Research Article

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Covid-19 Prevention Measures among Refugees: Perspectives of Healthcare Providers Working In Refugee Camps in Rwanda

Zephanie Nzeyimana[1,2*], Gallican Nshogoza Rwibasira[3], Fraterne Manishimwe[1,6], Frieda S. Winterhalter[2], Ella Larissa Ndoli[4], Tafadzwa Dzinamarira[2], Nicholas Njau Ngomi[5]

[1]*Mount Kenya University, Rwanda*

[2]*ICAP at Columbia University*

[3]*Rwanda Biomedical Center*

[4]*University of Rwanda*

[5]*Murang'a University of Technology, Kenya*

[6]*Save the Children International, Rwanda*

[*]Corresponding author
Zephanie Nzeyimana, Mount Kenya University, Rwanda, Kenya.

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Abstract

Background

The coronavirus disease 2019 (COVID-19) that emerged from Wuhan, China in 2019 rapidly spread throughout the globe in less than 6 months. In June 2020, Rwanda was a home of approximately 149,602 refugees. About 92% of the refugees were living in camps including Kiziba, Gihembe, Nyabiheke, Kigeme, Mugombwa, and Mahama. While entire world was in some level of lockdown, people living in refugee camps and other similar settings were more vulnerable to the pandemic than their counterparts who were staying in their homes. Prevention measures such as social distancing, handwashing, and face mask wearing were often difficult to implement in these settings. Current study aimed to assess perspectives of HCPs working in refugee camps on prevention of COVID-19 in camp settings.

Methods

This study was a cross-sectional study and due to movement restriction from March 14 to November 3, 2020, we collected data remotely by sharing a structured questionnaire, in google form, to HCPs via WhatsApp and email. The questionnaire collected HCPs' perspectives on the feasibility of COVID-19 prevention measures, the prevalence of COVID-19 comorbidities, and how the pandemic can be prevented in refugee camp settings. Data were analyzed using descriptive statistics of IBM SPSS V.21.

Results

This study shows that handwashing, social distancing and wearing masks are feasible measures in refugee camp settings, voted by 71 to 100% of the HCPs. However, lockdown or stay home can be hardly applied in such settings, supported by 80.6% of the respondents. Regarding COVID-19 comorbid conditions, pregnant women in their late or recent term and Heart disease like Hypertensive disorders were voted the most common in refugee camps by 56% and 50% of the HCPs, respectively. Steps to COVID-19 prevention in camps include community awareness, preparing and activating the pandemic response task force, stopping non-essential mass gathering activities, and monitoring of COVID-19 prevention measures during essential service delivery.

Conclusions

All in all, except lockdown or stay home, other COVID-19 prevention measures like social distancing, handwashing, and facemask wearing can be easily applied in refugee camp and other similar settings.

Keywords: Coronavirus Disease 2019, Comorbid Conditions, Pandemic, Refugee Camps

Background

The coronavirus disease 2019 (COVID-19) that emerged from Wuhan, China in 2019 rapidly spread throughout the globe in less than 6 months, since it was first reported to the World Health Organization (WHO), as pneumonia of unknown cause, on 31st December 2019 [1]. The causative agent was identified to be a novel coronavirus (2019nCoV), referred to as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) [2]. It was declared by the WHO as a public health emergency of international concern on 30th January 2020 and named Coronavirus disease 2019 (COVID-19) on 11th February 2020(3). The disease was found to be exacerbated by other health conditions. Several studies have established co-morbidities associated with COVID-19 including diabetes, chronic obstructive pulmonary disease, cerebrovascular diseases, malignancies, hypertension, and other cardiovascular diseases [2,4,5]. These conditions increase COVID-19 mortality from 5 to 10 times [5-8].

As of June 2020, Rwanda was a home to approximately 149,602 refugees. About 92% of them were living in camps including Kiziba, Gihembe, Nyabiheke, Kigeme, Mugombwa, and Mahama supported by humanitarian organizations while approximately 8% were in towns, mostly in Kigali city and Huye [9] with self-reliance. The refugees were mainly from the Democratic Republic of the Congo (DRC) and Burundi. These camps were at high risk of COVID-19 because of several reasons. Refugees were living in close proximity to one another within the camps and were moving in and out of the camp looking for temporary jobs and other socio-economic reasons. Moreover, there was a fear that camp staffs, who reside outside the camp, could introduce the virus into the camp [10]. Finally, most COVID-19 preventive measures were considered not easily applicable in refugee camp settings, especially lockdown, social distancing, and regular handwashing [11]. Thus, the need to put in place strong measures to protect this vulnerable group of people from the COVID-19 pandemic. The current study aimed to assess the perspectives of HCPs, working in refugee camps, on the feasibility of the common COVID-19 prevention measures, an estimate of the common COVID-19 comorbidities among refugees, and to establish a framework for pandemic response in camps.

Methods

Study design, population and settings

A mixed method cross-sectional study design, collecting both quantitative and qualitative data from the study participants was used. Healthcare providers working in six refugee camps in Rwanda namely Kiziba, Gihembe, Nyabiheke, Kigeme, Mugombwa, and Mahama made up the study population.

Sample size and Sampling strategy

A total number of 64 HCPs were conveniently sampled.

Data Collection Methods

This study used a questionnaire developed based on WHO recommendations on public health measures and surveillance of influenza and severe acute respiratory syndromes [12] and Interim Guidance on public health and social measures for COVID-19 preparedness and response in low capacity and humanitarian settings version 1 [13]. The questionnaire, in a google form format, was designed to collect demographic characteristics and views of HCPs on the COVID-19 pandemic risk factors, comorbidities, and prevention measures in refugee Camp settings. We collected data remotely during a countrywide or regional lockdowns, from May 22 to November 3, 2020. During this period, we sent the questionnaire the study participants via emails and WhatsApp to prevent the spread of the pandemic.

Statistical Analysis

Collected data were analyzed using descriptive statistics of IBM SPSS version 21. Findings were presented in tables and figures. Qualitative data were analyzed following framework analysis approach.

Ethical consideration

Prior to data collection, we obtained an ethical clearance letter from Mount Kenya University-Rwanda Institutional Review Board prior to data collection. Approval number was MKU/ETHICS/2/2020 received on May 22, 2020. We did not collect names, phone number and other personal identifiers in our data collection tools. Moreover, participation in the study was voluntary.

Results

This section present perspectives of HCPs, working in refugee camps, on the feasibility of common COVID-19 prevention measures, how common are COVID-19 comorbidities among refugees, and prevention of COVID-19 in refugee camp settings.

Demographic Characteristics of the Study Participants

A total number of 64 HCPs participated in the study. Of them; 62.5%, 15.6%, and 12.5% were from Mahama, Kiziba, and Mugombwa camps, respectively; 81.3% were male, 78.1% were aged between 30 to 39 years old, 43.8% were Nurses followed by Laboratory Technologists (25%); 90.6% had University education and above, and more than a half (65.6%) had worked in refugee camp settings for 2 to 4 years. Detailed information is found in table 1.

Table 1: Demographic characteristics

Variable	Outcome, n (%)
Camp name	
Mahama	40(62.5)
Mugombwa	8(12.5)
Kiziba	10(15.6)
Gihembe	2(3.1)
Kigeme	2(3.1)
Nyabiheke	2(3.1)
Gender	
Male	52(81.3)
Female	8(12.5)
Not willing to disclose	4(6.3)
Age groups	
30 to 39 years old	50(78.1)
40 to 49 years old	12(18.8)
50 to 59 years old	2(3.1)
Profession	
Nurses	28(43.8)
Laboratory technicians	16(25)
Psychologists	6(9.4)
Social workers	6(9.4)
Clinical Officers	2(3.1)
Medical doctors	2(3.1)
Midwives	2(3.1)
Nutritionists	2(3.1)
Education level	
University	58(90.6)
High school	4(6.3)
Not willing to disclose	2(3.1)
Working experience in refugee camp settings	
Less than 1 year	10(15.6)
2-4 years	42(65.6)
5 years and above	12(18.8)
Total	64(100)

Feasibility of COVID-19 prevention measures in refugee camp settings

The figure 1 shows that of the 64 HCPs; 100%, 71.8% and 93.7% of them voted that regular handwashing, social distancing and wearing masks are feasible in refugee camp settings while 80.6% of them voted that stay home or lockdown is not applicable in camp settings.

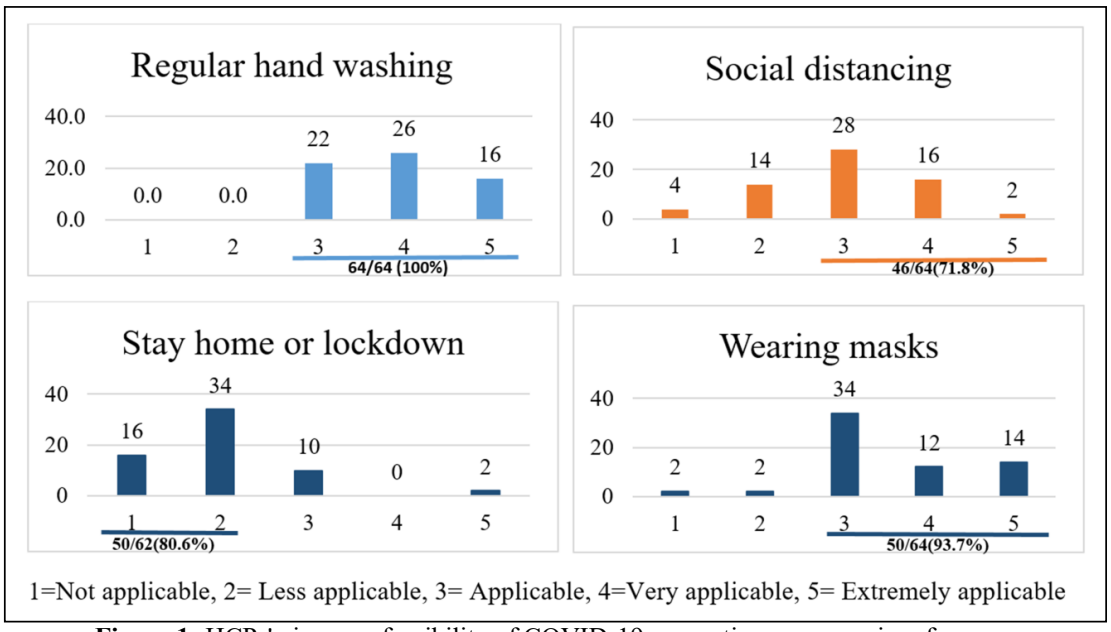

Figure 1: HCPs' views on feasibility of COVID-19 prevention measures in refugee camps

COVID-19 comorbidities in Rwandan refugee camps

Healthcare providers were asked to rank how common COVID-19 comorbidities are in their camps using a 1 to 5 scale, with 1 being not common and 5 meaning extremely common. They were also asked to rank how important it can be to separate people with comorbidities from other refugees during a highly contagious disease like COVID-19. Only Medical doctors, Nurses, Clinical Officers, and Midwives were allowed to answer this question.

HCPs' views on how common are COVID-19 comorbidities in their refugee camps

A total number of 52 provided their views on how common COVID-19 comorbidities are in their refugee camps. The table 2 illustrates that 56% (28/50) of the HCPs chose that there were many pregnant women in their late term or recent pregnancy while 50% (26/52) reported that Heart disease like Hypertensive disorders are common in refugee camps. Other comorbidities were voted uncommon by 57.7 to 100% of the respondents.

Table 2: HCPs' views on how common are COVID-19 comorbidities in their refugee camps

Comorbidities	Most common, n (%)	Less common, n (%)	N
Older people ≥60 years of age	0(0)	52(100)	52
Smoking	0(0)	52(100)	52
Obesity, BMI ≥ 2010	0(0)	52(100)	52
Blood disorders like leukemias, anemias	14(26.92)	38(73.07)	52
Chronic kidney disease	12(23.07)	40(76.9)	52
Chronic liver disease	12(23.07)	40(76.9)	52
Pregnant women (Late term or recent pregnancy)	28(56)	22(44)	50
Endocrine disorders	12(24)	38(76)	50
Metabolic disorders	14(28)	36(72)	50
Heart disease: Hypertensive disorders, cardiovascular diseases, etc.	26(50)	26(50)	52
Diabetes	18(34.6)	34(65.4)	52
Tuberculosis	18(34.6)	34(65.4)	52
Cancer	14(26.9)	38(73.1)	52
Asthma	22(42.3)	30(57.7)	52

HCPs' views on the need to isolate people with potential COVID19 comorbidities

Of the 64 HCPs, 75% (48/64) voted that it is important to isolate refugees with potential COVID-19 comorbidities for special care in order to reduce the number of deaths from the disease. Figure 2 provides detailed information.

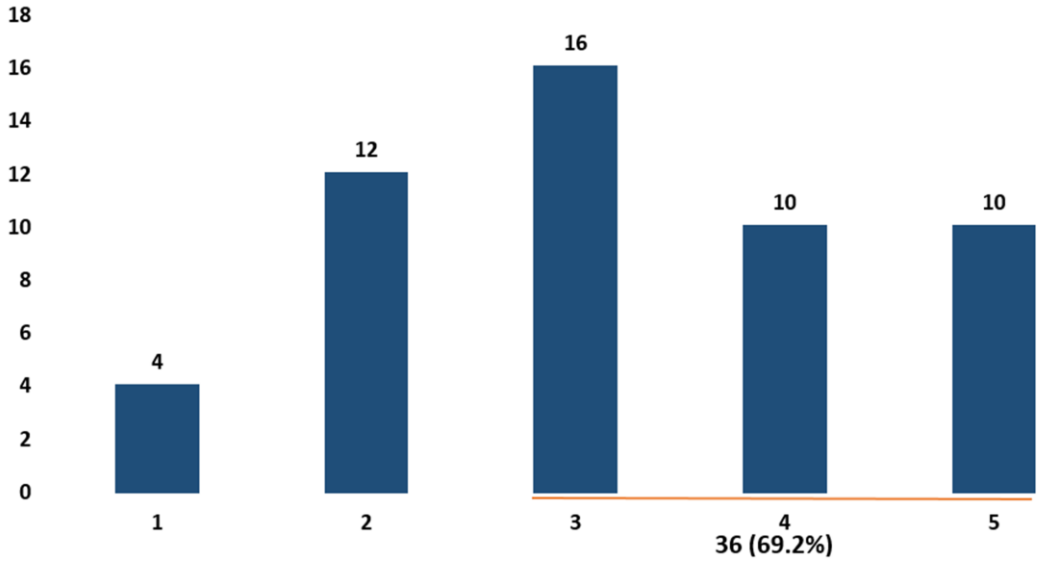

Figure 2: HCPs views on the need to isolate people with co-morbidities

COVID-19 prevention measures refugee camps

HCPs' views on how COVID-19 can be prevented in refugee camps before and after the first case mainly focus on community awareness, preparing and activating the pandemic response task force, stopping non-essential mass gathering activities and monitoring of COVID-19 prevention measures during essential services including those on health and food. The table 3 shows detailed information of their views.

Table 3: Views of HCPs on the framework for pandemic response in camps

Prevention measures before the first case	Prevention measures while cases are being reported
Raising community awareness about the pandemic	*Raising community awareness about the pandemic*
▪ Passing key message on prevention using: Posters, Audios and loud speakers	▪ Enhance existing community mobilization activities
▪ Vaccination of all vulnerable population, once the vaccine is available	▪ Vaccination for all, once the vaccine is available
Installing the pandemic response system, as per local and international guidelines	Activate the pandemic response system, as per local and international guidelines
▪ Build a rapid response team (selection and training)	▪ Contact tracing taskforce
▪ Avail Testing and Treatment Centers	▪ Testing and Treatment centers
▪ Avail PPEs for HCPs and the Rapid response team	▪ Avail sufficient PPEs for HCPs and pandemic response task force
▪ ***Install a system to control implementation of the pandemic prevention measures in camps at individual and community levels***	▪ ***Activate a system to control implementation of COVID19 prevention measures in camps at individual and community levels***
▪ Install handwashing stations in all high-risk places including HFs, Camp Entrances, and food distribution sites.	▪ Maintaining and ensuring proper use of handwashing stations
▪ Avail and ensure usage of the necessary pandemic supplies (Face masks, handwashing stations, hand sanitizers, soaps)	▪ Enhance and oversee the implementation of the pandemic prevention measures including wearing facemasks, social distancing and regular hand washing
▪ Identify and make a sufficient stock for essential items (food, drugs, etc.)	▪ Efficient and effective use of essential items (food, drugs, etc.)
Control movement in and out of the camps	***Limit mass gathering activities***
▪ Minimize and control entry and exit points/gates of refugees from in and out of the camp	▪ Receive emergency cases at Health facilities
▪ Reduce the daily number of staffs attending the camps	▪ Minimize frequency of clinical follow ups of people with chronic diseases presenting at Health facilities
▪ Control movement of Staffs during work hours by availing essential stuffs inside the camp like food items, among others	▪ Close churches and child friendly spaces
▪ Registration of camp people entering and going out of the camps	▪ Suspend all types of ceremonies and meetings

▪ Put in place a movement clearance system to limit the unnecessary travels (for markets and job seeking outside the camps)	▪ Stop or suspend some activities including mobilization on Information Education Communication(IEC) Sessions, facial tracing, non-food staff distribution and other mass gathering activities like Registration for Voluntary Repatriation ▪ Discourage some behaviors like hand shaking, smoking and sharing cigarettes
	▪ Control how refugees collect water ▪ Enhance movement clearance system
	▪ Monitor social distancing where essential services are delivered from including at HFs and distribution sites for Gaz, food, water, etc.

Discussion

This section discusses perspectives of HCPs', working in refugee camps, on the feasibility of common COVID-19 prevention measures and how common COVID-19 comorbidities among refugees. It also discusses their views on how to prevent COVID-19 in refugee camp settings.

Current study shows that common COVID-19 prevention measures including regular handwashing, social distancing and wearing masks are feasible in refugee camp settings, contrary to what was believed. Mask wearing coupled with sectoring people in camps, have been proved to have a remarkable effect to reduce incidence of COVID-19 in camps [14]. This is an indication that proper implementation of these measures can be a vital tool to prevent highly infectious diseases like COVID-19 in refugee camps and other similar settings in future. In contrast, 80.6% of the HCPs supported that lockdown can be hardly applied in these settings.

Most common COVID-19 comorbidities in refugee camps were pregnancy (in first and last term) and hypertension disorders, voted by 56% and 50% of the respondents, respectively. However, other comorbidities were voted uncommon by 57.7 to 100% of the respondents including older people aged 60 years and above, Smoking, Obesity (BMI ≥ 2010), Blood disorders (leukemias, anemias), Chronic kidney disease, Chronic liver disease, Endocrine disorders, Metabolic disorders, Diabetes, Tuberculosis, Cancer, and Asthma (Only Medical doctors, Nurses, Clinical Officers and Midwives were allowed to answer this question). These findings can be attributed to the fact that larger proportion of the refugees is young. It is also an indication of low uptake of family planning services in the camps. Although some of these conditions were ranked uncommon, several studies including an Indonesian study [15] evidenced that they are associated with increased risks of deaths among COVID-19 patients especially hypertensive, cardiovascular disease, older age, and diabetes.

Regarding the need to isolate people with potential comorbidities from other refugees during a highly contagious disease like COVID-19, 75% of the HCPs voted vital to offer for special care in order to reduce the number of deaths from the disease1. Although little has been published on social isolation of people with comorbid diseases, Authors has shown that it(isolation) is associated with psychological disorders including distress, low mood and self-esteem, depression and suicide, among others [16-18].

HCPs' perspectives on how COVID-19 can be prevented in refugee camps before and after the first case mainly focus on community awareness, preparing and activating the pandemic response task force, stopping non-essential mass gathering activities and monitoring of COVID-19 prevention measures during essential services including healthcare and food item. These suggestions are similar to the WHO and New Zealand guidelines on the pandemic response [19-21].

Conclusion

HCPs included in this study reported that social distancing, hand washing, mask wearing are feasible measures to prevent COVID-19 in refugee camps and in other similar settings. However, lockdown can be hardly applied in these settings. It has also been shown that most common COVID-19 comorbid conditions in camps include pregnant women in their late term or recent pregnancy and hypertensive disorders. Finally, HCPs stated that prevention measures should include activities to increase community awareness, avail and activate the pandemic response task force, stop non-essential mass gathering activities and monitor of COVID-19 prevention measures during essential services including healthcare and living services.

Strength and Limitations

The current study collected data in the midst of the pandemic in Rwanda, while cases were increasingly reported and people were afraid of contracting the disease, especially HCPs and COVID-19 response Frontliners. As limitation of the study, we were not able to conduct interviews with HCPs for further investigation on the feasibility of COVID-19 prevention measures. Moreover, this study relied on the views of Medical Doctors, Nurses, Clinical officers, and Midwives to estimate how common COVID-19 comorbid conditions are in refugee camps; we were not able to perform biomarkers testing to diagnose or identify the conditions.

List of Abbreviations

BMI: Body Mass Index
COVID-19: Coronavirus disease 2019
HCP(s): Healthcare Provider(s)
HF: Health facility
SPSS: Statistical Package for the Social Sciences
PPEs: Personal Protective Equipments
SARS-CoV-2: Severe Acute Respiratory Syndrome Coronavirus 2
IBM: International Business Machines Corporation

WHO: World Health Organization

Declarations

Ethics Approval and Consent to Participate

An ethical clearance letter was obtained from the Ethical Review Board of Mount Kenya University, Rwanda. Study participants signed informed consent before responding to the questionnaires. No participant was requiring a parent or guardian ethical approval; all HCPs were aged 17 and above. No names or personal identiers were collected in the data collection materials.

Consent for Publication

Not applicable

Availability of Data and Materials

If needed, the raw data used for this article is available upon reasonable request in writing to the corresponding author.

Competing Interests

The authors declare that they have no competing interests.

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No funding was received for this study

Authors' Contributions

ZN and GN conceptualized the study and developed the draft proposal of the study. FW, NN, EN and FM critically reviewed the proposal and data collection tools. ZN coordinated collected and analyzed data. All authors (ZN, GN, FW, NN, EN, FM and TAD) contributed to the revised draft version of the manuscript and approved the final version.

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References

1. Coronavirus, W. H. O. (2020). Events as they happen. World Heal Organ.
2. Chen, N., Zhou, M., Dong, X., Qu, J., Gong, F., Han, Y., ... & Zhang, L. (2020). Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study. The lancet, 395(10223), 507-513.
3. WHO. (2020). Coronavirus (COVID-19) events as they happen. World Health Organization.
4. Guan, W. J., Liang, W. H., Zhao, Y., Liang, H. R., Chen, Z. S., Li, Y. M., ... & He, J. X. (2020). Comorbidity and its impact on 1590 patients with COVID-19 in China: a nationwide analysis. European Respiratory Journal, 55(5).
5. Guzik, T. J., Mohiddin, S. A., Dimarco, A., Patel, V., Savvatis, K., Marelli-Berg, F. M., ... & McInnes, I. B. (2020). COVID-19 and the cardiovascular system: implications for risk assessment, diagnosis, and treatment options. Cardiovascular research, 116(10), 1666-1687.
6. NSIKAN AKPAN,.(2020). How to protect yourself if you have underlying conditions
7. Guan, W. J., Ni, Z. Y., Hu, Y., Liang, W. H., Ou, C. Q., He, J. X., ... & Zhong, N. S. (2020). Clinical characteristics of coronavirus disease 2019 in China. New England journal of medicine, 382(18), 1708-1720.
8. Kwong, J. C., Schwartz, K. L., Campitelli, M. A., Chung, H., Crowcroft, N. S., Karnauchow, T., ... & Gubbay, J. B. (2018). Acute myocardial infarction after laboratory-confirmed influenza infection. New England Journal of Medicine, 378(4), 345-353.
9. MINEMA. (2019). Camps & Tansit centres. Ministry in charge of emergency management.
10. WHO. Coronavirus Disease (2019). World Heal Organ 2020;14 (6):e01218.
11. Di Gennaro, F., Pizzol, D., Marotta, C., Antunes, M., Racalbuto, V., Veronese, N., & Smith, L. (2020). Coronavirus diseases (COVID-19) current status and future perspectives: a narrative review. International journal of environmental research and public health, 17(8), 2690.
12. World Health Organization. (2020). Shortage of personal protective equipment endangering health workers worldwide. Newsroom, March, 3.
13. Inter-Agency Standing Committee. (2020). Interim Guidance: Public Health and Social Measures for COVID-19 Preparedness and Response in Low Capacity and Humanitarian Settings, Version 1.
14. Gilman, R. T., Mahroof-Shaffi, S., Harkensee, C., & Chamberlain, A. T. (2020). Modelling interventions to control COVID-19 outbreaks in a refugee camp. BMJ global health, 5(12), e003727.
15. Djaharuddin I, Munawwarah S, Nurulita A, Ilyas M, Ahmad N. January, S. (2020). Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information, 1, 19-21.
16. Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G. J. (2020). The psychological impact of quarantine and how to reduce it: rapid review of the evidence. The lancet, 395(10227), 912-920.
17. Brooks SK, Webster RK, Smith LE, Woodland L, Wessely S, Greenberg N, et al (2020). The Psychological Impact of Quarantine and How to Reduce It: Rapid Review of the Evidence. SSRN Electron J. 2020.
18. Larios-Navarro, A., Bohórquez-Rivero, J., Naranjo-Bohórquez, J., & Sáenz-López, J. (2020). Psychological impact of social isolation on the comorbid patient: on the subject of the COVID-19 pandemic. Revista Colombiana de Psiquiatría (English ed.), 49(4), 227.
19. Covid- T, Framework CR, Health N, Centre C, Framework P, Tiriti T, et al. (2021). COVID-19 Community Response Framework 01–8.
20. World Health Organization. (2021). COVID-19 strategic preparedness and response plan: operational planning guideline: 1 February 2021 to 31 January 2022 (No. WHO/WHE/2021.03). World Health Organization.
21. World Health Organization. (2021). COVID-19 strategic preparedness and response plan: 1 February 2021 to 31 January 2022 (No. WHO/WHE/2021.02). World Health Organization.