

## Cross sectional survey to assess the levels of anxiety and depression among university staff and students due to COVID 19: A Pilot Study

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### Abstract

**Introduction:** COVID 19 pandemic has exposed people from all strata to an extraordinary situation probably for first time in their lifetime. People are experiencing varying degrees of mental health issues ranging from mild anxiety to severe depression. Students, teachers and non teaching staff are the major stakeholders of university. Due to nationwide lockdown imposed by government, all these stakeholders are subjected to different levels stress and that is affecting their mental health. **Methodology:** In this cross sectional pilot study we have tried to analyze the levels of anxiety and depression among the students, teachers and non teaching staff of a State University using standardized instruments like GAD 7 and PHQ 9 questionnaire.

**Results:** Out of 119 participants 69.7% participants are experiencing mild anxiety while 26.18% respondents were under mild depression. Anxiety levels are observed to be independent of age, sex, residential background, and nature of appointment, option to work from home while depression levels found to be dependent on age, gender and category of respondents.

**Discussion:** It is observed that all these stakeholders are experiencing varying levels of anxiety and depression and both GAD 7 and PHQ 9 is useful tool for the assessment of anxiety and depression respectively. There is need to undertake a large scale survey to identify

*the stakeholders under anxiety and depression and devise a strategy for intervention.*

**Key words:** COVID 19, Mental Health, University Staff, Anxiety, GAD 7, PHQ 9, Pilot Study

## **INTRODUCTION:**

COVID 19 pandemic had exposed people from all strata to an extraordinary situation probably for first time ever in their lifetime. India reported its first case in Kerala in Jan 2020 and since then the disease had spread all over India forcing to bring a nationwide lock down since 21<sup>st</sup> March. This is the first time people had been confined to their home or places of residence for such a long period. Indian population has been subjected not only to prolonged lock down but also to mental agony, worries and uncertainty about their future life. This is affecting their mental health in a big way. The pandemic has significant and variable psychological impacts on everyone ranging from anxiety, depression to panic attacks and suicidal ideations. Being in acute phase of pandemic (during the outbreak) immediate mental health impacts includes fear, denial, anxiety, insomnia, dissociative symptoms, depressive symptoms, suicidal ideas/attempts, substance withdrawal and relapse of pre-existing mental health problems.<sup>1</sup>

Currently, there is no available information on the psychological impact and mental health of the Indian population during the COVID-19 pandemic. Majority of the research related to COVID 19 pandemic focuses epidemiology, clinical characteristics of disease and management of cases of infected patients however, there are no research articles examining the psychological impact on COVID-19 on the general population in India. A position paper published by Emily A Holmes\*, Rory C O'Connor et al; has drawn attention towards immediate need for collecting high-quality data on the mental health effects of the COVID-19 pandemic across the whole population and vulnerable groups on priority basis.<sup>1</sup> There is no published literature available on mental health effects of COVID pandemic on Indian population. However research done outside India

shows that COVID pandemic affect mental health of population substantially and there is need to assess the presence of mental health issues and design appropriate intervention strategies to address the mental health issues.<sup>2, 3</sup> Annual report of Center for Collegiate Mental Health, Penn State University confirms that anxiety and depression are the two most common reasons that students seek mental health services.<sup>4</sup> On this background we decided to assess the effect of COVID 19 pandemic on mental health of students and staff of Punyashlok Ahilyadevi Holkar Solapur University with special reference to anxiety and depression.

Punyashlok Ahilyadevi Holkar University is state university situated in Solapur city, Maharashtra State. University has school system with 1200 students studying in various schools of university with total 60 teaching and 400 non teaching staff. This staff includes both regular as well as contractual staff. Due to COVID 19, academic institutions like universities, colleges have also been subjected to overhaul changes in their working. With reference to advisories received from University Grants Commission in the month of March university vacated hostels and also advised its teaching and non teaching staff to work from home.<sup>6</sup> Even semester end exams have also been postponed as per UGC instructions.<sup>7</sup> University campus have been shut since last month and students have been evacuated from the hostels. There is a big uncertainty about the annual exams and students have been under dual stress of fear of disease as well as uncertainty about their future academic career. Teachers are also facing problems such as completion of syllabus in online mode, inability to adopt online teaching techniques, job insecurity especially for contractual faculties. Similarly administrative staff had also been under mental pressure due to pay cuts, job breaks and uncertainty about future. This all is leading to make these people anxious day by day and could lead into more severe mental health problems like depression and or panic disorders.

An overview of anxiety research in Indian context had concluded that the prevalence of generalized anxiety disorder in India<sup>8, 9</sup> is 5.8% while the prevalence of depression in India is 3.3%. With this background this we decided to conduct a pilot study to assess the mental health challenges faced by the university staff and

students with special reference to assessment of anxiety and depression among these stakeholders of University.

There are many instruments for screening common mental disorders in disaster settings including PHQ-9 and GAD-7. The instrument can be used by any primary health care provider. Both these instruments are easy to use for screening and have been recommended by National Institute of Mental Health and Neurosciences (NIMHANS) as well as American Psychiatric Association.<sup>1, 5, 10</sup>

### **OBJECTIVES:**

This pilot study was conducted to assess the level of anxiety and depression among students and staff of Punyashlok Ahilyadevi Holkar Solapur University (MS) and to know about the coping up strategy adopted by students and staff to stay mentally fit among this COVID 19 period.

### **METHODOLOGY:**

Cross sectional study design was used for this pilot study. Ethics committee approval taken from the Institutional Ethics Committee of PAH Solapur University. Study target population was teaching, non teaching staff and students studying in various schools of university. Teaching staff included both the regular as well as contractual teachers. Non teaching staff included regular as well as contractual employees from class one to class four employees. Class one employees included employees holding posts of deputy registrar, assistant registrar and equivalent posts. Class two employees included section officers and assistant section officers and equivalent posts. Class three employees included senior and junior clerks, computer operators, and data entry operators. Class four employees included peon, sweepers and housekeeping staff. Students included students belonging to three faculties namely Arts, Science and Commerce. All the participants were selected purposively.

We used GAD 7 and PHQ 9 instrument for the assessment of levels of anxiety and depression respectively. Target population was teaching, non teaching staff and students of university. Participants selected for the survey using convenient sampling method. A

questionnaire developed specifically for the university staff and students. The questionnaire included questions pertaining to demographic details as well as GAD7 and PHQ 9 question items to assess the anxiety and depression respectively. The questionnaire also consisted two open ended questions which were asked to understand the coping strategy adopted by the staff students for maintain their mental health. (Appendix 1)

GAD 7 is easy-to-use self-administered patient questionnaire is used as a screening tool and severity measure for generalized anxiety disorder.<sup>11</sup> It consists of seven item questions with four possible answers to each question and marking system based on responses given by the respondents. The GAD-7 score is calculated by assigning scores of 0, 1, 2, and 3, to the response categories of 'not at all', 'several days', 'more than half the days', and 'nearly every day', respectively, and adding together the scores for the seven questions. Scores of 5, 10, and 15 are taken as the cut-off points for mild, moderate and severe anxiety, respectively. When used as a screening tool, further evaluation is recommended when the score is 10 or greater. Using the threshold score of 10, the GAD-7 has a sensitivity of 89% and a specificity of 82% for GAD.<sup>7</sup> (Appendix 2)

The Patient Health Questionnaire (PHQ) is a self-administered version of the PRIME-MD diagnostic instrument for common mental disorders.<sup>12</sup> The PHQ-9 is the depression module, which scores each of the 9 DSM-IV criteria as “0” (not at all) to “3” (nearly every day). PHQ-9 is also a reliable and valid measure of depression severity.<sup>9</sup> (Appendix 3)

The questionnaire was developed as a Google form and administered to total of 225 respondents including students and teachers and non teaching staff through three dedicated WhatsApp group. University administration had created dedicated WhatsApp groups of teachers and non teaching staff for administrative purposes. The questionnaire was posted on these groups and staff was asked to fill out the form. Prior consent from administration was taken to conduct the survey. Due to COVID 19 situation, getting approval from IEC of University was not possible. For getting student's responses we chose the dedicated WhatsApp group of students of National Service Scheme (NSS). This enabled us to get proper representation of students from all faculties to respond. It is important to note that this

group also consisted alumni students of university. Total responses given by the respondents were collected in the form of excel sheet for easy analysis. Collected data was analyzed using Microsoft Excel (for numerical data) and SPSS for categorical data.

We also included multiple choice questions to assess the coping up strategy adopted by the respondents to keep themselves mentally fit. Also we asked their opinion about the best strategy to deal with mental fitness among this COVID 19 scenario. (Annexure 3)

For assessing relationship between levels of anxiety and depression with various categorical variables (age, gender, residence, cadre, option to work from home, we used chi square test with ninety nine percent confidence interval and p value were used to report the results. Kruskal-Wallis H test was used to compare the anxiety and depression score across teachers, students and non teaching staff.

## **RESULTS:**

Out of 225 respondents 127 respondents filled up the questionnaire and submitted through online mode. Response rate is average (56%). Out of total 127 responses received, 119 (93.7%) responses were complete. Incomplete responses were omitted from final analysis. Demographic characteristics of respondents are presented in Table 1.

As per GAD 7 scoring system for anxiety levels, 69.75% respondents were having mild anxiety while no respondent was having severe anxiety. Respondents with moderate and moderately severe anxiety were 26.05% and 4.2% respectively. (Table 2) Statistical analysis confirmed that anxiety levels of respondents are not dependent on the age, gender, place of residence of respondents. Also in case of working or employed respondents no dependency observed between nature of job (Regular/Contractual), Option to Work from Home (Yes/No), Cadre (Class One to Class Four) and anxiety levels. Similarly in case of student respondents no dependency observed between level of anxiety and stream (Arts/Science/Commerce), type of students (Current/Alumni) (Table 3). As per PHQ 9 scoring system for depression levels, 26.18% respondents were under mild depression while those under moderate and moderately severe depression were 10.08% and 0.84% respectively. (Table 4) Statistical analysis confirmed that level of

depression was dependent on Age, Gender and Category of respondents (Teaching/Non Teaching/Students). In case of employed respondents depression level was not dependent on nature of job and option to work from home. Similarly in case of students, depression levels were independent of stream and type of students. (Table 5)

Kruskal-Wallis H-test showed no statistically significant difference between anxiety levels across among teacher, non teaching staff and students. (H Statistics- 1.3536, p value = 0.50773 at  $p < 0.05$ ) Similarly Kruskal-Wallis H-test showed no statistically significant difference between depression levels across among teacher, non teaching staff and students. (H Statistics- 0.4747, p value = 0.78782 at  $p < 0.05$ ).

We enquired respondents, how they are looking after their mental health. Majority respondents (72.26%) said that they had accepted the situation. Majority respondents (68.9%) said that they are doing yoga or meditation to remain mentally healthy. Other options included keeping in touch with family & friends (67.22%), keeping active (57.98%), caring for others (57.14%), talking about feelings with family & friends (53.78%), doing something they are good at (47.98%).

As per the responses, best way to be mentally fit in this COVID scenario includes spending time with family (72.26%) followed by reading books or watching television (60.5%), doing meditation (52.94%) and speaking to peers or friends (42.85%). (Table No.6)

## **DISCUSSION:**

The unprecedented pandemic of COVID 19 and the lockdown period is affecting the mental health of all the stakeholders especially students and staff of university. The response rate to the questionnaire is average and there is need to address this issue while conducting a large scale survey. The possible reason to low response rate could be attributed to the unfamiliarity to language and terms used in questionnaire, poor internet connectivity, low awareness among the respondents.

All the respondents are experiencing anxiety ranging from mild to moderately severe. Though there is not a single case of severe anxiety at present, it is likely that number of respondents could be

developing severe anxiety in near future if it is left untreated. We observed no dependency between age, gender and place of residence and levels of anxiety; so anxiety could be a generalized experience for all strata of population irrespective of their age, gender or residential background. In case of employed respondents; even though they are having options to work from home, there is no dependency between anxiety levels and option to work from home. Similarly employees are experiencing anxiety irrespective of their cadres. In case of students, anxiety levels are found to be independent of stream or type of students.

Assessment of depression level shows that though majority respondents (62.18%) are at present having no depression but there are few who are experiencing depression ranging from mild (26.89%) to moderate (10.08%) and moderately severe depression (0.84%). There is an immediate need to identify these respondents and treat them appropriately. Statistical analysis confirms that the level of depression is dependent on age, gender and category of respondents. However it is not dependent on other variables under study such as place of residence, nature of job, option to work from home, cadre, stream and type of students.

Coming to the various measures undertaken by the respondents to deal with the anxiety and associated problems due to this pandemic, doing meditation and yoga was the major strategy adopted by majority of respondents (68.9%) while keeping in touch with family and friends and sharing feelings are also important strategies adopted by the respondents. This could be considered while designing an intervention program and counseling sessions. Majority respondents were of the opinion that spending time with family is the best option to remain mentally healthy during a pandemic followed by engaging in leisure activities like watching televisions and reading books. Mediation and having conversation with peers and friends also helps to keep mentally fit. This can be considered while counseling the people seeking help for mental health issues.

## **CONCLUSION:**

This pilot survey concludes that anxiety and depression are two major mental health issues faced by the university students and staff and



there is need to address this issue in a systematic and multi disciplinary approach. There is need to increase sample size by expanding this survey beyond the university so as to include staff and students from affiliated colleges and institute using a redesigned questionnaire with user friendly language and sensitization of students and staff towards mental health issues. This will help to more accurate results in assessment of anxiety and depression and enable generalization of results to target population.

### Study Limitations:

Purposive sampling for selection of study participants and average response rate to the questionnaire are major limitation so findings of the study cannot be generalized to entire staff and students of the university. GAD 7 instrument used to screen the respondents for anxiety; has low specificity which leads to increase in number of respondents with anxiety (false positive).

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<b>Variables</b>	<b>N</b>	<b>%</b>
Total Respondents	119	
<b>Age group</b>		
18-24	8	6.70%
25-44	81	68.07%
45-64	30	25.21%
<b>Gender</b>		
Male	69	57.98%
Female	50	42.02%
<b>Occupation</b>		
Student	53	44.54%
Teacher	22	18.49%
Non Teaching	44	36.97%
<b>Residential Background</b>		
Urban	100	84.03%
Semi Urban	11	9.25%

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Rural	8	6.72%
<b>Nature of Appointment (For Teachers &amp; Non Teaching Staff)</b>		
Regular	51	77.27%
Contractual	15	22.73%
<b>Cadre (For Non teaching Staff Only)</b>		
Class 1	7	15.90%
Class 2	7	15.90%
Class 3	19	43.18
Class 4	11	25%
<b>Option of Work from Home (For Teachers &amp; Non Teaching Staff)</b>		
Yes	36	54.55%
No	30	45.45%
<b>Faculty (For Students Only)</b>		
Arts	9	16.98
Science	40	75.47%
Commerce	4	7.55%
<b>Student Status (For Students)</b>		
Current Student	41	77.35%
Alumni	12	22.65%

Anxiety Level (GAD 7)	N	
Mild	83	69.75%
Moderate	31	26.05%
Moderately Severe	5	4.20%
Severe	0	Nil

Depression Level (PHQ 9)	N	
No	74	62.18%
Mild	32	26.89%
Moderate	12	10.08%
Moderately Severe	1	0.84%
Severe	0	Nil

Variable	Chi-square Statistics	p Value	Interpretation
<b>Common for All Respondents</b>			
Age	1.3316	0.513874	Non Significant at p < 0.01
Gender	3.4952	0.174191	Non Significant at p < 0.01
Place of Residence	2.9365	0.230327	Non Significant at p < 0.01
Category of Respondents (Teacher/Non Teaching/Students)	0.0361	0.982119	Non Significant at p < 0.01

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<b>For Employed Respondents</b>			
Nature of Job	0.1215	0.941042	Non Significant at $p < 0.01$
Option to Work From Home	1.3316	0.513874	Non Significant at $p < 0.01$
Cadre	2.5473	0.466806	Non Significant at $p < 0.01$
<b>For Student Respondents</b>			
Stream	0.2423	0.885914	Non Significant at $p < 0.01$
Current/Alumni	0.1982	0.656221	Non Significant at $p < 0.01$

<b>Table 5. Relationship between Level of Depression and Different Variables</b>			
Variable	Chi-square Statistics	p Value	Interpretation
<b>Common for All Respondents</b>			
Age	15.3336	0.004057	Significant at $p < 0.01$
Gender	18.9982	0.000274	Significant at $p < 0.01$
Place of Residence (Urban/Semi-urban/Rural)	0.3215	0.851519	Non Significant at $p < 0.01$
Category of Respondents (Teacher/Non Teaching/Students)	10.8237	0.004463	Significant at $p < 0.01$
<b>For Employed Respondents</b>			
Nature of Job (Regular/Contractual)	2.0981	0.350278	Non Significant at $p < 0.01$
Option to Work From Home (Yes/No)	1.2516	0.534845	Non Significant at $p < 0.01$
Cadre	1.9981	0.572809	Non Significant at $p < 0.01$
<b>For Student Respondents</b>			
Stream (Arts/Science/Commerce)	1.3922	0.498537	Non Significant at $p < 0.01$
Current/Alumni	1.0349	0.30901	Non Significant at $p < 0.01$

<b>Table 6. Responses for coping up strategies for mental health fitness</b>		
Choice	Q. How are you looking after your mental health? (MCQ)	%
1	Doing Meditation Yoga	68.90%
2	Avoiding Drinks/ Drinking Sensibly	23.50%
3	Caring for Others	57.14%
4	Doing something you are good at	47.89%
5	Keeping active	57.98%
6	Keeping in touch with family and friends	67.22%
7	Talking about your feelings with family and friends	53.78%
8	Accepting Situation	72.26%
9	Eating well	37.14%
Choice	Q. What is best strategy according to you to be mentally fit in this scenario? (MCQ)	
1	Spending time with family	72.26%
2	Reading books Watching TV	60.50%
3	Speaking to peers /friends	42.85%
4	Meditation	52.94%

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Appendix 1: GAD 7 questionnaire for Screening of Anxiety						
Q. No	Questions for Assessment of Anxiety (GAD 7 Screening Tool)	Not at all	Several Days	More than half the days	Nearly every day	Score
1	Are you feeling more nervous, anxious or on edge?	0	1	2	3	
2	Are you unable to stop or control worrying?	0	1	2	3	
3	Are you worrying too much about COVID and its effect on your job and financial health	0	1	2	3	
4	Do you find it difficult to relax mentally?	0	1	2	3	
5	Are you becoming so restless that it is hard to sit still?	0	1	2	3	
6	Are you getting easily annoyed or irritable?	0	1	2	3	
7	Are you feeling afraid as if something awful might happen?	0	1	2	3	

GAD 7 Scoring System (Sum Total as per responses to Q 1 to 7)	
Score	Interpretation
0 to 4	Mild Anxiety
5 to 9	Moderate Anxiety
10 to 14	Moderately severe Anxiety
15 to 21	Severe Anxiety

Appendix 2: PHQ 9 questionnaire for Screening of Depression						
Q. No	Questions for Assessment of Depression (PHQ 9)	Not at all	Several Days	More than half the days	Nearly every day	Score
1	Are you losing interest or pleasure in doing things?	0	1	2	3	
2	Are you facing trouble falling or staying asleep, or sleeping too much?	0	1	2	3	
3	Are you feeling tired or having little energy ?	0	1	2	3	
4	Are you over eating or experiencing poor appetite?	0	1	2	3	
5	Are you having trouble concentrating on things such as news paper, television etc?	0	1	2	3	
6	Are you feeling bad about not able to help yourself, your family or community in this time?	0	1	2	3	
7	Are people around you noticing that you are restless or disturbed?	0	1	2	3	
8	Are you feeling down, depressed or hopeless?	0	1	2	3	
9	Are you feeling helpless or frustrated?	0	1	2	3	

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<b>PHQ 9 Scoring System (Sum Total as per responses to Q 1 to 9)</b>	
<b>Score</b>	<b>Interpretation</b>
0 to 4	No Depression
5 to 9	Mild Depression
10 to 14	Moderate Depression
15 to 19	Moderately Severe Depression
20 to 27	Severe Depression