

## Clinical Students in COVID-19 Disease Era: Knowledge & Psychosocial Impact

Rex Friday Ogoronte A Ijah<sup>1\*</sup>, Nkemsinachi M Onodingene<sup>2</sup>, Ajibola Alabi<sup>3</sup> and Michael I Ogamba<sup>4</sup>

<sup>1</sup>Pioneer Lecturer & Head, Department of Surgery, PAMO University of Medical Sciences, and Consultant General Surgeon, Rivers State University Teaching Hospital, Port Harcourt, Rivers State, Nigeria

<sup>2</sup>Pioneer Lecturer & Head, Department of Hematology, PAMO University of Medical Sciences, Consultant Hematologist, Rivers State University Teaching Hospital, Port Harcourt, Rivers State, Nigeria

<sup>3</sup>Lecturer, Department of Pediatrics, Rivers State University, and Pediatrician, Rivers State University Teaching Hospital, Port Harcourt, Rivers State, Nigeria

<sup>4</sup>Pioneer Lecturer, Department of Chemical Pathology, PAMO University of Medical Sciences, and Consultant Chemical Pathologist, Rivers State University Teaching Hospital, Port Harcourt, Rivers State, Nigeria

\*Corresponding author: Ijah RFOA, Head, Department of Surgery, Rivers State University Teaching Hospital, & Lecturer, PAMO University of Medical Sciences, Port Harcourt, Nigeria, Tel: +2348033953290; E-mail: [rexijah@gmail.com](mailto:rexijah@gmail.com)

**Received:** January 28, 2022; **Accepted:** February 11, 2022; **Published:** February 18, 2022

### Abstract

**Background:** First recognized in December 2019 in Wuhan Hubei Province of China, and christened COVID-19 by the World Health Organization (WHO), this viral agent rapidly became of international concern fulfilling the criteria for a pandemic. This study aims to evaluate the knowledge and psychosocial impact (well-being) among returning clinical students in a private medical university in the year 2021.

**Materials and Methods:** A descriptive cross-sectional study was conducted among arriving clinical students in a private medical university. Semi-structured questionnaire was used to obtain data from clinical students. Data was analysed using the IBM Statistical Package for Social Sciences (SPSS) version 20.0.

**Results:** A 98.0% response rate was achieved with seventy-six (76) respondents in the study. There were 33 (43.4%) males and 43 (56.6%) female respondents. Seventy-two (94.7%) respondents were less than 25 years of age, and only 4 (5.3%) were between 25 and 40 years. All the respondents asserted to being aware of COVID-19 disease even before the survey. Knowledge of the causative agent, mode of transmission, symptomatology, indices for disease severity, and public health preventive measures of COVID-19 disease were above average among respondents. The World Health Organization Well-Being Index (WHO-5) revealed a mean score of 49.79, with poor well-being index among 31.6% of respondents, fair among 17.1%, good among 19.7% and excellent among 31.6%.

**Conclusion:** Knowledge of COVID-19 disease was above average among most respondents.

**Keywords:** COVID-19 disease; Knowledge; Psychosocial well-being; Clinical students; Port Harcourt; Nigeria

## 1. Introduction

First recognized in December 2019 in Wuhan Hubei Province of China [1], and christened COVID-19 by the World Health Organization (WHO), this viral agent rapidly became of international concern fulfilling the criteria for a pandemic [2]. Infection results in a systemic disease and may affect virtually every part of the body. The primary cause of death in most cases of severe COVID-19 has been reported to be the stimulation of a massive secretion of proinflammatory cytokine resulting in lung damage [3,4]. The global and national impact of this disease is no longer in doubt judging from the several reports of works that emerged from many parts of the globe since its onset. Reports of this disease impact on international travels and border control [5], oil prices and major stock markets [6], social and travel lockdowns within nations [7], closure of some public institutions including universities [8-10], and its consequent varying effects on economic activities of nations, states, families and individuals among others, are within the public domain.

Knowledge possessed by an individual or a people has a relationship with the quality of actions that are taken [11,12]. This partly explains the huge efforts made by international organizations and government of nations in improving public knowledge of the disease among their citizens. Public knowledge of coronavirus pandemic reported so far do vary depending on the time in history (relative to the discovery of the virus) that the survey was carried out, and the population being studied. A study carried out among medical students in March 2020 reported that majority of the participants had good knowledge, positive attitude, and sufficient practice [13]. Other surveys among students in other climes highlighted similar level of knowledge of the disease and its public health measures [14-16]. In the Nigerian society, studies on knowledge of COVID-19 disease carried out among students also revealed above average level of knowledge [17,18].

In a community-based study done from September 2020 to October 2020, 58.5% of respondents were reported to have good knowledge of COVID-19 [19]. There are researches among members of the public that documented similar findings [20-22]. It appears that ability to read and write inputs an advantage on the knowledge possessed in these studies, as the level of knowledge reported among students were relatively higher than that of the general public. This observation is further strengthened by the finding from a Nigerian study that reported that being educated was associated with good coronavirus public health practices. However, a noticeable exception here is the report of 90% overall attained knowledge among Sidama regional State of Southern Ethiopia [23], and there are a few studies among the general public in which disease knowledge level was relatively high [24-26].

The impact of the COVID-19 pandemic also trickled down to the university system in Nigeria. As part of preventive national measures, it was necessary to ensure improved awareness / knowledge of the disease among students and staff in the university community, and also required from students returning from the coronavirus pandemic holiday to produce evidence of a negative COVID-19 test. Knowledge of the disease is a defensive weapon of some sort, and hence determines compliance with public health measures. This study therefore aims to evaluate the knowledge and psychosocial impact (well-being) among returning clinical students in a private university in the year 2021.

## 2. Materials and Methods

A descriptive cross-sectional study was conducted among returning clinical students at a private Medical University - PAMO University of Medical Sciences. The study area was the Rivers State University Teaching Hospital, located in Port Harcourt

the Capital City of Rivers State, Nigeria. Students complete their clinical rotation at this institution and the Molecular Lab for the COVID-19 PCR test is located on this site. Total population of clinical students who gave consent were recruited into the study. The study instrument was questionnaire developed partly using the standard World Health Organization’s Five (WHO-5) Well-Being Index [27]. Information on demographics, knowledge of causative agent, mode of transmission, symptoms, indices for severe disease, and public health preventive measures were obtained. Data was analysed using the IBM Statistical Package for Social Sciences (SPSS) version 20.0.

### 3. Results

A 98.0% response rate was achieved with seventy-six respondents who participated in the study.

TABLE 1 shows the socio-demographic characteristics of respondents. There were 33 (43.4%) males, and 43 (56.6%) female respondents. Those who were less than 25years of age were 72 (98.7%), and 75 (98.7) were single.

TABLE 1. Socio-Demographic Characteristics of Respondents (n =76).

Variables	Frequency	Percentage
<i>Sex</i>		
Male	33	43.4
Female	43	56.6
<i>Age</i>		
Less than 25 years	72	94.7
25- 40 Years	4	5.3
<i>Marital Status</i>		
Single	75	98.7
Married	1	1.3
<i>Religion</i>		
Christianity	69	90.8
Islam	4	5.3
Others	3	3.9

The respondents’ knowledge of corona virus disease presented in TABLE 2 shows that all the respondents asserted to being aware of COVID-19 disease even before the survey. Similarly, all the respondents affirmed that viral agent is the causative factor of COVID-19 pandemic.

Additionally, 73 (96.1%) respondents affirmed that COVID-19 can be transmitted directly through body contact with infected person; 69 (90.8%) were of the opinion that the disease is more dangerous in people with cancer, diabetes, and chronic respiratory disease; 72 (94.7%), 72 (94.7%), and 70 (92.1%) opined that fever, cough, and sore throats respectively were symptoms of COVID-19 disease.

**TABLE 2. Knowledge of Corona Virus Disease (n =76).**

	YES		NO		No Opinion	
	Freq	(%)	Freq	(%)	Freq	(%)
Heard about COVID-19 before now	76	100.0	0	0.0	0	0.0
COVID-19 can be transmitted directly through body contact with infected person	73	96.1	3	3.9	0	0.0
COVID-19 more dangerous in people with cancer, diabetes, and chronic respiratory disease	69	90.8	1	1.3	6	7.9
Fever is a symptom of COVID-19	72	94.7	0	0.0	4	5.3
Cough is a symptom of COVID-19	72	94.7	2	2.6	2	2.6
Sore throats a symptom of COVID-19	70	92.1	1	1.3	5	6.6
Body pain is a symptom of COVID-19	56	73.7	5	6.6	15	19.7
Headache is a symptom of COVID-19	59	77.6	4	5.3	13	17.1
In suspecting infection with COVID-19, will primarily visit a physician	64	84.2	6	7.9	6	7.9
One should avoid contact with person suspected to be infected with COVID-19	73	96.1	2	2.6	1	1.3

TABLE 3 shows some other information on respondents’ knowledge of COVID-19 disease. While 46 (60.5%) of respondents opined that COVID-19 incubation period was 3-14 days, 18 (23.7%) indicated it was more than 14days, and 4 (5.3%) felt it was 2-5 days. Fifty-nine (77.6%) respondents registered that COVID-19 is more dangerous among those people more than 50 years of age, while 10 (13.2%) of them had no opinion.

**TABLE 3. Some Other Knowledge of Corona Virus Disease.**

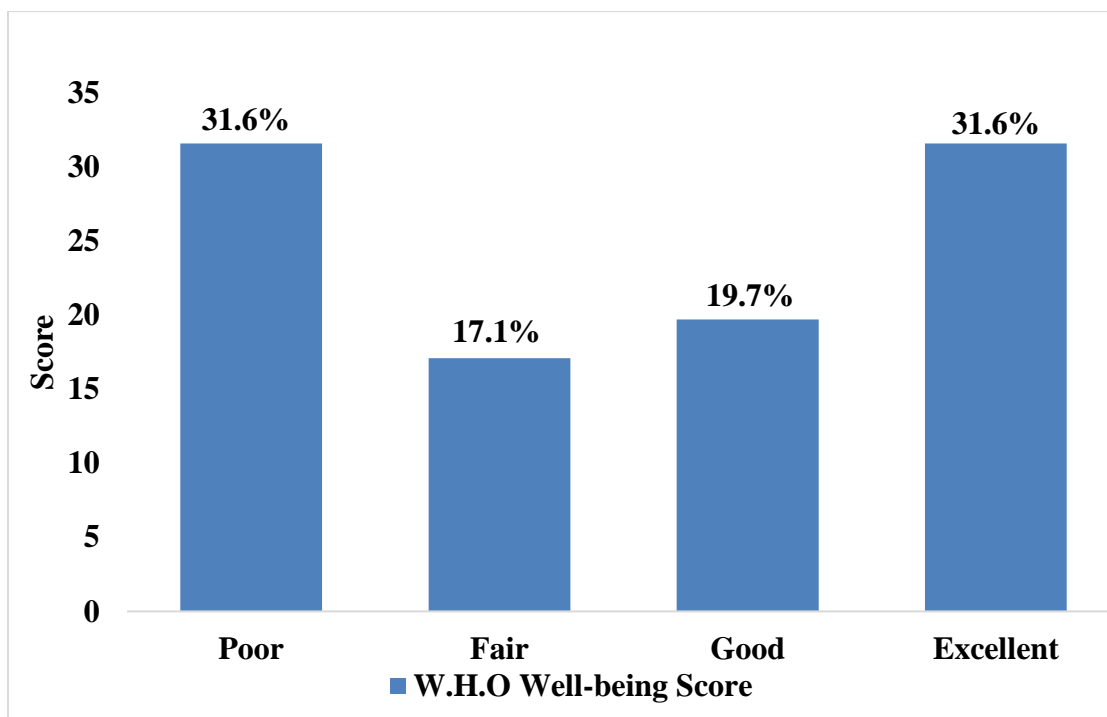
Variables	Frequency	Percentage
COVID-19 incubation period is		
Less than 2 days	1	1.3
2-5 days	4	5.3
3-14 days	46	60.5
More than 14 days	18	23.7
No opinion	7	9.2
Age group in which COVID-19 is more dangerous		
Less than 15 years	3	3.9
31-50 years	4	5.3
More than 50 years	59	77.6
No Opinion	10	13.2
Total	76	100.0

In TABLE 4. respondents’ knowledge of prevention of COVID-19 (contracting and spreading) is presented. It shows that more than two-third majority of the students affirmed that: avoidance of unnecessary vacation, handshaking, hugging and kissing; and paying more attention to personal hygiene than usual; wash hands frequently or use alcohol-based sanitizers and use face masks when in public places; were all necessary actions and habits to prevent the disease.

**TABLE 4. Knowledge of Prevention of COVID-19 (Contracting and Spreading).**

	YES		NO		No Opinion	
	Freq	(%)	Freq	(%)	Freq	(%)
One should avoid unnecessary vacation	62	81.6	9	11.8	5	6.6
One should avoid handshaking, hugging and kissing	63	82.9	9	11.8	4	5.3
Pay more attention to personal hygiene than usual	73	96.1	3	3.9	0	0.0
Necessary to wash hands frequently or use alcohol-based sanitizers	75	98.7	1	1.3	0	0.0
Important to use face masks when in public places	75	98.7	1	1.3	0	0.0

FIG. 1 shows the 5-item World Health Organization Well-Being Index (WHO-5) score for the respondents. The World Health Organization Well-Being Index (WHO-5) revealed a mean score of 49.79, with poor well-being index among 31.6% of respondents, fair among 17.1%, good among 19.7% and excellent among 31.6%. A score of less than 25% is considered poor, 26-50% is fair, 51-75% is good, and above 75% is considered excellent.



**Fig. 1. Emotional, Psychologic and Social Impact of COVID-19 disease / test.**

Mean = 49.79; Min = 0, Max = 100

TABLE 5 shows the relationship between gender and the World Health Organization (WHO) Well-Being Score. The female respondents were more affected by the COVID-19 pandemic than their male colleagues as indicated in the relationship between gender and World Health Organization Well-Being Index (WHO-5), as the proportion of respondents with better score was more among males than in females, and the relationship was statistically significant ( $P < 0.05$ ).

**TABLE 5. Relationship Between Gender and W.H.O Well-Being Score.**

Gender	W.H.O Well-Being Score					(X <sup>2</sup> )	P-Value
	Poor	Fair	Good	Excellent	Total		
Male	8(24.2%)	5(15.2%)	3(9.1%)	17(51.5%)	33	11.814	0.008
Female	16(37.2%)	8(18.6%)	12(27.9%)	7(16.3%)	43		
Total	24	13	15	24	76		

#### 4. Discussion

Female respondents were in the majority among respondents, almost all were single. There was a hundred percent awareness of the COVID-19 disease among the respondents, and all were also knowledgeable about the causative viral agent of the disease. Almost all respondents had knowledge of the mode of transmission, and the category of persons in which severe disease is encountered. More than two-third of respondents demonstrated adequate knowledge of the symptoms of the disease condition. More than half of respondents had knowledge of the incubation period, and a larger majority (more than two-third) were well informed about the public health preventive strategies against the disease. The respondents strong knowledge-base about the disease condition is similar to that reported among students in higher institutions of learning within and outside Nigeria [13-18]. It is expected that medical students would research on health related events, however, the fear or the dread of the disease could have also possibly driven the students to seek for and acquire needed knowledge of the disease.

The World Health Organization Well-Being Index Score showcased a mean of less than average among the respondents. Limited number of respondents had scores in the good and excellent range, while majority fell on the lower side of the scale. The findings share similarity with some negative impact on well-being reported among students around the globe [28-30]. There was also decreased psychosocial well-being revealed among students of Bowen university in Nigeria, and the mental health impact of COVID-19 on students was described as significant [31]. These findings are not surprising, considering the reported impact of the pandemic on human society [5-10]. Consideration should therefore be given to incorporating issues of students interest into response measures, in the current COVID-19 pandemics and subsequent periods of uncertainty and stress.

The female respondents in our study were noted to be more affected by the COVID-19 pandemic than their male colleagues using the World Health Organization Well-Being Index. There are mixed findings on the impact of COVID-19 on the psychosocial status of individuals. In a study in China, males were reported to be less adaptable but more likely to seek medical attention [32]. Our finding is partly in consonance with a study carried out in the United Kingdom which showed that women,

younger individuals, those with poor social background, and persons with pre-existing mental health challenges had worse mental health outcomes [33]. Higher psychosocial impact among women has also been reported in other studies [34-36]. Additionally, data from 26 countries showed that higher level stress during the COVID-19 era was more prevalent among women, the single, younger age, lower educational status, possession of more children, and residence in COVID-19 high mortality impact-countries [37]. However, there are reports of sex difference in vulnerability to severe COVID-19 disease with males being more prone than women to high risk of mortality [38]. This differs from our study, as ours focuses on psychosocial impact of the disease.

## **5. Study Limitation**

This is a questionnaire-based study, and therefore subject to the demerits of such studies.

## **6. Conclusion**

Awareness of COVID-19 disease, knowledge of the causative organism, mode of transmission, symptoms, preventive/control measures, and risk factors for severe disease were all above average among most respondents. The well-being of respondents was negatively impacted by the COVID-19 disease, and the psychosocial impact of the disease is higher among female students.

## **7. Recommendation**

University administrators should anticipate and provide psychosocial support for students during the COVID-19 pandemic and during times uncertainty in future.

## **8. Ethical Considerations**

The approval of the Ethics Review Committee of the PAMO University of Medical Sciences was obtained.

## **9. Sponsorship**

The research was sponsored by the researchers.

## **10. Conflict of Interest**

None declared

## **REFERENCES**

1. Wang C, Horby PW, Hayden FG, et al. A novel coronavirus outbreak of global health concern. *Lancet*. 2020;395(10223):470-3.
2. Tang D, Comish P, Kang R. The hallmarks of COVID-19 disease. *PLoS Pathog*. 2020;16(5):e1008536.
3. Conti P, Ronconi G, Caraffa A, et al. Induction of pro-inflammatory cytokines (IL-1 and IL-6) and lung inflammation by Coronavirus-19 (COVI-19 or SARS-CoV-2): anti-inflammatory strategies. *J Biol Regul Homeost Agents*. 2020;34(2):327-31.
4. Bösmüller H, Matter M, Fend F, et al. The pulmonary pathology of COVID-19. *Virchows Archiv*. 2021;478(1):1-14.
5. Wells CR, Sah P, Moghadas SM, et al. Impact of international travel and border control measures on the global spread of the novel 2019 coronavirus outbreak. *Proc Natl Acad Sci USA*. 2020;117(13):7504-9.

6. Bagchi B, Chatterjee S, Dandapat D, et al. Coronavirus Outbreak and the Great Lockdown: Impact on Oil Prices and Major Stock Markets Across the Globe. Singapore: Springer Nature; 2020.
7. Jain S, Sharma T. Social and travel lockdown impact considering coronavirus disease (COVID-19) on air quality in megacities of India: present benefits, future challenges and way forward. *Aerosol Air Qual Res.* 2020;20(6):1222-36.
8. Sahu P. Closure of universities due to coronavirus disease 2019 (COVID-19): impact on education and mental health of students and academic staff. *Cureus.* 2020;12(4):e7541.
9. Tarkar P. Impact of COVID-19 pandemic on education system. *Int J Adv Res Sci Technol.* 2020;29(9s):3812-4.
10. Bakator M, Radosav D. Managing education in the COVID-19 era. *BMJ.* 2020;370.
11. Powell CK, Hill EG, Clancy DE. The relationship between health literacy and diabetes knowledge and readiness to take health actions. *Diabetes Educ.* 2007;33(1):144-51.
12. Brewer NT, Chapman GB, Gibbons FX, et al. Meta-analysis of the relationship between risk perception and health behavior: the example of vaccination. *Health Psychol.* 2007;26(2):136-45.
13. Maheshwari S, Gupta PK, Sinha R, et al. Knowledge, attitude, and practice towards coronavirus disease 2019 (COVID-19) among medical students: A cross-sectional study. *J Acute Dis.* 2020;9(3):100-04.
14. Gallè F, Sabella EA, Da Molin G, et al. Understanding knowledge and behaviors related to CoViD-19 epidemic in Italian undergraduate students: the EPICO study. *Int J Environ Res Public Health.* 2020;17(10):3481.
15. Almomani EY, Qablan AM, Atrooz FY, et al. The Influence of Coronavirus Diseases 2019 (COVID-19) Pandemic and the Quarantine Practices on University Students' Beliefs About the Online Learning Experience in Jordan. *Front Public Health.* 2021;8:997.
16. Zhao B, Kong F, Aung MN, et al. Novel coronavirus (COVID-19) knowledge, precaution practice, and associated depression symptoms among university students in Korea, China, and Japan. *Int J Environ Res Public Health.* 2020;17(18):6671.
17. Olapegba PO, Ayandele O, Kolawole SO, et al. A preliminary assessment of novel coronavirus (COVID-19) knowledge and perceptions in Nigeria. Available at SSRN 3584408. 2020.
18. Adenubi OT, Adebawale OO, Oloye AA, et al. University community-based survey on the knowledge, attitude and perception about COVID-19 pandemic: The Federal University of Agriculture, Abeokuta, Nigeria as a case study. Preprints 2020, 2020060185.
19. Chen P-Y, Chuang P-N, Chiang C-H, et al. Impact of Coronavirus Infectious Disease (COVID-19) pandemic on willingness of immunization - A community-based questionnaire study. *Plos one.* 2022;17(1):e0262660.
20. Li Y, Liu G, Egolet RO, et al. Knowledge, Attitudes, and Practices Related to COVID-19 Among Malawi Adults: A Community-Based Survey. *Int J Environ Res Public Health.* 2021;18(8):4090.
21. Amsalu B, Guta A, Seyoum Z, et al. Practice of COVID-19 Prevention Measures and Associated Factors Among Residents of Dire Dawa City, Eastern Ethiopia: Community-Based Study. *J Multidiscip Healthc.* 2021;14:219-28.
22. Ayele AD, Mihretie GN, Belay HG, et al. Knowledge and Practice to Prevent Against Corona Virus Disease (COVID-19) and Its Associated Factors Among Pregnant Women in Debre Tabor Town Northwest Ethiopia: A Community Based Cross-Sectional Study. *BMC Pregnancy Childbirth.* 2020;21(1):397.
23. Yoseph A, Tamiso A, Ejeso A. Knowledge, attitudes, and practices related to COVID-19 pandemic among adult population in Sidama Regional State, Southern Ethiopia: A community based cross-sectional study. *PloS one.* 2021;16(1):e0246283.



24. Isah MB, Abdulsalam M, Bello A, et al. Corona Virus Disease 2019 (COVID-19): Knowledge, attitudes, practices (KAP) and misconceptions in the general population of Katsina State, Nigeria. *MedRxiv*. 2020.
25. Habib MA, Dayyab FM, Iliyasu G, et al. Knowledge, attitude and practice survey of COVID-19 pandemic in Northern Nigeria. *Plos one*. 2021;16(1):e0245176.
26. Hager E, Odetokun IA, Bolarinwa O, et al. Knowledge, attitude, and perceptions towards the 2019 Coronavirus Pandemic: A bi-national survey in Africa. *PloS one*. 2020;15(7):e0236918.
27. Garland AF, Deyessa N, Desta M, et al. Use of the WHO's Perceived Well-Being Index (WHO-5) as an efficient and potentially valid screen for depression in a low-income country. *Fam Syst Health*. 2018;36(2):148-58.
28. Lancaster M, Arango E. Health and emotional well-being of urban university students in the era of COVID-19. *Traumatol*. 2021;27(1):107-17.
29. Lopes AR, Nihei OK. Depression, anxiety and stress symptoms in Brazilian university students during the COVID-19 pandemic: Predictors and association with life satisfaction, psychological well-being and coping strategies. *PLoS one*. 2021;16(10):e0258493.
30. Silva AND, Guedes CR, Santos-Pinto CDB, et al. Demographics, Socioeconomic Status, Social Distancing, Psychosocial Factors and Psychological Well-Being among Undergraduate Students during the COVID-19 Pandemic. *Int J Environ Res Public Health*. 2021;18(14):7215.
31. Idowu A, Olawuyi DA, Nwadioke CO. Impacts of CoVID-19 pandemic on the psychological well-being of students in a Nigerian university. *J Med Surg Res*. 2020;7(3):798-806.
32. Yan S, Xu R, Stratton TD, et al. Sex differences and psychological stress: responses to the COVID-19 pandemic in China. *BMC Public Health*. 2021;21(1):1-8.
33. O'Connor RC, Wetherall K, Cleare S, et al. Mental health and well-being during the COVID-19 pandemic: longitudinal analyses of adults in the UK COVID-19 Mental Health & Wellbeing study. *Br J Psychiatry*. 2021;218(6):326-33.
34. Etheridge B, Spantig L. The gender gap in mental well-being during the Covid-19 outbreak: Evidence from the UK. *ISER Working paper series*; 2020.
35. Möhring K, Naumann E, Reifenscheid M, et al. The COVID-19 pandemic and subjective well-being: longitudinal evidence on satisfaction with work and family. *Eur Soc*. 2021;23(sup1):S601-S17.
36. Gray NS, O'Connor C, Knowles J, et al. The influence of the COVID-19 pandemic on mental well-being and psychological distress: impact upon a single country. *Front Psychiatry*. 2020;11:594115.
37. Kowal M, Coll-Martín T, Ikizer G, et al. Who is the most stressed during the COVID - 19 pandemic? Data from 26 countries and areas. *Appl Psychol Health Well Being*. 2020;12(4):946-66.
38. Sharma G, Volgman AS, Michos ED. Sex differences in mortality from COVID-19 pandemic: are men vulnerable and women protected? *Case Reports*. 2020;2(9):1407-10.