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Vulnerable Groups and COVID-19 Pandemic; How Appropriate Are Psychosocial Responses?

Amir Moghanibashi-Mansourieh

Abstract

Covid-19 pandemic has had adverse health, economic and social consequences on different communities, groups and individuals. Vulnerable groups are more likely to contract the infection and suffer from mental disorders particularly anxiety due to lack of access to health and social resources, lower income and less awareness etc. In this chapter, in addition to a description of the psychological and social conditions of vulnerable groups including women, children, the elderly, and minority groups during the pandemic, the factors influencing the success of psychosocial interventions provided for these groups and the weak points and upcoming challenges will be addressed. Finally, the conclusion will offer some recommendation for coping with the future circumstances.

Keywords: psychosocial interventions, vulnerable groups, COVID-19, anxiety, pandemic, mental health, social support, inequality

1. Introduction

Beyond the tragic story of human death, this crisis has left many problems on other aspects of human life. Governments now face a dual challenge: on the one hand, they have to deal with an epidemic crisis in the field of health, and at the same time, they have to respond to its economic and social effects.

Developed economies have made attempts to mitigate some of the socio-economic effects of widespread closures, including measures such as tax refund delays, increased payments, subsidies to workers, compensation, and the provision of double unemployment insurance. Less developed countries have fewer tools to manage the effects of COVID-19 pandemic, and they are not only facing an economic crisis, but also a systemic human development crisis [1].

A United Nations University study assessing the impact of Covid-19 on global poverty suggests that poverty lines will be intensified at all three levels (\$ 1.9, \$ 2.3 and \$ 5.5 per day). According to the report, it is estimated that about 419 million people will be added to the total number of the world's poor. Given that the spread of severe poverty conveys that people do not have the minimum number of calories, it is generally associated with adverse health consequences, especially for children, and this challenges many humanitarian programs and efforts in the area of poverty alleviation [2].

The reciprocal effects of poverty and corona virus are generally appeared in the form of the spread of poverty and increase in the number of poor people, poverty and exacerbation of COVID-19 (inability to pay for prevention costs; malnutrition and physical weakness; living in more polluted areas; presence in denser areas; dominance of manual jobs and more physical contact with customers and more exposure to the virus), exacerbating existing poverty and preventing them from getting rid of poverty (on the one hand business problems and on the other hand increasing government expenditure has hindered the possibility of vertical mobility of the poor through market and governmental subsidies) [3].

Since health seeking behaviors are corresponding to health literacy and access to health care and are affected by user costs, individuals in disadvantaged socio-economic groups may postpone COVID-19 care, which potentially may result in more severe illness, psychological distress and death.

Evidence has identified a number of potentially vulnerable groups who may need or benefit from specific disaster-related psychosocial interventions. The issues which influence each of these groups are discussed in this chapter.

2. Psychosocial conditions of vulnerable groups due to COVID-19 pandemic

2.1 Children

Children are the silent victims of the epidemic rather than the dominant face. Infectious diseases such as Covid-19 can disrupt the growth and life of children. Disruptions in families, friendships, daily routines and larger community will have a negative impact on the well-being, growth and protection of children, and there is a risk that children will be among the biggest victims of the epidemic [4, 5].

Covid-19 is a global crisis that will have a lifelong impact on some children. The pandemic can quickly change the way children live. Quarantine measures such as school closures and restrictions on the movement of children disrupt their daily life and protection, while creating new stressors for parents and care givers who must seek new childcare facilities [6]. Covid-19 stigma and discrimination can make children more vulnerable to the violence of psychosocial pressures, and children and families who have been more vulnerable to socio-economic isolation in the past are at greater risk [7].

In addition, the harms caused by this epidemic will not be evenly distributed and is expected to have the most devastating effects on children in the poorest countries, neighborhoods, and those who were already deprived and vulnerable.

Historically, the burden of such harms on families has been disproportionately imposed on girls. Even before the COVID-19 crisis, even the poorest children lost twice as many children as their rich peers. Low income is associated with a higher risk of chronic health problems, some of which may increase the risk of COVID-19 disease. Poor households have less access to secure sources of income, less wealth, less access to health care, and less access to online tools for distance learning and even television and radio, and are more likely to prevent children from going to school [8]. At country level, low-income countries and war-torn countries have the least ability in the informal sector to withstand the effects of the global economic recession and the closure of local activities because these productive activities take mostly place in the context of a weaker social protection system. Such countries do not have the necessary infrastructure for solutions such as distance learning, have a poor health care system, have limited social services for their workforce, have less access to water, purification system, sewage and

sanitation, and in terms of food supply chain face limitations and are still a long way away from public immunization [9].

The global closure of schools is an unprecedented coincidence. Over 188 countries have closed all schools, disrupting the education of more than 1.5 billion children and adolescents, or 91 percent of the world's students. To minimize the harms caused by this issue, many schools have offered distance learning methods such as TV or radio programs and virtual tutorials for their students. But these alternatives are only available to a group of students. More than two-thirds of countries have announced and provided their national distance learning platform (including online mobile apps), but this has only occurred in 30% of poor and low-income countries. Indeed, online learning-focused education policies have highlighted long-standing inequalities. Children who live in places with the most isolated places in terms of global Internet network, even if they can be connected, access to unreliable and slow Internet, which is expensive. Children living in countries where the Internet has been cut off for political and security reasons in some parts of the country, including Bangladesh, India and Myanmar, have no hope of gaining access to online learning [9]. According to pre-crisis statistics, one-third of teens in the world are deprived of digital services; only half of households worldwide have access to the Internet; 73% of urban households and only 38% of rural households have television; girls have less access to digital technologies than boys, and only 15 countries offer distance learning services in more than one language. All of this indicates that a lack of access to digital technology has deprived many children of learning and education [9, 10].

Closing schools nationwide can also have far-reaching effects on children's physical and mental health. Many children in poor communities depend on schools for meals and health services and information. For many children, cutting off school nutrition means eliminating the nutrients needed for growth, development, and learning. For instance, in the United States, more than 6 million students are dependent on schools to receive primary health care, mental health care and other services. Additionally, school closures also lead to reduced peer social interaction and reduced psychosocial well-being [9].

Schools' closures lead to girls dropping out of school and therefore increases the likelihood of teenagers' pregnancy. A meta-analytic research on the prevalence and determinants of adolescent pregnancy in Africa shows that out-of-school adolescent girls are twice more likely to be pregnant than those in school [11].

Economic problems, school closures, and loss of parental care due to COVID-19 pandemic enhances the risk of children sexual abuse. For example, the 2014–2015 Ebola outbreak in West Africa was linked to sexual abuse and adolescent pregnancy. A conducted survey found that vulnerable girls, including those who had lost relatives due to Ebola, turned to the sex market for food and other basic necessities. Without adequate access to safe contraception and abortion, this serious form of child sexual exploitation will lead to adolescent pregnancy [9].

2.2 Women

Previous epidemics have shown the value of interacting with women when communicating about risks: a) Women are a disproportionate part of the health workforce. b) As primary caregivers of children, the elderly and the sick, we need to recognize and engage women in relation to risks and participation in the society. c) When we do not recognize gender dynamics during an outbreak, we limit the effectiveness of risk communication efforts. d) When community participation teams are male-dominated, women's access to prevalence information and available services is severely restricted. e) Adapting community participation interventions

for gender, local language and culture to interventions improves community engagement [12].

Globally, women make up 70% of individuals working in health and social sectors [13]. They are often in a lower position, are low-income workers in the initial positions, and are at higher risk of coronavirus due to working conditions, especially in the low- and middle-income countries. For instance, COVID-19 monitoring community health workers have carried on call tracking and quarantine and isolation monitoring, along with their regular duties. Their work subsidizes the public health system, but their salaries are paid irregularly and they often do not have enough personal protective equipment [14].

Approximately 40% of working women worldwide work in the sectors that have suffered the most during the epidemic, leading to the job loss or income reduction. This includes the informal sector, arts, entertainment and domestic services. The International Labor Organization estimates that by June 4, 2020, 55 million or 72.3% of household workers are at risk of losing their jobs, of which 67.3% are migrant workers and therefore at higher risk. From April 2019 to April 2020, women's employment fell by more than 16 percent, even in Canada, Colombia and the United States. It is also estimated that women account for three-quarters of unpaid care due to the closure of schools and childcare services during COVID-19 and the increase in care needs for the elderly [15–17].

2.3 Elderly

Mental health problems, especially depressive symptoms, are common in the elderly [18]. Given the fact that COVID-19 has changed the provision of mental health services to telemedicine, this age group seems to have been disproportionately affected because most older people have not only limited access or do not have access to smartphones and Internet services, but are unable to go to outpatient clinics to receive their monthly prescriptions due to ongoing quarantines and public transportation restrictions [19]. This leads to a realization of lack of treatment and exacerbation of previous psychiatric symptoms. In addition, the burden of social isolation worsens if hospitalization is required because most hospitals do not allow visits to affected areas [18]. Likewise, older people without prior psychiatric disorders appear to be highly susceptible to mental health problems, especially those with no underlying diseases become the most vulnerable age group for life-threatening complications and death from COVID-19, therefore they are very concerned about contracting the virus and not access to appropriate healthcare. Unfortunately, the public media has portrayed COVID-19 as a disease of the elderly which may cause social stigma, negative stereotypes and age-related discrimination in the elderly, with consequences ranging from increased isolation to violations of their health rights and living equally with others which creates more distress not only for them but also for their family and caregivers [20, 21].

2.4 Disabled people

In low- and middle-income countries, where 80% of people with disabilities live and have a limited response capacity to COVID-19, the infection preparedness and response programs should be included and available to these people [22]. These programs should identify and address the following three main obstacles. a) Inequality in access to health content and information: People with disabilities may encounter inequality in access to public health messages. Therefore, all messages and communications should be published in simple language and in accessible formats, through mass and digital media channels. In addition, individual differences

and various needs of people with disabilities should be considered. For instance, sign language interpreters should be hired to communicate with the disabled and transparent masks should be provided for lip-reading. b) Disruption in the provision of services to the disabled: Measures such as physical distancing or quarantine may disrupt the service provision to the disabled, which most disabled people rely on to provide food, medicine and personal care. It should be noted that COVID-19 mitigation strategies should not lead to the isolation of people with disabilities. Instead, protective measures for these people should be a priority. c) Lack of knowledge of medical staff and health care providers with special needs of people with disabilities: People with disabilities may be at higher risk for developing acute respiratory syndrome coronavirus or any other severe disease. A person may face additional barriers to health care during an outbreak. To protect the dignity and respect of these people, protection against discrimination, and to prevent inequality in the provision of health care services, health care providers must be educated on the diverse rights and needs of this group [23–25].

With regard to COVID-19 epidemic, the World Health Organization (WHO) has stated that additional considerations for governments, health systems, disability service providers, institutional settings, communities, and actors for people with disabilities are required [26]. The global epidemic has the potential to significantly increase the day-to-day challenges of people with disabilities and may have a greater impact on the general population. In fact, this group is often directly affected by deficiencies and gaps in the health care system. They may have a higher risk of contracting COVID-19 infection and an increased complication associated with additional barriers to observing social distancing measures. For example, people with disabilities may trust public and adaptable transportation, have regular health or rehabilitation appointments, need close contact from care givers or health professionals to get to their daily routine, or have the ability to reduce communications with face masks (talking and listening to others). This group was previously marginalized, and reduced access to health care and support, among other restrictions, can exacerbate their day-to-day problems.

2.5 Homeless people and refugees

COVID-19 pandemic underscores the importance of housing as a social determinant of health and raises the question of whether current methods of relieving homelessness should be reevaluated. Homeless people and refugees often reside in environments that lead to an epidemic such as COVID-19, because they remain in living areas such as shelters, half-way houses, camps, or abandoned buildings where there is a lack of regular access to sanitary materials or bath facility [27]. Additionally, many of them suffer from chronic mental and physical conditions, are engaged in substance abuse, and have less access to health care. Although there are not many prospective studies, it seems that increasing the risk of COVID-19 infection causes a lot of stress and anxiety which can worsen existing mental health conditions or induce new ones [28].

The sudden closure of service centers and social centers, resulting in disruption of social relationships and support, may lead to deteriorating mental health for many people. Similarly, reduced access to public spaces such as libraries, community centers, and shopping malls, and reduced resources such as peer counseling services, disproportionately affect the homeless [29].

Among people with homelessness and substance use disorders, the extra pressure of shutting down services may help increase alcohol or drug use and accordingly increase drug-related deaths. For people addicted to opiates, experiencing physical distancing and therefore limited supply of opiates may increase the risk

of overdose due to intermittent use and loss of drug tolerance. Decreased access to supervised consuming services may increase the risk of harms associated with unsafe drug use, including contracting blood-borne infections such as HIV and hepatitis C [30].

For many people experiencing homelessness, sources of income include activities such as panhandling or sex work. Among women, girls, and people of gender diverse, having sex or sexual intercourse to survive is often necessary to maintain shelter or prevent intimate partner violence. With physical distance in place, people may be less able to perform these activities and therefore suffer a significant loss of income. In addition, homeless women and trans and gender diverse people may be more likely to experience intimate partner violence during the pandemic [29].

People who experience homelessness are also more likely to face criminalization in their daily lives. For instance, it is difficult for homeless people to avoid violating physical distancing commands when queuing to enter a shelter or food program or while sitting on a park bench. Homeless people in Canada and the United States have reportedly been fined between \$ 500 and \$ 10,000 for such violations, which is very problematic [29].

2.6 How mental health care systems responded to the COVID-19 crisis

Mental health systems have faced unprecedented challenges during the pandemic. A recent survey by the WHO found that COVID-19 disrupted or halted mental health services in 93% of the world while demand for receiving mental health interventions increased. The survey conducted in 130 countries highlights the disruptions of mental health services for vulnerable people in psychotherapy, reduction of major harms, retention in drug addiction treatment and emergency services. It also reports that providing personal medicine and crisis support during COVID-19 is much more difficult in large mental health institutions than in the community, which increases the risk of inequality of care for people with psychosocial and intellectual disabilities [31, 32].

To overcome the disruptions of service provision of mental, neurological and substance use disorders (MNS), most countries (70%) initiated telemedicine for replacement in personal counseling, 67.7% hotlines for mental health and mental support, 65.4% special measures to prevent and control the infection. In mental health services, while 44.6% of health care providers trained COVID-19 within basic psychological skills, discharged 44.6% of the patients or transferred them to other health facilities, 33.1% provided in-house communication services or community and 20.8% hired counselors [32].

Internet services, smartphones, and the advent of fifth-generation cellular phone networks have enabled mental health professionals and health officials to provide online mental health services during the outbreak of Covid-19 pneumonia [33]. According to some studies, online psychological interventions, including online cognitive-behavioral therapy (CBT) have been effective for disorders such as depression, anxiety, and insomnia disorders (e.g., through WeChat) [34]. There have also been several artificial intelligence programs used as interventions in psychological crises during the pandemic, including the Three Holes Rescue program, which monitors people at risk of suicide by analyzing messages sent to them on Weibo and, when necessary, alarms to volunteer psychologists and psychiatrists to carry out necessary and urgent interventions. These interventions can improve the quality and efficacy of emergency interventions. Countries such as the United Kingdom and the United States have also conducted various studies to address methods such as reducing health anxiety for psychological interventions in times of crisis against public health emergencies [35].

Cognitive-behavioral patterns (CBTs) show that excessive health anxiety can be alleviated by targeting maladaptive beliefs and behaviors. Controlled randomized trials have also indicated that CBT is beneficial for people suffering from excessive anxiety during a pandemic. Book therapy is another promising and sometimes useful intervention that requires further evaluation in randomized controlled trials.

The psychological distress caused by the pandemic may disappear without intervention, just as the emotional effects of other stressors may disappear over time. Instances of disorders that cause clinical attention include major depressive disorder (MDD), post-traumatic stress disorder due to the loss of loved ones or other traumatic events, and general anxiety disorder (GAD), which may cause or be caused due to a pandemic. Such people may be referred for cognitive-behavioral therapy or treatment with certain medications [36, 37].

It is also important to point out the restrictions that exist and need to be removed: first, vulnerable groups may have limited access to smartphones and the Internet. Second, online emergency interventions are effective and cost-effective, which are key for critical times, but it is emphasized that online interventions cannot be a permanent alternative to face-to-face treatment.

At the level of health care policies, it seems vital to ensure transparency of communication between authorities and the public (including service users) and to provide clear ways to protect mental health from the challenges posed by pandemics and the impact of social initiatives and isolation. As complexity paradigm indicates health is non-linear attribute but congruent with the values of social justice, participation, and empowerment [38, 39]. In addition, from a methodological and theoretical standpoint, complexity conveys a holistic, contextual and transdisciplinary approach, and health promotion tends to put emphasis on ecology and interdisciplinary action. Thus, it is recommended that healthcare system planning encompasses interventions with dynamic, contextual and community-based nature [40]. Finally, it is time for countries to respond to mental health services (under chronic capital shortages) by increasing budgets and staff capacity, especially given the predicted increasing pressure on national and international mental health services in the near future.

2.7 Social stigma

In areas related to health and hygiene, social notoriety is the negative relationship between (with) a person or group of people who have certain characteristics or diseases. At the time of an outbreak, this notoriety may mean labeling people, stereotyping and discriminating behaviors against them, or experiencing a loss of social dignity due to an association with a particular illness [38]. Anxiety caused by lockdowns, many unknowns around COVID-19 and fear of contracting the infection has risen stigma in communities. This results in more serious health problems and more difficulties in controlling the spread of Covid-19 [41].

According to the World Health Organization, the negative relation can be faced by people who may:

- be in contact with the virus (e.g., those with Covid-19 symptoms, or who tested positive, or is close to someone who has)
- be from countries where the virus originated or are considered “hot spots”
- be overlooked by public health guidance in some way [42].

COVID-19 social stigma is often corresponding to fear and willingness to protect those close to us. However, the impacts of social stigma are very harmful. It can

enhance feelings of guilt and anxiety and can worsen loneliness and mood problems for those with COVID-19 [43]. Additionally, the anxiety and fear of being stigmatized against, may cause two dangerous clinical and public health consequences: delayed referral of symptomatic patients to healthcare services and under-detection of the infected. A delayed diagnosis has been corresponding to more severe disease, mostly in the elderly and in vulnerable people, while a delayed notification of an infected person may facilitate the rapid spread of Covid-19 in the community [41].

3. Conclusion

Mental health is a development issue. There is a correlation between mental health and growth which one affects the other. Developmental areas, such as education, employment, economic resources, emergency responses, and human rights, affect mental health. At the same time, people with mental health concerns are often lost or actively excluded from developmental programs. Therefore, it is very important to improve the ground for the development of communities and also to address the issues of people with mental health concerns on development interventions. Governments, civil society, bilateral development agencies, research institutes, and others should make conscious efforts to reach out to people with psychosocial disabilities.

There is a need to create user-friendly resources that hide mental health and reduce stigma around it. Community participation in expressing their needs and designing and implementing interventions is vital. There were many cases during the epidemic, in which it was the support of the community and neighborhoods that helped people overcome the challenges they faced. Involvement in the community ensures the improvement of the whole community. Finally, there is a need to invest in building effective mental and social health infrastructure. It is time to invest in building human resources and enhancing existing capacity. These resources and services, if created consciously, can survive beyond the epidemic and continue to serve as a vital resource for societies.

Conflict of interest

The author declares no conflict of interest.

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References

- [1] Organization, I.L., Social Protection Responses to the COVID-19 Crisis: Country Responses and Policy Considerations. ILO Spotlight Brief, 23 April, 2020.
- [2] Sumner, A., C. Hoy, and E. Ortiz-Juarez, Estimates of the Impact of COVID-19 on Global Poverty. 2020: United Nations University World Institute for Development Economics Research.
- [3] Buheji, M., et al., The extent of covid-19 pandemic socio-economic impact on global poverty. a global integrative multidisciplinary review. American Journal of Economics, 2020. 10(4): p. 213-224.
- [4] Iqbal, S.A. and N. Tayyab, COVID-19 and children: The mental and physical reverberations of the pandemic. Child: care, health and development, 2021. 47(1): p. 136-139.
- [5] Gupta, S. and M.K. Jawanda, The impacts of COVID-19 on children. Acta Paediatrica, 2020. 109(11): p. 2181-2183.
- [6] Lee, J., Mental health effects of school closures during COVID-19. The Lancet Child & Adolescent Health, 2020. 4(6): p. 421.
- [7] Marques, E.S., et al., Violence against women, children, and adolescents during the COVID-19 pandemic: overview, contributing factors, and mitigating measures. Cadernos de saude publica, 2020. 36: p. e00074420.
- [8] Cornia, G.A., R. Jolly, and F. Stewart, COVID-19 and children, in the North and in the South. 2020.
- [9] United Nations Children's Fund, SUPPORTING CHILDREN, ADOLESCENTS AND WOMEN AFFECTED BY COVID-19 IN THE MIDDLE EAST AND NORTH AFRICA. 2020.
- [10] Cleary, P.F., G. Pierce, and E.M. Trauth, Closing the digital divide: understanding racial, ethnic, social class, gender and geographic disparities in Internet use among school age children in the United States. Universal Access in the Information Society, 2006. 4(4): p. 354-373.
- [11] Mekaoui, N., et al., Child sexual abuse and COVID-19 pandemic: another side effect of lockdown in Morocco. The Pan African Medical Journal, 2021. 38.
- [12] Women, U., COVID-19: How to Include Marginalized and Vulnerable People in Risk Communication and Community Engagement. 2020, New York: UN Women. At <https://www2.unwomen.org/-/media/field%20office>.
- [13] Organization, W.H., Delivered by women, led by men: A gender and equity analysis of the global health and social workforce. 2019.
- [14] Gentilini, U., et al., Social protection and jobs responses to COVID-19. 2020.
- [15] Collins, C., et al., COVID-19 and the gender gap in work hours. Gender, Work & Organization, 2021. 28: p. 101-112.
- [16] Alon, T.M., et al., The impact of COVID-19 on gender equality. 2020, National Bureau of economic research.
- [17] Burki, T., The indirect impact of COVID-19 on women. The Lancet Infectious Diseases, 2020. 20(8): p. 904-905.
- [18] Nikolakakis, N., et al., Association between happiness and psychopathology in an elderly regional rural population in Crete. Psychiatrike= Psychiatriki, 2019. 30(4): p. 299-310.

- [19] Yang, Y., et al., Mental health services for older adults in China during the COVID-19 outbreak. *The Lancet Psychiatry*, 2020. 7(4): p. e19.
- [20] Girdhar, R., V. Srivastava, and S. Sethi, Managing mental health issues among elderly during COVID-19 pandemic. *Journal of geriatric care and research*, 2020. 7(1): p. 32-35.
- [21] García-Fernández, L., et al., Mental health in elderly Spanish people in times of COVID-19 outbreak. *The American Journal of Geriatric Psychiatry*, 2020. 28(10): p. 1040-1045.
- [22] Jalali, M., et al., COVID-19 and disabled people: perspectives from Iran. *Disability & Society*, 2020. 35(5): p. 844-847.
- [23] Rotarou, E.S., et al., Disabled people in the time of COVID-19: identifying needs, promoting inclusivity. *Journal of Global Health*, 2021. 11.
- [24] Kavanagh, A., et al., Improving health care for disabled people in COVID-19 and beyond: lessons from Australia and England. *Disability and health journal*, 2021. 14(2): p. 101050.
- [25] Shakespeare, T., et al., Disabled people in Britain and the impact of the COVID-19 pandemic. 2021.
- [26] Organization, W.H., Disability considerations during the COVID-19 outbreak. 2020, World Health Organization.
- [27] Kluge, H.H.P., et al., Refugee and migrant health in the COVID-19 response. *The Lancet*, 2020. 395(10232): p. 1237-1239.
- [28] Aldridge, R.W., et al., Morbidity and mortality in homeless individuals, prisoners, sex workers, and individuals with substance use disorders in high-income countries: a systematic review and meta-analysis. *The Lancet*, 2018. 391(10117): p. 241-250.
- [29] Perri, M., N. Dosani, and S.W. Hwang, COVID-19 and people experiencing homelessness: challenges and mitigation strategies. *CMAJ*, 2020. 192(26): p. E716-E719.
- [30] Deilmizade, A. and A. Moghanibashi-Mansourieh, Challenges of providing COVID-19 prevention services to homeless people who use drugs in Iran. *The International Journal on Drug Policy*, 2020.
- [31] Brunier, A. and C. Drysdale, COVID-19 disrupting mental health services in most countries, WHO survey. *World Heal Organ*, 2020.
- [32] Tsamakis, K., et al., COVID-19 and its consequences on mental health. *Experimental and therapeutic medicine*, 2021. 21(3): p. 1-1.
- [33] Strudwick, G., et al., Digital interventions to support population mental health in Canada during the COVID-19 pandemic: rapid review. *JMIR mental health*, 2021. 8(3): p. e26550.
- [34] Wang, C., et al., Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. *International journal of environmental research and public health*, 2020. 17(5): p. 1729.
- [35] Liu, S., et al., Online mental health services in China during the COVID-19 outbreak. *The Lancet Psychiatry*, 2020. 7(4): p. e17-e18.
- [36] Rosen, C.S., L.H. Glassman, and L.A. Morland, Telepsychotherapy during a pandemic: A traumatic stress perspective. *Journal of Psychotherapy Integration*, 2020. 30(2): p. 174.

[37] Yao, H., J.-H. Chen, and Y.-F. Xu, Rethinking online mental health services in China during the COVID-19 epidemic. *Asian journal of psychiatry*, 2020. 50: p. 102015.

[38] Fajardo-Ortiz, G., et al., The dimension of the paradigm of complexity in health systems. *Cirugía y Cirujanos (English Edition)*, 2015. 83(1): p. 81-86.

[39] Lipsitz, L.A., Understanding health care as a complex system: the foundation for unintended consequences. *Jama*, 2012. 308(3): p. 243-244.

[40] Kannampallil, T.G., et al., Considering complexity in healthcare systems. *Journal of biomedical informatics*, 2011. 44(6): p. 943-947.

[41] Sotgiu, G. and C.C. Dobler, Social stigma in the time of coronavirus disease 2019. 2020, Eur Respiratory Soc.

[42] Organization, W.H., A guide to preventing and addressing social stigma associated with COVID-19. Retrieved May, 2020. 24: p. 2020.

[43] Bhanot, D., et al., Stigma and discrimination during COVID-19 pandemic. *Frontiers in public health*, 2020. 8: p. 829.