



THE PSYCHOLOGICAL IMPACTS OF COVID-19 PANDEMIC ACROSS THE COMMUNITY: RAJASTHAN, INDIA

Psychiatry

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ABSTRACT

BACKGROUND AND AIM: Novel coronavirus disease – officially designated as COVID-19 by the World Health Organization – has reached the level of a pandemic, affecting countries all across the world. Widespread outbreaks of infectious disease, such as COVID-19, are associated with psychological distress and symptoms of mental illness. **AIM -** To assess perceived stress and the psychological impact across the community. **METHODS:** This study was cross sectional, descriptive, community based, held in the Dept. of Psychiatry, SMS Medical College, Jaipur. The test groups were extracted from three different categories of population in LOCKDOWN, first were the Un-Exposed Home Bound (UEHB) N= 36, Second were the Partially Exposed Home Bound (PEHB) N=29 and third were Directly Exposed Essential Services (DEES) N=42. The consent to participate in the study was taken through different modes of communication. The selected participants after application of inclusion and exclusion criteria were interviewed and evaluated. Severity of depression, anxiety and stress were assessed using HAM-D, HAM-A and Perceived stress Scale (PSS) respectively. **RESULTS:** This study found among all three groups representing the community there was evident mild to moderate depression, anxiety and perceived stress and was significantly co-related with age and existing co-morbidity. There was no co-relation with sex/gender. The effect of co-morbidity was more in **PEHB and DEES** resulting in moderate depression, severe stress and anxiety. **CONCLUSION:** COVID-19 pandemic has presented exceptional and challenging conditions for the whole population which has led to unexpected stress, resulting in increased psychological morbidities across the community.

KEYWORDS

COVID-19, Psychological Impacts, Community, Stress, Anxiety, Depression.

INTRODUCTION

In December, 2019, a novel coronavirus outbreak, originating as a cluster of unexplained cases of pneumonia in Wuhan, China⁽¹⁾. Novel coronavirus disease – officially designated as COVID-19 by the World Health Organization – has reached the level of a pandemic, affecting countries all across the world⁽²⁾. Date (June 10, 2020) worldwide, over 72.62 lakhs confirmed cases and 4,11,001 deaths, attributable to this disease have been reported. Till date 10th June 2020 confirm cases 2,76,583 and 7,745 deaths attributable to this disease have been reported in India and 11,245 confirm cases and 255 deaths in Rajasthan (according aarogya setu government application of India). In the wake of this global health crisis, stringent public health measures have been implemented to curtail the spread of COVID-19 in India⁽³⁾.

The ongoing COVID-19 pandemic is inducing a sense of apprehensiveness and a timely understanding of mental health status is urgently needed for the affected population⁽⁴⁾. During Previous outbreaks of infection, research has revealed a profound and wide range of psychosocial impacts on people at individual, community and international levels. At individual level, people are likely to experience fear of falling sick, impending death, feelings of helplessness, and stigma⁽⁵⁾.

In 2003, during the SARS-CoV outbreak in Singapore, 27% of health care workers reported psychiatric symptoms⁽⁶⁾. Similarly, during the Ebola outbreaks in Sierra Leone in 2014 and in the Democratic Republic of the Congo in 2018, medical staff reported high levels of anxiety and the impact of stigma among those who were in direct contact with infected patients⁽⁷⁾. Widespread outbreaks of infectious disease, such as COVID-19, are associated with psychological distress and symptoms of mental illness⁽⁸⁾. Psychiatrists across the world should be aware of these manifestations, their correlates, and strategies to manage them that encompass both the needs of specific populations⁽⁹⁾ and the precautionary measures necessary to contain the spread of COVID-19⁽¹⁰⁾.

COVID-19 pandemic is a public health emergency of international concern and poses a challenge to psychological resilience. COVID-19 has a significant impact on mental health of people in community and pose a challenge to Essential Services workers particularly front-

liners, who are directly exposed to the patients. Research data are needed to develop evidence-based strategies to reduce the adverse psychological impacts and psychiatric symptoms during the Pandemic.

Aim-

To assess perceived stress and the psychological impact across community.

OBJECTIVES-

1. To evaluate and quantify the perceived stress in during COVID-19 pandemic across community.
2. To evaluate and quantify depression and anxiety during COVID-19 pandemic across community.

MATERIAL AND METHOD

Study design- This study was cross sectional, descriptive, community based, held in the Dept. of Psychiatry SMS Medical College, Jaipur. The test groups were extracted from three different categories of population in LOCKDOWN, first were the Un-Exposed Home Bound (UEHB) N= 36, Second were the Partially Exposed Home Bound (PEHB) N=29 and third were Directly Exposed Essential Services (DEES) N=42. The consent to participate in the study was taken through different modes of communication. The selected participants after application of inclusion and exclusion criteria were interviewed and evaluated. Severity of depression was assessed using Hamilton Depression Rating Scale (HAM-D)⁽¹¹⁾ and severity of anxiety was assessed using Hamilton Anxiety Rating Scale (HAM-A)⁽¹²⁾, for assessing perceived stress, Perceived stress Scale (PSS)^(13,14) was used. The time duration of this study was 1st April 2020 to 31st may 2020 about two months. Written consent was obtained from all the participants and all the ethical procedures were performed. The privacy rights of all participants always be observed.

SELECTION CRITERIA

Criteria of inclusion-

GROUP 1: Un-Exposed Home Bound (UEHB)- includes section of population who were home bound and isolated completely during the LOCKDOWN called by the Government to encounter and control the pandemic of COVID-19.

GROUP 2: Partially Exposed Home Bound (PEHB)- includes the section of the population who were home bound and isolated but were partially exposed by one or more members of their family who were involved in essentials services and directly exposed to the COVID-19 virus.

GROUP 3: Directly Exposed Essential Services (DEES)- includes the section of population who were involved in essentials services and directly exposed to the COVID-19 virus, involves on duty doctors, police personnel and nursing staff.

CRITERION FOR COMORBIDITY- any of the person from three groups after written consent revealed to be suffering from medical illness like asthma, tuberculosis, hypertension, diabetes mellitus, epilepsy or any other chronic illness, on or off treatment, which can have any effect on course, morbidity and mortality of COVID-19 infection.

All three groups included both sex, who had given written consent to participate in the study.

Statistical analysis:

statistical analysis was done by using the Statistical Package for Social Scientists, version twenty-three (SPSS-23). Discrete variables were computed as frequency and percentage. Mean and standard deviation were calculated for all the continuous variables. Pearson's correlation was calculated for computing the correlations of parametric variables. One-way ANOVA was used to compare means from three and more groups. Significance was compared using two tailed p-value.

OBSERVATION AND RESULTS

In this study, we evaluated the groups of Un-Exposed Home Bound (UEHB) N= 36, Partially Exposed Home Bound (PEHB) N=29 and Directly Exposed Essential Services (DEES) N=42 people across the community to assess the psychological impacts of the COVID -19 pandemic.

Mean age of UEHB group(n=36) was 33.64±14.60 years, fifty percent were male and rest 50% were female. Twelve (33.33%) people had

medical comorbidity.

Table 1 shows the relationship between age with HAM-D, HAM-A, and PSS score. Mean HAM-D score of UEHB group was 13.67±5.25 and had a statistically significant correlation with age (P coeff. = .832, p = < 0.001). Mean HAM-A score of UEHB group was 16.14±4.71 and had a statistically significant correlation with age (P coeff. = .836, p = < 0.001). Mean PSS score of UEHQ population was 19.36±6.26 also had a significant positive correlation with age (P coeff. = .809, p = <0.001)

Table 1: Co-relation of age with different scales in Un-Exposed Home Bound (UEHB)

| Variable N=36 | Mean ± sd | P coefficient | p-value |
|---------------|-------------|---------------|---------|
| AGE (years) | 33.64±14.60 | | |
| HAM-D | 13.67±5.25 | .832 | <.001* |
| HAM-A | 16.14±4.71 | .836 | <.001* |
| PSS | 19.36±6.26 | .809 | <.001* |

*Significant at 0.01 level (2-tailed)

Table 2 shows association of different socio-demographic variables with scores of applied standard scales in Un-Exposed Home Bound (UEHB). There was no statistically significant correlation of sex with HAM-D, HAM-A, and PSS scores in UEHQ group. On comparison of different occupations with their respective mean scores of HAM-D and HAM-A in UEHB group, value was statistically significant (f-value=3.91, p=value=.017) and (f-value=6.89, p=value=.001). Mean PSS score of different occupation of UEHB population had no correlation (f value=1.55, p = 0.219), statistically that indicated perceived stress was not attributable to occupation. Mean HAM-D scores of UEHB group, with comorbidity was 19.42±2.77 and without was 10.79±3.53. These values were statistically significant (t-value=7.36, df=34,p=<0.001) when compared with HAM-A score between who had coexistent comorbidity (mean HAM-A score=21.67±2.77) compared with had not (mean HAM-A score=13.38±2.49) and these values were statistically significant (t-value=9.05, df=34, p=<0.001), similar correlation was found with PSS score with coexistent comorbidity (t-value=9.05, df=34, p=<0.001)

Table 2: Association of different socio-demographic variables with different scales in Un-Exposed Home Bound (UEHB)

| variable | N=36 | HAM-D | | HAM-A | | PSS | |
|---------------------|------------|------------|-----------------------------|------------|-----------------------------|------------|-----------------------------|
| | | Mean ±sd | t-value/f-value df, p-value | Mean ±sd | t-value/f-value df, p-value | Mean ±sd | t-value/f-value df, p-value |
| Sex | | | | | | | |
| Male | 18 (50%) | 12.39±4.53 | -1.48,34, | 16.94±4.68 | 1.02,34 | 19.44±4.66 | .079,34 |
| female | 18 (50%) | 14.94±5.73 | p=.147* | 15.33±4.74 | p=.312* | 19.28±7.67 | p=.938* |
| Occupation | | | | | | | |
| Home maker | 9(25%) | 16.00±5.93 | f=3.91, | 17.11±4.42 | f=6.89 | 20.67±7.34 | f=1.55** |
| Unemployed/ student | 13(36.11%) | 10.15±3.41 | p=.017** | 12.85±3.26 | p=.001** | 16.62±4.55 | p=.219 |
| Self-employed | 7(19.44%) | 16.14±5.27 | | 16.29±4.42 | | 19.86±7.81 | |
| Govt. service | 7(19.44%) | 14.71±4.46 | | 20.86±3.43 | | 22.29±4.99 | |
| Comorbidity | | | | | | | |
| Yes | 12(33.33%) | 19.42±2.77 | 7.36,34 | 21.67±2.77 | 9.05,34 | 27.25±2.33 | 12.29,34 |
| No | 24(66.66%) | 10.79±3.53 | p=<0.001* | 13.38±2.49 | p=<0.001* | 15.42±2.76 | p=<0.001* |

*independent t-test, Significant at < 0.01 level (2-tailed) **one-way ANOVA test, Significant at < 0.05 level (2-tailed)

Mean age of Partially Exposed Home Bound (PEHB) group(n=29) was 44.03±18.43 years, 18 (62.06%) were male and rest 11(36.93%) were female. About fifty percent (n=14) people had medical comorbidity.

Table 3 shows the relationship between age and HAM-D, HAM-A, and PSS score in PEHB group. Mean HAM-D score of group was 20.86±6.91 and had statistically significant positive correlation with age (P coeff. = .386, p = 0.03). Mean HAM-A score of PEHB group was 17.00±9.55 and had statistically positive significant correlation with age (P coeff. = .752, p = < 0.001). Mean PSS score of PEHB population was 22.79±8.38 also had significant positive correlation with age (P coeff. = .777, p = <0.001)

Table 3: Co-relation of age with different scales in Partially Exposed Home Bound (PEHB)

| Variable N=29 | Mean ± sd | P coefficient | p-value |
|---------------|-------------|---------------|---------|
| AGE | 44.03±18.43 | | |
| HAM-D | 20.86±6.91 | .386 | 0.03* |

| | | | |
|-------|------------|------|-----------|
| HAM-A | 17.00±9.55 | .752 | < 0.001** |
| PSS | 22.79±8.38 | .777 | <0.001** |

*Significant at 0.05 level (2-tailed)

**Significant at 0.01 level (2-tailed)

Table 4 shows association of different socio-demographic variables with scores of different scales in Partial Exposed Home Bound (PEHB). In PEHB group. there was no statistically significant correlation of sex with HAM-D, HAM-A and PSS score. On comparison of different occupation with their respective mean scores of HAM-D in PEHB group, value was statistically significant (f-value=3.10, p=value=.045). Mean HAM-A score and PSS score of different occupation of PEHB population had no correlation (f value=.89, p = 0.458) and (f value=1.08, p = 0.374) statistically that indicated anxiety and perceived stress was similar among all occupations.

Mean HAM-D score of PEHB group who had comorbidity was 24.36±3.56 and 17.60±7.75 in who had not. These values were statistically significant (t-value=2.97, df=27, p=.006)

The comparison of HAM-A scores in between who had coexistent comorbidity (mean HAM-A score=25.79±4.40) compared with had not (mean HAM-A score=8.80±3.89), and these values were

statistically significant (t-value=11.01, df=27, p=<0.001). similar correlation was found between PSS score and coexistent comorbidity (t-value=10.96, df=34, p=<0.001)

Table 4: Association different socio-demographic variables with different scales in Partial Exposed Home Bound (PEHB)

| variable | N=29 (%) | HAM-D | | HAM-A | | PSS | |
|---------------------|------------|------------|-----------------------------|-------------|-----------------------------|-------------|-----------------------------|
| | | Mean ±sd | t-value/f-value df, p-value | Mean ±sd | t-value/f-value df, p-value | Mean ±sd | t-value/f-value df, p-value |
| Sex | | | | | | | |
| Male | 18(62.06%) | 20.06±6.15 | - .799,27 | 16.78±9.09 | - .157,27 | 21.0±6.39 | -1.50,27 |
| female | 11(36.93%) | 22.18±8.14 | p=.039* | 17.36±10.69 | p=.876* | 25.73±10.58 | p=.144* |
| Occupation | | | | | | | |
| Home maker | 6(20.68%) | 22.83±8.84 | f=3.10 | 15.50±9.60 | f=.89 | 25.17±10.57 | f=1.08 |
| Unemployed/ student | 10(34.48%) | 24.00±3.36 | p=0.045** | 21.00±9.26 | p=.458** | 25.40±8.89 | p=0.374** |
| Self-employed | 6(20.68%) | 20.50±7.03 | | 14.67±8.93 | | 19.67±4.54 | |
| Govt. service | 7(24.13%) | 15.00±6.24 | | 14.57±10.59 | | 19.71±7.82 | |
| Comorbidity | | | | | | | |
| Yes | 14(48.27%) | 24.36±3.56 | 2.97, | 25.79±4.40 | 11.01, | 30.50±4.36 | 10.96, |
| No | 15(51.72%) | 17.60±7.75 | 27, | 8.80±3.89 | 27 | 15.42±2.84 | 27, |
| | | | p=.006* | | p=<0.001* | | p=<0.001* |

*independent t-test, Significant at < 0.01 level (2-tailed) **one-way ANOVA test, Significant at < 0.05 level (2-tailed)

Mean age of Directly Exposed Essential Services (DEES) group(n=42) was 35.19±9.88 years, thirty-two (76.19%) were male and ten (23.80%) were female. Eighteen participant (42.85%) had medical comorbidity.

Table 5 shows the relationship between age compared with HAM-D, HAM-A and PSS score in DEES group. Mean HAM-D score of group was 15.43±5.35 and had statically significant positive correlation with age (P coeff. = .633, p=<0.001). Mean HAM-A score of DEES group was 22.86±4.42 and had statistically significant positive correlation with age (P coeff. = .401, p = 0.008). Mean PSS score of DEES population was 26.88±3.26 also had no correlation with age (P coeff. = .777, p = 0.110) statistically that indicated perceived stress was similar among all age groups.

Table 5: Co-relation of age with different scales in Directly Exposed Essential Services (DEES)

| Variable N=42 | Mean ± sd | P- coefficient | p-value |
|---------------|------------|----------------|---------|
| AGE | 35.19±9.88 | | |
| HAM-D | 15.43±5.35 | .633 | <0.001* |
| HAM-A | 22.86±4.42 | .401 | .008* |
| PSS | 26.88±3.26 | .250 | .110 |

Table 6: Association of different socio-demographic variables with different scales in Directly Exposed Essential Services (DEES)

| variable | N=42 (N%) | HAM-D | | HAM-A | | PSS | |
|-------------|------------|------------|-----------------------------|------------|-----------------------------|------------|-----------------------------|
| | | Mean ±sd | t-value/f-value df, p-value | Mean ±sd | t-value/f-value df, p-value | Mean ±sd | t-value/f-value df, p-value |
| Sex | | | | | | | |
| Male | 32(76.19%) | 16.16±5.58 | 1.60,40 | 23.31±4.76 | 1.20,40, | 27.47±3.32 | 2.18,40 |
| female | 10(23.80%) | 13.10±3.90 | p=.116* | 21.40±2.75 | p=.237* | 25.00±2.30 | p=.035* |
| Occupation | | | | | | | |
| Doctor | 16(38.09%) | 16.50±4.39 | f=4.01 | 24.81±4.65 | f=6.58 | 27.38±2.96 | f=.294 |
| Police | 14(33.33%) | 17.14±5.51 | p=.026** | 23.50±4.18 | p=.003** | 26.50±4.18 | p=.747** |
| Nurse | 12(28.57%) | 12.00±5.11 | | 19.50±2.05 | | 26.67±2.53 | |
| Comorbidity | | | | | | | |
| Yes | 18(42.85%) | 19.94±2.75 | 6.95, | 25.67±4.39 | 4.24, | 28.61±2.52 | 3.32,40 |
| No | 24(57.14%) | 12.04±4.18 | 40 | 20.75±3.12 | 40 | 25.58±3.18 | p=.002* |
| | | | p=<0.001* | | p=<0.001* | | |

*independent t-test, Significant at < 0.01 level (2-tailed) **one-way ANOVA test, Significant at < 0.05 level (2-tailed)

DISCUSSION

This study emphasised to assess the psychological impact in different groups across the community, effect of COVID-19 pandemic. The mean of HAM-D scores of UEHB, PEHB and DEES group were 13.67±5.25, 20.86±6.91 and 15.43±5.35 respectively. The mean of HAM-A scores of UEHB, PEHB and DEES groups were 16.14±4.71, 17.00±9.55, 22.86±4.42 respectively. The mean of PSS scores of UEHB, PEHB and DEES groups were 19.36±6.26, 22.79±8.38 and 26.88±3.26 respectively. This study found among all three groups there was evident mild to moderate depression, anxiety and perceived stress. Our finding is consistent with study of Wang et al. (2020) resulted In the population-based study, female gender, being a student,

having symptoms suggestive of COVID-19 and poor perceived health were associated with higher rates of anxiety, depression and stress ; on the other perspective, the availability of accurate information and the use of specific preventive measures, such as hand-washing, wearing a mask , seemed to mitigate these effects⁽¹⁵⁾. Another study by Xiao et al. (2020) found anxiety being the commonest symptom, in the frequencies of individual mental health symptoms. Anxiety was associated with impaired sleep in COVID -19 outbreak ⁽¹⁶⁾. One of these study by Zandifar and Badrfam et al. (2020) highlighted the role of unpredictability, uncertainty, contagious and seriousness of the disease, misinformation and social isolation contributing to stress and mental morbidity⁽¹⁷⁾. The prevalence of major depression in the general

population of increased by 7% after the COVID-19 outbreak⁽¹⁸⁾.

The effect of co-morbidity was more in **Partially Exposed Home Bound (PEHB) and Directly Exposed Essential Services (DEES)** resulting in moderate to severe depression. Mean score of HAM-A and PSS in DEES was higher (22.86±4.42 and 26.88±3.26 respectively) than other two group. Healthcare workers are at a significant risk of adverse mental health outcomes during the COVID-19 outbreak. Reasons for this include long working hours, risk of infection, shortages of protective equipment, loneliness, physical fatigue, frustration, discrimination, isolation, patients with negative emotions, exhaustion and separation from families⁽¹⁹⁾. During the 2003 SARS-CoV outbreak in Taiwan, emergency professional reported the feeling of interpersonal isolation and the fear that they would transmit the virus to their family, friends and relatives. Medical staff also stated that the use of heavy protective suits and N95 masks made communication between staff members very difficult and also cause psychological distress⁽⁶⁾. These mental health problems not only affect priorities, attention, understanding and decision-making capacity of medical workers and authorities, which could perturb the fight against COVID-19, but they could also have a lasting effect on their overall well-being⁽¹⁹⁾.

Fear of the unknown and uncertainty leads to higher anxiety level in both healthy people and those with pre-existing mental health illness; unjustified public fear may lead to discrimination, stigmatization⁽¹⁸⁾. This outbreak is leading to additional health problems such as stress, anxiety, depressive symptoms, insomnia, anger and fear globally among health care workers and general public. Collective concerns influence daily behaviours, economy, prevention strategies and decision-making from policy makers, health organizations and medical centres, which can weaken strategies of COVID-19 control and lead to more morbidity and mental health needs at global level⁽²⁰⁾.

CONCLUSIONS

Among all three groups there was evident mild to moderate depression, anxiety and stress. Severity of depression, anxiety and perceived stress was significantly co-related with age among all three groups representing the community. There was no co-relation of depression, anxiety and stress with sex. There was a significant effect and impact of existing co-morbidity in all three groups. The effect of co-morbidity was more in **Directly Exposed Essential Services (DEES)** resulting in moderate depression, severe stress and anxiety.

Implication

1. COVID-19 pandemic has presented exceptional and challenging conditions for the whole population which has led to unexpected stress, resulting in increased psychological morbidities across the community.
2. The increased severity of perceived stress, Anxiety and depression in Directly Exposed Essential Services (DEES) can be explained by following reasons-
 - a) Long and stressful working hours.
 - b) Strict protocols of restricted physical access and activity to prevent infections.
 - c) Prolong period of quarantine and isolation from family.

Recommendation

- 1) The mental status across the community should be one of the primary concerns and objectives of management strategy.
- 2) The usual methods of treatment and counselling should be replaced by new and effective ways like 'Crisis Counselling', 'Telemedicine' and Online Consultation.
- 3) The Dietary supplementation for essential vitamins and micronutrients and the role of regular exercise should be explained and implemented.
- 4) The population having co-morbidity and risk factors should be pro-actively identified, protected and isolated.

Limitation

- 1) The small sample size across the groups is due to limited and restricted conditions during the pandemic.
- 2) Limited access to other sections of community.

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REFERENCES:

- 1 Wang C, Horby PW, Hayden FG, Gao GF. A novel coronavirus outbreak of global health concern. *Lancet* 2020; published online Jan 24. [http://dx.doi.org/10.1016/S0140-6736\(20\)30183-2](http://dx.doi.org/10.1016/S0140-6736(20)30183-2)
- 2 World Health Organisation. Coronavirus Disease (COVID-19). 2020. Available: <https://www.who.int/india/emergencies/novel-coronavirus-2019/>
- 3 Adhikari S P, Meng S, Wu Y J, Mao Y P, Ye R X, Wang Q Z, Sun C, Sylvia S, Rozelle S, Raat H, Zhou H. Epidemiology, causes, clinical manifestation and diagnosis, prevention and control of coronavirus disease (COVID-19) during the early outbreak period: a scoping review. *Infect. Dis. Poverty* 2020; 17: 9-29.
- 4 Xiang Y T. Timely mental health care for the 2019 novel coronavirus outbreak is urgently needed. *Lancet Psychiatry* 2020; 7: 228-229. [CrossRef]
- 5 Hall R C W, Chapman M J. The 1995 Kikwit Ebola outbreak: Lessons hospitals and physicians can apply to future viral epidemics. *Gen. Hosp. Psychiatry* 2008; 30: 446-452. [CrossRef]
- 6 Lee S M, Kang W S, Cho A R, Kim T, Park J K. Psychological impact of the 2015 MERS outbreak on hospital workers and quarantined haemodialysis patients. *Comprehensive Psychiatry* 2018; 87: 123-127. <https://doi.org/10.1016/j.comppsy.2018.10.003>
- 7 Park J S, Lee E H, Park N R, Choi Y H. Mental health of nurses working at a government-designated hospital during a MERS-CoV outbreak: A cross-sectional study. *Archives of Psychiatric Nursing* 2018; 32: 2-6. <https://doi.org/10.1016/j.apnu.2017.09.006>
- 8 Bao Y, Sun Y, Meng S, Shi J, Lu L. 2019-nCoV epidemic: address mental health care to empower society. *Lancet* 2020; 22: 395: e37-e38.
- 9 Yang Y, Li W, Zhang Q, Zhang L, Cheung T, Xiang, Y T. Mental health services for older adults in China during the COVID-19 outbreak. *Lancet Psychiatry* 2020; 7 (4): e19.
- 10 Liu Y, Li J, Feng Y. Critical care response to a hospital outbreak of the 2019nCoV infection in Shenzhen, China. *Crit. Care* 2020; 24 (1): 56.
- 11 Hamilton M. A rating scale for depression. *J Neurol Neurosurg Psychiatry* 1960; 23: 56-62
- 12 Hamilton M. The assessment of anxiety states by rating. *Br J Med Psychol* 1959; 32: 50-55.
- 13 Cohen S, Kamarck T, Mermelstein R. A global measure of perceived stress. *Journal of Health and Social Behavior* 1983; 24: 386-396.
- 14 Cohen S, Williamson G. Perceived Stress in a Probability Sample of the United States. Spacapan, S. and Oskamp, S. (Eds.) *The Social Psychology of Health*. Newbury Park, CA: Sage, 1988.
- 15 Wang C, Pan R, Wan X, Tan Y, Xu L, Ho C S, Ho R C. Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. *Int. J. Environ. Res. Public Health* 2020; 17 (5): E1729.
- 16 Xiao H, Zhang Y, Kong D, Li S, Yang N. The effects of social support on sleep quality of medical staff treating patients with coronavirus disease 2019 (COVID-19) in January and February 2020 in China. *Med. Sci. Monit* 2020; 26: e923549.
- 17 Zandifar A, Badrfam R. Iranian mental health during the COVID-19 epidemic. *Asian J. Psychiatr* 2020; 51: 101990.
- 18 Mowbray H. In Beijing, coronavirus 2019-nCoV has created a siege mentality. *British Medical Journal* 2020; 368.
- 19 Kang L, Li Y, Hu S, Chen M, Yang C, Yang B X, Wang Y, Hu J, Lai J, Ma X, Chen J, Guan L, Wang G, Ma H, Liu Z. The mental health of medical workers in Wuhan, China dealing with the 2019 novel coronavirus. *Lancet Psychiatry* 2020; 7 (3): e14.
- 20 Torales J, Higgins M, Castaldelli-Maia J M, Ventriglio A. The outbreak of COVID-19 coronavirus and its impact on global mental health. *International Journal of Social Psychiatry* 2020; 1-4.