal protective equipment and hygiene supplies. In addition, measures also target people affected by the negative consequences of the pandemic are supported, including victims of domestic violence, elderlies, refugees, prisoners, migrants, lowincome households, and other susceptible minorities.

Although the COVID-19 epidemic affects all people and their lives, some groups are at greater risk, such as low socioeconomic groups, workers, refugees, migrants, homeless, minorities. In fact, COVID-19 cases and their mortality rates are higher in socially vulnerable groups than in the general population (65, 66). Therefore, social support is necessary to control the epidemic and protect these groups from the undesirable effects of the disease. Considering the limited capacity of health care systems in lowand middle-income countries compared to high incomes, their governments should pay more attention to social interventions (67).

## 5.3. Psychological Interventions

Unlike previous pandemics of other coronaviruses, improving E-health infrastructure, virtual platforms, and telemedicine have resulted in on-time and effective psychological interventions amongst the affected populations (68). For instance, in Essen, Germany, using the "CoPE" program mental health services were delivered to people affected by COVID-19 via telephone, video conferencing calls with the experts, or online interventions. This program consists of several modules: psycho-education, mindfulness, and cognitive behavioral skills training (58). Thus, in most countries, psychological interventions, including cognitive behavioral therapy (CBT), acceptance and commitment-based therapy (ACT), and mindfulnessbased stress reduction interventions have been delivered remotely (online) through various electronic media, such as Wechat, telephone, and Internet, or psychological and educational videos (55-57).

Evidence indicates that in countries, such as China, United Kingdom, and South Korea, psychological interventions for the general public are based on resilience, flexibility, and emotional regulation in epidemic situations (69-71). Some artificial intelligence (AI) technologies have also been used in the form of face-to-face psychological interventions. In Canada, for example, SPIN-CHAT is

a group videoconference intervention program based on anxiety management principles for maintaining the mental health of scleroderma patients and cancer patients in the COVID-19 era (41).

Although developed and developing countries have been similarly affected by mental health outcomes of COVID-19, the highest number and the most pervasive non-medical interventions have been conducted in high-income countries (72). For example, in countries, such as the United Kingdom (55), United States (73, 74), and Australia (46, 47, 75), the telemedicine revolution and telepsychology have been used during the psychological crisis for public health emergencies (74). Evidently, limited financial resources, low access to comprehensive health care, especially in rural areas, and socio-cultural factors are the main obstacles in LMICs to act on psychosocial and economic interventions (76).

This scoping review collected practical information about the implemented interventions to reduce the burden of COVID-19 psychosocial and economic consequences. However, only English documents were reviewed, and only three scientific search engines were used. Thus, many implemented interventions may not have been published yet to be included in the present paper.

#### 5.4. Conclusions

The future of the COVID-19 pandemic is vague and unpredictable. Governments and their decisions will determine the trend the pandemic will take. Therefore, governments, especially in LMICs, are responsible for supporting vulnerable people and protecting them against the devastating socioeconomic and psychological implications using their capacities and resources.

In addition, psychosocial risk assessment and a comprehensive risk management plan are required to combat short- and long-term outcomes of the COVID-19 pandemic on public health to assist in ensuring general mental health and timely psychosocial response.

#### **Footnotes**

**Authors' Contribution:** Dr. Sajjad Azmand and Maryam Fatemi conceived and designed the evaluation and drafted the manuscript. Maryam Fatemi participated in designing the evaluation, performed parts of the statistical analysis, and helped to draft the manuscript. Dr. Hassan Joulaei reevaluated the clinical data, revised the manuscript and performed the statistical analysis, and revised the manuscript Maryam Fatemi collected the clinical data, interpreted them, and revised the manuscript. Dr. Sajjad Azmand and Maryam Fatemi re-analyzed the clinical and statistical data

and revised the manuscript. All authors read and approved the final manuscript.

**Conflict of Interests:** The authors declared no conflicts of interests.

**Funding/Support:** This manuscript received No funding.

#### References

- Reynolds TA, Sawe H, Rubiano A, Shin S, Wallis L, Mock C. Strengthening health systems to provide emergency care. In: Jamison DT, Gelband H, Horton S, Jha P, Laxminarayan R, Mock CN, et al., editors. Disease control priorities: Improving health and reducing poverty. 9. Washington (DC), USA: The International Bank for Reconstruction and Development/The World Bank; 2017.
- Salari N, Khazaie H, Hosseinian-Far A, Ghasemi H, Mohammadi M, Shohaimi S, et al. The prevalence of sleep disturbances among physicians and nurses facing the COVID-19 patients: A systematic review and meta-analysis. *Global Health*. 2020;16(1):92. doi: 10.1186/s12992-020-00620-0. [PubMed: 32993696]. [PubMed Central: PMC7522913].
- 3. Li W, Yang Y, Liu ZH, Zhao YJ, Zhang Q, Zhang L, et al. Progression of mental health services during the COVID-19 outbreak in China. *Int J Biol Sci.* 2020;**16**(10):1732–8. doi: 10.7150/ijbs.45120. [PubMed: 32226291]. [PubMed Central: PMC7098037].
- 4. Brooks SK, Webster RK, Smith LE, Woodland L, Wessely S, Greenberg N, et al. The psychological impact of quarantine and how to reduce it: Rapid review of the evidence. *Lancet*. 2020;**395**(10227):912–20. doi: 10.1016/S0140-6736(20)30460-8. [PubMed: 32112714]. [PubMed Central: PMC7158942].
- Women UN. Violence against women and girls: The shadow pandemic. Retrieved November. 2020;8:2020.
- Krishnamoorthy Y, Nagarajan R, Saya GK, Menon V. Prevalence of psychological morbidities among general population, healthcare workers and COVID-19 patients amidst the COVID-19 pandemic: A systematic review and meta-analysis. *Psychiatry Res.* 2020;293:113382. doi: 10.1016/j.psychres.2020.113382. [PubMed: 32829073]. [PubMed Central: PMC7417292].
- Maliszewska M, Mattoo A, van der Mensbrugghe D. The potential impact of COVID-19 on GDP and trade: Preliminary assessment. Washington, USA: World Bank Group; 2020. doi: 10.1596/1813-9450-9211.
- 8. Tandon A, Roubal T, McDonald L, Cowley P, Palu T, Cruz V, et al. Economic impact of COVID-19: Implications for health financing in Asia and Pacific. Washington, USA: World Bank Group; 2020.
- 9. Lai H, Khan YA, Thaljaoui A, Chammam W, Abbas SZ. COVID-19 pandemic and unemployment rate: A hybrid unemployment rate prediction approach for developed and developing countries of Asia. Soft comput. 2021:1-16. doi: 10.1007/s00500-021-05871-6. [PubMed: 34025212]. [PubMed Central: PMC8132284].
- Tamesberger D, Bacher J. COVID-19 crisis: How to avoid a 'lost generation'. *Inter Econ.* 2020;55(4):232–8. doi: 10.1007/s10272-020-0908-y. [PubMed: 32834099]. [PubMed Central: PMC7385202].
- ILO Monitor. COVID-19 and the world of work. Geneva, Switzerland: International Labour Organization; 2021.
- Sun Y, Hu X, Xie J. Spatial inequalities of COVID-19 mortality rate in relation to socioeconomic and environmental factors across England. Sci Total Environ. 2021;758:143595. doi: 10.1016/j.scitotenv.2020.143595. [PubMed: 33218796]. [PubMed Central: PMC7664354].
- Pardhan S, Drydakis N. Associating the change in New COVID-19 cases to GDP per capita in 38 European Countries in the first wave of the pandemic. Front Public Health. 2020;8:582140. doi: 10.3389/fpubh.2020.582140. [PubMed: 33553086]. [PubMed Central: PMC7854531].

- Hawkins D. Social determinants of COVID-19 in Massachusetts, United States: An ecological study. J Prev Med Public Health. 2020;53(4):220–7. doi: 10.3961/jpmph.20.256. [PubMed: 32752590]. [PubMed Central: PMC7411251].
- Patel AP, Paranjpe MD, Kathiresan NP, Rivas MA, Khera AV. Race, socioeconomic deprivation, and hospitalization for COVID-19 in English participants of a national biobank. *Int J Equity Health*. 2020;19(1):114. doi: 10.1186/s12939-020-01227-y. [PubMed: 32631328]. [PubMed Central: PMC7336098].
- Center for Diseas Control and Preventation. Health equity considerations and racial and ethnic minority groups. USA: Center for Diseas Control and Preventation; 2021, [cited 28th Sep 2020]. Available from: https://www.cdc.gov/coronavirus/2019-ncov/community/health-equity/race-ethnicity.html.
- Danielli S, Patria R, Donnelly P, Ashrafian H, Darzi A. Economic interventions to ameliorate the impact of COVID-19 on the economy and health: An international comparison. *J Public Health (Oxf)*. 2021;43(1):42-6. doi: 10.1093/pubmed/fdaa104. [PubMed: 32657341]. [PubMed Central: PMC7454805].
- Glover RE, van Schalkwyk MCI, Akl EA, Kristjannson E, Lotfi T, Petkovic
  J, et al. A framework for identifying and mitigating the equity harms
  of COVID-19 policy interventions. J Clin Epidemiol. 2020;128:35–48. doi:
  10.1016/j.jclinepi.2020.06.004. [PubMed: 32526461]. [PubMed Central:
  PMC7280094].
- Bhorat H, Oosthuizen M, Stanwix B. Social assistance amidst the COVID-19 epidemic in South Africa: A policy assessment. S Afr J Econ. 2021;89(1):63–81. doi: 10.1111/saje.12277.
- Lu Q, Cai Z, Chen B, Liu T. Social policy responses to the COVID-19 crisis in China in 2020. Int J Environ Res Public Health. 2020;17(16). doi: 10.3390/ijerph17165896. [PubMed: 32823833]. [PubMed Central: PMC7460459].
- Nhapi TG, Dhemba J. The conundrum of old age and COVID-19 responses in Eswatini and Zimbabwe. Int Soc Work. 2020;63(6):842-6. doi:10.1177/0020872820944998.
- Akseer N, Kandru G, Keats EC, Bhutta ZA. COVID-19 pandemic and mitigation strategies: Implications for maternal and child health and nutrition. *Am J Clin Nutr.* 2020;112(2):251–6. doi: 10.1093/ajcn/nqaa171. [PubMed: 32559276]. [PubMed Central: PMC7337702].
- Moreira A, Léon M, Coda Moscarola F, Roumpakis A. In the eye of the storm... again! Social policy responses to COVID-19 in Southern Europe. Soc Policy Adm. 2021;55(2):339–57.
- Ejiogu A, Okechukwu O, Ejiogu C. Nigerian budgetary response to the COVID-19 pandemic and its shrinking fiscal space: Financial sustainability, employment, social inequality and business implications. J Public Budg Account Financial Manag. 2020;32(5):919–28. doi: 10.1108/jpbafm-07-2020-0101.
- Elkhashen EM, Sarhan A, Ejiogu A. Egyptian budgetary responses to COVID-19 and their social and economic consequences. J Public Budg Account Financial Manag. 2020;33(1):78–86. doi: 10.1108/jpbafm-07-2020-0116.
- Arthur-Holmes F, Agyemang-Duah W. Reaching older adults during the COVID-19 pandemic through social networks and social security schemes in Ghana: Lessons for considerations. *J Gerontol Soc Work*. 2020;63(6-7):699-701. doi: 10.1080/01634372.2020.1764689. [PubMed: 32449640]
- Karim MR, Islam MT, Talukder B. COVID-19's impacts on migrant workers from Bangladesh: In search of policy intervention. World Dev. 2020;136:105123. doi: 10.1016/j.worlddev.2020.105123. [PubMed: 32834394]. [PubMed Central: PMC7395589].
- Akrofi MM, Antwi SH. COVID-19 energy sector responses in Africa: A review of preliminary government interventions. *Energy Res Soc Sci.* 2020;68:101681. doi: 10.1016/j.erss.2020.101681. [PubMed: 32839700]. [PubMed Central: PMC7338023].
- Tsioulcas A, Wamsley L. France announces plan to aid domestic abuse victims during Coronavirus crisis. Washington, USA: National Public Radio;
   2020. Available from: https://www.npr.org/sections/coronavirus-

- live-updates/2020/03/31/824720162/france-announces-plan-to-aid-domestic-abuse-victims-during-coronavirus-crisis.
- Congressional Research Service. Domestic violence in the context of COVID-19. Washington, USA: Congressional Research Service; 2020. Available from: https://crsreports.congress.gov/product/pdf/IN/ IN11323
- Kinner SA, Young JT, Snow K, Southalan L, Lopez-Acuna D, Ferreira-Borges C, et al. Prisons and custodial settings are part of a comprehensive response to COVID-19. *Lancet Public Health*. 2020;5(4):e188–9. doi: 10.1016/S2468-2667(20)30058-X. [PubMed: 32197116]. [PubMed Central: PMC7103922].
- Franco-Paredes C, Ghandnoosh N, Latif H, Krsak M, Henao-Martinez AF, Robins M, et al. Decarceration and community reentry in the COVID-19 era. *Lancet Infect Dis.* 2021;21(1):e11-6. doi: 10.1016/S1473-3099(20)30730-1. [PubMed: 33007225]. [PubMed Central: PMC7524519].
- Alahmad B, Kurdi H, Colonna K, Gasana J, Agnew J, Fox MA. COVID-19 stressors on migrant workers in Kuwait: Cumulative risk considerations. BMJ Glob Health. 2020;5(7). doi: 10.1136/bmjgh-2020-002995. [PubMed: 32641292]. [PubMed Central: PMC7348320].
- Despres C, Aguilar R, McAlister A, Ramirez AG. Communication for awareness and action on inequitable impacts of COVID-19 on latinos. Health Promot Pract. 2020;21(6):859-61. doi: 10.1177/1524839920950278. [PubMed: 32762369].
- Kerkhoff AD, Sachdev D, Mizany S, Rojas S, Gandhi M, Peng J, et al. Evaluation of a novel community-based COVID-19 'Test-to-Care' model for low-income populations. *PLoS One*. 2020;15(10). e0239400. doi: 10.1371/journal.pone.0239400. [PubMed: 33035216]. [PubMed Central: PMC7546468].
- Farewell CV, Jewell J, Walls J, Leiferman JA. A mixed-methods pilot study of perinatal risk and resilience during COVID-19.
   J Prim Care Community Health. 2020;11:2150132720944070. doi: 10.1177/2150132720944074. [PubMed: 32674654]. [PubMed Central: PMC7370556].
- Wu QL, Street RL. Factors affecting cancer patients' electronic communication with providers: Implications for COVID-19 induced transitions to telehealth. *Patient Educ Couns.* 2020. doi: 10.1016/j.pec.2020.09.036. [PubMed: 33036815]. [PubMed Central: PMC7521379].
- Rosen Z, Weinberger-Litman SL, Rosenzweig C, Rosmarin DH, Muennig P, Carmody ER, et al. Anxiety and distress among the first community quarantined in the US due to COVID-19: Psychological implications for the unfolding crisis. *Psyarxiv*. 2020; Preprint. doi: 10.31234/osf.io/7eq8c.
- 39. Yadav SK. Self-Help group (SHG) and COVID-19: Response to migrant crisis in Haryana, India during the pandemic. *Soc Work Groups*. 2020;**44**(2):152-8. doi: 10.1080/01609513.2020.1805974.
- Wu H, Karabanow J. COVID-19 and beyond: Social work interventions for supporting homeless populations. *Int Soc Work*. 2020;63(6):790-4. doi: 10.1177/0020872820949625.
- Agyapong VIO, Hrabok M, Shalaby R, Mrklas K, Vuong W, Gusnowski A, et al. Closing the COVID-19 psychological treatment gap for cancer patients in alberta: Protocol for the implementation and evaluation of Text4hope-Cancer Care. JMIR Res Protoc. 2020;9(8). e20240. doi: 10.2196/20240. [PubMed: 32750012]. [PubMed Central: PMC7450377].
- Richardson CG, Slemon A, Gadermann A, McAuliffe C, Thomson K, Daly Z, et al. Use of asynchronous virtual mental health resources for COVID-19 pandemic-related stress among the general population in Canada: Cross-sectional survey study. J Med Internet Res. 2020;22(12). e24868. doi: 10.2196/24868. [PubMed: 33315583]. [PubMed Central: PMC7775378].
- Farooq SM, Sachwani SAA, Haider SI, Iqbal SA, Parpio YN, Saeed H. Mental health challenges and psycho-social interventions amid COVID-19 pandemic: A call to action for Pakistan. *J Coll Physicians Surg Pak.* 2020;30(6):59–62. doi: 10.29271/jcpsp.2020.Supp1.S59. [PubMed: 32723454].

- 44. Zgueb Y, Bourgou S, Neffeti A, Amamou B, Masmoudi J, Chebbi H, et al. Psychological crisis intervention response to the COVID 19 pandemic: A Tunisian centralised protocol. *Psychiatry Res.* 2020;**289**:113042. doi: 10.1016/j.psychres.2020.113042. [PubMed: 32387792]. [PubMed Central: PMC7191293].
- Hazarika M, Das B, Das S, Baruah A, Sharma N, Barua C, et al. Profile of distress callers and service utilisation of tele-counselling among the population of Assam, India: An exploratory study during COVID-19. *Open J Psychiatry Allied Sci.* 2021;12(1):7-12. doi: 10.5958/2394-2061.2021.00001.x. [PubMed: 33163629]. [PubMed Central: PMC7644027].
- Marshall JM, Dunstan DA, Bartik W. The role of digital mental health resources to treat trauma symptoms in Australia during COVID-19. Psychol Trauma. 2020;12(S1):S269-71. doi: 10.1037/tra0000627. [PubMed: 32496103].
- 47. Zhou X, Snoswell CL, Harding LE, Bambling M, Edirippulige S, Bai X, et al. The role of telehealth in reducing the mental health burden from COVID-19. *Telemed J E Health*. 2020;**26**(4):377–9. doi: 10.1089/tmj.2020.0068. [PubMed: 32202977].
- 48. Martin C, Andres P, Bullon A, Villegas JL, de la Iglesia-Larrad JI, Bote B, et al. COVID pandemic as an opportunity for improving mental health treatments of the homeless people. *Int J Soc Psychiatry*. 2021;**67**(4):335-43. doi: 10.1177/0020764020950770. [PubMed: 32820986]. [PubMed Central: PMC7443578].
- Xiang YT, Zhao YJ, Liu ZH, Li XH, Zhao N, Cheung T, et al. The COVID-19 outbreak and psychiatric hospitals in China: Managing challenges through mental health service reform. *Int J Biol Sci.* 2020;16(10):1741-4. doi: 10.7150/ijbs.45072. [PubMed: 32226293]. [PubMed Central: PMC7098035].
- Wang ZH, Yang HL, Yang YQ, Liu D, Li ZH, Zhang XR, et al. Prevalence of anxiety and depression symptom, and the demands for psychological knowledge and interventions in college students during COVID-19 epidemic: A large cross-sectional study. J Affect Disord. 2020;275:188–93. doi: 10.1016/j.jad.2020.06.034. [PubMed: 32734907]. [PubMed Central: PMC7330560].
- He Z, Chen J, Pan K, Yue Y, Cheung T, Yuan Y, et al. The development of the 'COVID-19 Psychological Resilience Model' and its efficacy during the COVID-19 pandemic in China. *Int J Biol Sci.* 2020;**16**(15):2828–34. doi: 10.7150/ijbs.50127. [PubMed: 33061799]. [PubMed Central: PMC7545720].
- Kong X, Kong F, Zheng K, Tang M, Chen Y, Zhou J, et al. Effect of psychological-behavioral intervention on the depression and anxiety of COVID-19 patients. Front Psychiatry. 2020;11:586355. doi: 10.3389/fpsyt.2020.586355. [PubMed: 33329130]. [PubMed Central: PMC7715028].
- Jiang X, Deng L, Zhu Y, Ji H, Tao L, Liu L, et al. Psychological crisis intervention during the outbreak period of new coronavirus pneumonia from experience in Shanghai. *Psychiatry Res.* 2020;286:112903. doi: 10.1016/j.psychres.2020.112903. [PubMed: 32146245]. [PubMed Central: PMC7112608].
- 54. Zhou L, Xie RH, Yang X, Zhang S, Li D, Zhang Y, et al. Feasibility and preliminary results of effectiveness of social media-based intervention on the psychological well-being of suspected COVID-19 cases during quarantine. *Can J Psychiatry*. 2020;65(10):736-8. doi: 10.1177/0706743720932041. [PubMed: 32483978]. [PubMed Central: PMC7502876].
- MacEvilly D, Brosnan G. Adapting an emotional regulation and social communication skills group programme to teletherapy, in response to the COVID-19 pandemic. *Ir J Psychol Med.* 2020:1–6. doi: 10.1017/ipm.2020.109. [PubMed: 32912357]. [PubMed Central: PMC7653222].
- Pakenham KI, Landi G, Boccolini G, Furlani A, Grandi S, Tossani E. The moderating roles of psychological flexibility and inflexibility on the mental health impacts of COVID-19 pandemic and lockdown in Italy. *J Contextual Behav Sci.* 2020;17:109–18. doi: 10.1016/j.jcbs.2020.07.003. [PubMed: 32834969]. [PubMed Central: PMC7370913].

- Moccia L, Janiri D, Pepe M, Dattoli L, Molinaro M, De Martin V, et al. Affective temperament, attachment style, and the psychological impact of the COVID-19 outbreak: An early report on the Italian general population. *Brain Behav Immun*. 2020;87:75–9. doi: 10.1016/j.bbi.2020.04.048. [PubMed: 32325098]. [PubMed Central: PMC7169930].
- 58. Bauerle A, Graf J, Jansen C, Musche V, Schweda A, Hetkamp M, et al. E-mental health mindfulness-based and skills-based 'CoPE It' intervention to reduce psychological distress in times of COVID-19: Study protocol for a bicentre longitudinal study. *BMJ Open.* 2020;10(8). e039646. doi: 10.1136/bmjopen-2020-039646. [PubMed: 32792455]. [PubMed Central: PMC7430186].
- Bauerle A, Graf J, Jansen C, Dorrie N, Junne F, Teufel M, et al. An emental health intervention to support burdened people in times of the COVID-19 pandemic: CoPE It. J Public Health (Oxf). 2020;42(3):647–8. doi: 10.1093/pubmed/fdaa058. [PubMed: 32364242]. [PubMed Central: PMC7239146].
- Ribeiro E, Sampaio A, Gonçalves MM, Taveira MDC, Cunha J, Maia Â, et al. Telephone-based psychological crisis intervention: The Portuguese experience with COVID-19. Couns Psychol Q. 2020; Preprint:1-15. doi: 10.1080/09515070.2020.1772200.
- Kim JW, Stewart R, Kang SJ, Jung SI, Kim SW, Kim JM. Telephone based interventions for psychological problems in hospital isolated patients with COVID-19. Clin Psychopharmacol Neurosci. 2020;18(4):616– 20. doi: 10.9758/cpn.2020.18.4.616. [PubMed: 33124594]. [PubMed Central: PMC7609215].
- 62. Csigo K, Boross V, Lipardy K, Mari G, Ritzl A, Varga T, et al. [Telephone information service for psychiatric patients during the COVID-19 pandemic: Experience with a direct phone line in the Nyiro Gyula National Institute of Psychiatry and Addictions in Hungary]. Neuropsychopharmacol Hung. 2020;22(4):166–71. Hu. [PubMed: 33257594].
- Ping NPT, Shoesmith WD, James S, Nor Hadi NM, Yau EKB, Lin LJ.
   Ultra brief psychological interventions for COVID-19 pandemic: Introduction of a locally-adapted brief intervention for mental health and psychosocial support service. *Malays J Med Sci.* 2020;27(2):51–6. doi: 10.21315/mjms2020.27.2.6. [PubMed: 32788841]. [PubMed Central: PMC7409577].
- 64. The World Bank. *World bank country and lending groups*. Washington, USA: The World Bank; 2021, [cited 31st Jun 2021]. Available from: https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups.
- 65. Kirby T. Evidence mounts on the disproportionate effect of COVID-19 on ethnic minorities. *Lancet Respir Med.* 2020;**8**(6):547–8. doi: 10.1016/S2213-2600(20)30228-9. [PubMed: 32401711]. [PubMed Central: PMC7211498].

- Patel JA, Nielsen FBH, Badiani AA, Assi S, Unadkat VA, Patel B, et al. Poverty, inequality and COVID-19: The forgotten vulnerable. *Public Health*. 2020;183:110-1. doi: 10.1016/j.puhe.2020.05.006. [PubMed: 32502699]. [PubMed Central: PMC7221360].
- 67. Brauer M, Zhao JT, Bennitt FB, Stanaway JD. Global access to handwashing: Implications for COVID-19 control in low-income countries. Environ Health Perspect. 2020;128(5):57005. doi: 10.1289/EHP7200. [PubMed: 32438824]. [PubMed Central: PMC7263456].
- Hsieh KY, Kao WT, Li DJ, Lu WC, Tsai KY, Chen WJ, et al. Mental health in biological disasters: From SARS to COVID-19. *Int J Soc Psychiatry*. 2021;67(5):576–86. doi: 10.1177/0020764020944200. [PubMed: 32722974].
- Dawson DL, Golijani-Moghaddam N. COVID-19: Psychological flexibility, coping, mental health, and wellbeing in the UK during the pandemic. *J Contextual Behav Sci.* 2020;17:126–34. doi: 10.1016/ji.jcbs.2020.07.010. [PubMed: 32834970]. [PubMed Central: PMC7392106].
- Jung SJ, Jun JY. Mental health and psychological intervention amid COVID-19 outbreak: Perspectives from South Korea. Yonsei Med J. 2020;61(4):271–2. doi: 10.3349/ymj.2020.61.4.271. [PubMed: 32233168]. [PubMed Central: PMC7105405].
- 71. Ren X, Zhai Y, Song X, Wang Z, Dou D, Li Y. The application of mobile telehealth system to facilitate patient information presentation and case discussion. *Telemed J E Health*. 2020;**26**(6):725–33. doi: 10.1089/tmj.2020.0084. [PubMed: 32298208].
- United Nations. Data sources, country classifications and aggregation methodology. World economic situation and prospects 2014. New York, USA: United Nations Publications; 2014.
- Bashshur R, Doarn CR, Frenk JM, Kvedar JC, Woolliscroft JO. Telemedicine and the COVID-19 pandemic, lessons for the future. *Telemed J E Health*. 2020;26(5):571–3. doi: 10.1089/tmj.2020.29040.rb. [PubMed: 32275485].
- Faezipour M, Abuzneid A. Smartphone-based self-testing of COVID-19 using breathing sounds. *Telemed J E Health*. 2020;26(10):1202–5. doi: 10.1089/tmj.2020.0114. [PubMed: 32487005].
- Kavoor AR, Chakravarthy K, John T. Remote consultations in the era
  of COVID-19 pandemic: Preliminary experience in a regional Australian public acute mental health care setting. Asian J Psychiatr.
  2020;51:102074. doi: 10.1016/j.ajp.2020.102074. [PubMed: 32294583].
  [PubMed Central: PMC7195079].
- De Sousa A, Mohandas E, Javed A. Psychological interventions during COVID-19: Challenges for low and middle income countries. *Asian J Psychiatr.* 2020;51:102128. doi: 10.1016/j.ajp.2020.102128. [PubMed: 32380441]. [PubMed Central: PMC7195042].