

## Original Research Article

# Impact of COVID-19 pandemic on mental health of general population in Kashmir Valley, India

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## ABSTRACT

**Background:** The high morbidity and mortality associated with epidemics and disasters and economic losses thereof is a high psychosocial risk. Estimation of the burden of mental health issues and recognition of various risk groups will lead to better allocation of resources to prevent the increased burden of psychiatric morbidity during the epidemic.

**Methods:** This was an online survey conducted during COVID-19 pandemic based on self reporting DASS 21 scale.

**Results:** Among the participants 49.5% had depression, 34.8% had anxiety and 22.3% had stress in varying severity from mild to extremely severe forms. Female gender, less age, high level of education and unemployment were the risk factors for increased psychiatric morbidity.

**Conclusions:** There is a dire need to recognize the mental health threat due to COVID-19 pandemic and implement the steps to protect the vulnerable population from it.

**Keywords:** COVID-19, Mental health, Risk factors

## INTRODUCTION

The emergence of Coronavirus disease 19 (COVID-19) and the pandemic thereof has led to major health and economic crisis in the world. The mortality and morbidity has also increased as the disease is spreading at a rapid pace. To curtail the spread of COVID-19 stringent public health measures have been implemented worldwide. These include complete lockdown, social distancing, ban on travel and quarantine of travellers and suspects.

The increasing number of cases worldwide, public worry about becoming infected, threat of unknown outcome of the infection, many myths, misunderstanding and misinformation about the disease and non availability of specific treatment have increased or precipitated the

mental health issues like anxiety, stress and depression among the general population. Further various efforts like social distancing and lockdowns to decrease the spread of the Coronavirus has its impact on health in general and mental health in particular. WHO has also stressed upon identifying the underlying drivers of fear, anxiety and stigma spread through social media which fuels misinformation.<sup>1</sup>

Major disasters are almost always accompanied by various mental health disorders besides domestic violence, and child abuse.<sup>2</sup> Epidemics of infectious disease are also associated with psychological distress and symptoms of mental illness.<sup>3</sup> The SARS epidemic of 2003 was also associated with increased mental health issues.<sup>4</sup> The increasing mental health issues during the

COVID-19 pandemic have been reported by many authors.<sup>5-8</sup> These may include depression, anxiety, panic disorder, posttraumatic stress disorder (PTSD), and others.<sup>9,10</sup> As is evident COVID-19 pandemic is going to substantially increase anxiety, stress and depression but the literature on the mental health consequences of it is sparse. Hence we conducted this study to further document the impact of COVID-19 pandemic on mental health so that various majors are taken to mitigate its burden.

**METHODS**

Current cross-sectional study was conducted online using Google forms app. The study was conducted at Government medical college Srinagar in May 2020 in Kashmir division of Jammu and Kashmir, India. The citizens aged 15 years and above were invited to participate in this online survey.<sup>11</sup>

A self reporting scale depression anxiety stress scale (DASS 21) was entered in Google forms app and circulated through social media sites.<sup>12</sup> The DASS-21 is a well-established self reporting instrument for measuring depression, anxiety, and stress. It is a set of three self report scales designed to measure the emotional states of depression, anxiety and stress in the week before. Overall there are 21 questions in the instrument with a 4-point, Likert-type response scale. Each of the three subscale contains 7 questions scored from 0-3. The scores for depression, anxiety and stress are calculated by summing the scores for the relevant items and need to be multiplied by 2 to get the final score. The cut-off score recommended for conventional severity labels are mentioned in (Table 1).

**Table 1: Cut off score recommended for conventional severity.**

Severity	Cut off score		
	Depression	Anxiety	Stress
Normal	0-9	0-7	0-14
Mild	10-13	8-9	15-18
Moderate	14-20	10-14	19-25
Severe	21-27	15-19	26-33
Extremely severe	28+	20+	34+

In total 287 participants took part in the survey. A written consent in the first section of online survey was given to all participants before filling the questionnaire.

**RESULTS**

General characteristics of the study population are shown in table 1. Out of 287 participants 138 (28.1%) were male and 149 (51.9%) were females. 157 (54.7%) belonged to rural areas and 130 (45.3%) were living in urban areas. Only 48 (16.7%) had education level below graduation while as majority 239 (83.3%) of the participants had education level graduation or above (Table 2). Of the total participants 136 (47.4%) were employed.

**Table 2: General characteristics of the study population.**

Characteristics	Frequency	Percent	
<b>Gender</b>	Male	138	48.1
	Female	149	51.9
<b>Age (years)</b>	Up to 30	211	73.5
	>30	76	26.5
	Mean ±SD (27.35±7.812), Range (15-58)		
<b>Residence</b>	Rural	157	54.7
	Urban	130	45.3
<b>Educational qualification</b>	High/higher sec. school	48	16.7
	Graduate or higher	239	83.3
<b>Employment</b>	Unemployed	151	52.6
	Employed	136	47.4
<b>Total</b>	287	100.0	

Out of the total participants mild forms of depression, anxiety and stress were present in 19.9%, 9.8% and 11.8% respectively. Moderate forms of depression, anxiety and stress were present in 19.2%, 16.7% and 7.0% respectively. Severe forms depression, anxiety and stress were present in 8.4%, 5.6% and 3.5% respectively. Extremely severe forms of depression, anxiety and stress were present in 2.1%, 2.8% and 0.0% respectively. Thus in overall 49.5% had depression, 34.8% had anxiety and 22.3% had stress in varying severity (Table 3).

**Table 3: Prevalence of mental health issues as per DAS 21 scale.**

Severity	Depression		Anxiety		Stress	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Normal	145	50.5	187	65.2	223	77.7
Mild	57	19.9	28	9.8	34	11.8
Moderate	55	19.2	48	16.7	20	7.0
Severe	24	8.4	16	5.6	10	3.5
Extremely severe	6	2.1	8	2.8	0	0.0
<b>Total</b>	287	100.0	287	100.0	287	100.0

The relationship between general characteristics of the participants and depression is depicted in (Table 4). The features of depression were higher in females, age group up to 30 years, people living in urban areas, among participants with more education level and in those who

were unemployed. However the difference was statistically significant with respect to age group only. Participants with age up to 30 year had odds of 2.749 (95% CI=1.578-4.787) of being depressed than those with age >30 years.

**Table 4: General characteristics vs. depression.**

Variables		Depression N (%)	Total	Odds ratio (95% CI)	P value
<b>Gender</b>	Female	82 (55.0)	149	1.591 (0.998-2.536)	0.050
	Male	60 (43.5)	138		
<b>Age (years)</b>	Up to 30	118 (55.9)	211	2.749 (1.578-4.787)	0.000
	>30	24 (31.6)	76		
<b>Residence</b>	Rural	75 (47.8)	157	0.860 (0.540-1.369)	0.525
	Urban	67 (51.5)	130		
<b>Educational qualification</b>	Postgraduate or higher	120 (50.2)	239	1.192 (0.640-2.219)	0.580
	High/ higher sec. school	22 (45.8)	48		
<b>Employment</b>	Unemployed	82 (54.3)	151	1.505 (0.944-2.398)	0.084
	Employed	60 (44.1)	136		

**Table 5: General characteristics vs. anxiety.**

Variables		Anxiety N (%)	Total	Odds ratio (95% CI)	P value
<b>Gender</b>	Female	52 (34.9)	149	1.005 (0.618-1.634)	0.983
	Male	48 (34.8)	138		
<b>Age (years)</b>	Up to 30	80 (37.9)	211	1.709 (0.956-3.058)	0.068
	>30	20 (26.3)	76		
<b>Residence</b>	Rural	49 (31.2)	157	0.702 (0.431-1.144)	0.156
	Urban	51 (39.2)	130		
<b>Educational qualification</b>	Postgraduate or higher	93 (38.9)	239	3.730 (1.606-8.665)	0.001
	High/ higher sec. school	7 (14.6)	48		
<b>Employment</b>	Unemployed	54 (35.8)	151	1.089 (0.669-1.772)	0.730
	Employed	46 (33.8)	136		

**Table 6: General characteristics vs. stress.**

Variables		Stress N (%)	Total	Odds ratio (95% CI)	P value
<b>Gender</b>	Female	32 (21.5)	149	0.906 (0.519-1.579)	0.727
	Male	32 (23.2)	138		
<b>Age (years)</b>	Up to 30	52 (24.6)	211	1.744 (0.873-3.483)	0.112
	>30	12 (15.8)	76		
<b>Residence</b>	Rural	35 (22.3)	157	0.999 (0.571-1.746)	1.000
	Urban	29 (22.3)	130		
<b>Educational qualification</b>	Postgraduate or higher	59 (24.7)	239	2.818 (1.066-7.448)	0.030
	High/ higher sec. school	5 (10.4)	48		
<b>Employment</b>	Unemployed	36 (23.8)	151	1.207 (0.690-2.112)	0.508
	Employed	28 (20.6)	136		

Anxiety was found to be higher in participants with age up to 30 years, living in urban areas, having higher level of education and in the unemployed. The difference was statistically significant for literacy and the participants with postgraduate or higher qualification had odds of 3.730 (95% CI=1.606-8.665) of having anxiety than those with only high/ higher secondary school education (Table 5).

The results (Table 6) showed that stress was higher among males, participants with age up to 30 years, those living in urban areas, having higher level of education and among unemployed participants. Again the risk of having stress was higher (2.818; 95% CI=1.066-7.448) among participants with postgraduate or higher education level and the difference was found to be statistically significant.

## DISCUSSION

This cross sectional study was conducted among general population of Kashmir Valley, India in May 2020 to study the mental health impact of COVID-19 pandemic lockdown using a self reporting scale DASS 21. A total of 287 responded to our request for participation in the study of which 138 (28.1%) were males and 149 (51.9%) were females. 157 (54.7%) belonged to rural areas and 130 (45.3%) were living in urban areas. Majority 239 (83.3%) of the participants had education level graduation or above and 136 (47.4%) were employed.

### *Prevalence of mental health issues*

In our study we found that the prevalence of mental health issues was high. In overall 49.5% had depression, 34.8% had anxiety and 22.3% had stress in varying from mild to extremely severe forms. Of the total participants mild forms of depression, anxiety and stress were present in 19.9%, 9.8% and 11.8% respectively. Moderate forms of depression, anxiety and stress were present in 19.2%, 16.7% and 7.0% respectively. Severe forms of depression, anxiety and stress were present in 8.4%, 5.6% and 3.5% respectively. Extremely severe forms of depression, anxiety and stress were present in 2.1%, 2.8% and 0.0% respectively. It is well documented that epidemics in past have lead to increase in mental health issues to varied extent. One study on impact of SARS 2003 on the mental health in Taiwan has found 4% prevalence of depression at the end of epidemic and another study from the same region revealed that the 12% had psychiatric morbidity after SARS 2003.<sup>13,14</sup> Similarly H1N1 2009 pandemic was associated with mental distress not only among family members of hospitalized patients of H1N1 and healthcare workers but also with general population.<sup>15</sup> During the current pandemic of COVID 19 a study from China found that individuals without prior psychiatric disease had high risk for insomnia, depression and obsessive-compulsive symptoms.<sup>16</sup> In consistent to our study a study from Spain revealed that severe and extremely severe levels of stress, anxiety, and depression were lower.<sup>17</sup> However higher

mean levels of psychiatric problems were observed in later phase of epidemic when there was complete lockdown for prolonged period all over the World.<sup>18</sup> A study done later from China also found that the prevalence was higher with respect to depression (48.3%), anxiety (22.6%) and combination of depression and anxiety (CDA) (19.4%) during COVID-19 in Wuhan, China.<sup>19</sup>

### *Socio-demographic characteristics*

In our study we found that psychiatric morbidity was higher among females, in younger age group, participants from urban areas, among participants with more education level and in those who were unemployed (Table 3, Table 4 and Table 5). Participants with age up to 30 year had odds of 2.749 (95% CI=1.578-4.787) of being depressed than those with age >30 years and the participants with postgraduate or higher qualification had odds of 3.730 (95% CI=1.606-8.665) of having anxiety than those with only high/higher secondary school education. Again the risk of having stress was higher (2.818; 95% CI=1.066-7.448) among participants with postgraduate or higher education level.

In accordance to our study anxiety and depression symptoms were higher in Chinese women during the COVID-19 pandemic.<sup>20,21</sup> Our findings demonstrate that higher level of education were associated with more psychiatric symptomatology which is also in accordance with the study among Chinese individuals conducted by Qiu et al.<sup>22</sup> This can be due to the reason that more educated people are more aware of the risks associated with COVID-19 pandemic. However, a study done earlier does not support our results.<sup>18</sup>

Study on mental health during COVID-19 outbreak in China reported that younger Chinese participants (12 to 21 years), mostly students are more affected by the pandemic in comparison to older adults which is in accordance to our study.<sup>23</sup> Depression and anxiety levels were also higher in individuals under 35 years of age in Huang Y et al study.<sup>24</sup> Another research from China reported less distress in participants under 18 years of age and more distress for participants with age 18-30 years which is contrary to our findings.<sup>22</sup> However our study only included individuals with age 15 years or more. In another study they found that there were higher mean levels of stress, anxiety, and depression in the 18-25 year age bracket as compared to 26-60 year bracket and these levels were lowest in individuals 61 years and older.<sup>17</sup> This can be due to the reason that younger people are more likely to have additional stress due to more exposure to social media, stress due to examinations and more unemployment.

A multicentric study confirms a decreased psychiatric morbidity risk for married, higher income group, age group (60 years and above), higher educational level (University), male gender and among employed which is in consistent to our findings.<sup>25</sup>

## CONCLUSION

We conclude that the prevalence of psychiatric morbidity is very high in our study population. There is a need for early strategies besides programs and mental health policy during the COVID-19 pandemic to mitigate its effects.

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