The Psychological Impact of Covid-19 Pandemic on Medical Undergraduates: A Study from BPKIHS, Dharan

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Abstract

INTRODUCTION

Since the start of the COVID-19 pandemic, the impact that it can have on mental health has been consistently highlighted. Subsequently there have been calls for universities to monitor the mental health of their students considering the unique set of stressors faced by them. This study is an attempt to understand how our students are doing and to plan appropriate psychological interventions to help them

METHODOLOGY

Online questionnaires of Depression, Anxiety, Stress Scale (DASS-21) and Impact of Event Scale (IES) were distributed to the students currently pursuing MBBS and BDS in BP Koirala Institute of Health Sciences.

RESULT

409 students responded to the questionnaires.The prevalence of depression, anxiety and stress among the respondents were 39.1%, 35.7% and 35.0% respectively. All three were more common in first and second year students and in those with past history of mental illness (p<0.05). 68.5% students were impacted by the pandemic with moderate to severe impact present in 33.2%. Students from first and second years were more impacted than others. (p<0.01).

CONCLUSION

Students from our institute were suffering from considerable amount of distress. Those in early years of medical schooling and those with past history of mental illness were doing particularly worse than others. It is important that we give due importance to their mental health and develop interventions to help them.

KEYWORDS:

stress, depression, anxiety, impact, pandemic, medical, students

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INTRODUCTION

In December of 2019, a cluster of cases were discovered in China with atypical features of pneumonia. The causative organism was later identified to be as a new strain of coronavirus.[1] Since then the infection has spread all over the world. The World Health Organization declared the spread as public health concern on 30th January 2020 and a pandemic on 11th March 2020.[2,3] As of 20th October 2020 the infection has spread across 216 countries with over 40 million infected and 1.1 million deaths.[4] Nepal recorded it's first coronavirus case on 23rd January 2020.[5] Almost 2 months later, Nepal recorded it's second coronavirus case.[6] Since then the number of cases in the country is steadily increasing. As of 20th October 2020 Nepal has 15,259 cases with 32 deaths.[7]

In response to the pandemic, countries across the world have responded with a combination of containment and mitigation strategies with the aim of preventing a surge in the number of patients while protecting the most vulnerable such as the elderly and those with comorbidities. Most national response strategies include self isolation, contact tracing, promotion of public health measures, preparation of health systems,

postponement of large scale public gatherings.[8] Several countries have resorted to more extreme measures such as complete lockdown of countries.

The impact of a pandemic of this scale on mental health is largely unknown. Though researches are being conducted to study the mental health impact of current pandemic, we need to go beyond population level and try to understand the individualized disruption of lives.[9] With regard to this several studies are being conducted on the mental health impact of at risk population such as the elderly and the front line workers, but we should not ignore other groups who have been affected by the current pandemic. One such group are the university students, who, in addition to the usual stresses related to current pandemic also have additional stressors unique to them. These can lead to unfavourable learning and negative psychological consequences.[10] Considering this questions are being raised whether universities are taking proactive measures to support the mental health and well-being of students.[11] This study is an attempt to understand how our own students are faring during this global crisis and to plan appropriate strategies to help them.

MATERIALS AND METHODS

The study was conducted after obtaining ethical approval from the Institutional Review Committee (IRC), BPKIHS, Dharan. The study was conducted during the lockdown period. Students currently pursuing Bachelor of Medicine and Surgery (MBBS) and Bachelor in Dental Surgery (BDS) were assessed using a sociodemographic proforma, DASS-21 and Impact of Event (IES) scale. DASS-21 is a 21 item divided into three subscales – depression, anxiety and stress. Each subscale consists of 7 items and each item is scored on a 4 point likert scale. The cumulative scores give the prevalence of stress, depression and anxiety among the students. The IES is a 15 item scale used to assess subjective distress resulting from exposure to major life events. Each item is scored on a 4 point likert scale as 0 (not at all), 1 (rarely), 3 (sometimes), often[5]. A score above 8 indicates presence of impact while more than 44 indicates severe impact. The scale can be divided into the intrusion subscale, consisting of 7 items and the avoidance subscale consisting of 8 items. The students were also asked to report their major concerns during this pandemic. Online questionnaires were distributed to the students through the class representatives.Data obtained was entered in Microsoft Excel 2007 and was converted into SPSS version 11.5 for stastical analysis.

RESULTS

A total of 409 students responded to the questionnaires. Table 1 shows the sociodemographic characteristics of the participants. Majority of the participants were in the age group 21-25 years, male, pursuing MBBS and were working as interns. 21 students (5.1%) had a past history of mental illness while 54 (13.2%) had a family history of mental illness.

Table 1: Sociodemographic characteristics of the participants

Sociodemographic variable	Category	Frequency	Percentage
Age	< 20 years	95	23.2
	21-25 years	293	71.6
	>25 years	21	5.2
Gender	Male	221	54.0
	Female	188	46.0
Study program	MBBS	325	79.5
	BDS	84	20.5
Year of study	First	87	21.3
	Second	64	15.7
	Third	65	15.9
	Fourth	91	22.2
	Fifth	9	2.2
	Intern	93	22.7
Past history of mental illness	Yes	21	5.1
	No	388	94.9
Family history of mental illness	Yes	54	13.2
	No	355	86.8

Results from DASS-21 showed that the prevalence of depression, anxiety and stress among the participants was 39.1%, 35.7% and 35% respectively. Table 2 shows the distribution of the participants according to the severity of symptoms. Majority of the students reported suffering from mild depressive symptoms, moderate anxiety and moderate stress.

Table 2: Depression, anxiety and stress among the participants

Category		Participants (n=409)	
		Number	Percentage
Depression	None	249	60.9
	Mild	63	15.4
	Moderate	54	13.2
	Severe	24	5.9
	Extremely severe	19	4.6
Anxiety	None	263	64.3
	Mild	31	7.6
	Moderate	63	15.4
	Severe	23	5.6
	Extremely severe	29	7.1
Stress	None	265	64.8
	Mild	51	12.5
	Moderate	52	12.7
	Severe	26	6.4
	Extremely severe	15	3.7

Tables 3 shows the relation between sociodemographic factors and presence of depression, anxiety and stress. Students with past history of mental illness and family history of mental illness were more likely to report depressive symptoms. Presence of stress and anxiety was found to be more common in those with past history of mental illness and those in earlier year of medical schooling. No other significant association was found between sociodemographic factors and presence of depression, anxiety and stress.

Table 3: Socio-demographic profiles of 1ˢᵗ contact Psychiatric out-patients

Category		Depression No. (%)		Anxiety No. (%)		Stress No. (%)	
		Yes	No	Yes	No	Yes	No
Age	<20 years	37 (38.9)	58 (61.1)	37 (38.9)	58 (61.1)	40 (42.1)	55 (57.9)
	20-25 years	114 (38.9)	179 (61.1)	99 (33.8)	194 (66.2)	95 (32.4)	198 (67.6)
	>25 years	9 (42.9)	12 (57.1)	10 (47.6)	11 (52.4)	8 (38.1)	13 (61.9)
Gender	Male	81 (36.7)	140 (63.3)	76 (34.4)	145 (65.6)	72 (32.6)	149 (67.4)
	Female	79 (42.0)	109 (58.0)	70 (37.2)	118 (62.8)	71 (37.8)	117 (62.2)
Study program	MBBS	126 (38.8)	199 (61.2)	114 (35.1)	211 (64.9)	115 (35.4)	210 (64.6)
	BDS	34 (40.5)	50 (59.5)	32 (38.1)	52 (61.9)	28 (33.3)	56 (66.7)
Year of study	First	34 (39.1)	53 (60.9)	44 (50.6)*	43 (49.4)	35 (40.2)**	52 (59.8)
	Second	29 (45.3)	35 (54.7)	21 (32.8)	43 (67.2)	29 (45.3)	35 (54.7)
	Third	25 (38.5)	40 (61.5)	23 (35.4)	42 (64.6)	22 (33.8)	43 (66.2)
	Fourth	39 (42.9)	52 (57.1)	31 (34.1)	60 (65.9)	36 (39.6)	55 (60.4)
	Fifth	5 (55.6)	4 (44.4)	2 (22.2)	7 (77.8)	4 (44.4)	5 (55.6)
	Intern	28 (30.1)	65 (69.9)	25 (26.9)	68 (73.1)	17 (18.3)	76 (81.7)
Past history of mental illness	Yes	17 (81.0)**	4 (19.0)	13 (61.9)**	8 (38.1)	15 (71.4)**	6 (28.6)
	No	143 (36.9)	245 (63.1)	133 (34.3)	255 (65.7)	128 (33.0)	260 (67.0)
Family history of mental illness	Yes	28 (51.9)*	26 (48.1)	19 (35.2)	35 (64.8)	23 (42.6)	31 (57.4)
	No	132 (37.2)	223 (62.8)	127 (35.8)	228 (64.2)	120 (33.8)	235 (66.2)

*p value <0.05, **p value <0.01

Results from IES showed that 280 students (68.5%) reported to be impacted by some degree by the pandemic. Of these 144 (35.2%), 91 (22.2%) and 45 (11.0%) reported mild, moderate and severe level of impact respectively. Those in first and second years of study reported to have been impacted more than other students.

Some of the major concerns reported by the students were disruption in academics (66.5%), fear of passing on the infection to family (65.5%), fear of contracting infection (54.3%), delay in examinations (52.6%), timely completion of curriculum (45.2%), separation from friends (35%), access to laptop/internet for online classes (23.2%), transition to other academic modalities (21.5%).

DISCUSSION

The findings from our study shows that the prevalence of depression, anxiety and stress among the respondents were 39.1%, 35.7% and 35.0% respectively. Moderate to extremely severe depression, anxiety and stress was present

Table 4: Mean scores of different coping strategies used

Category		Impact of event No. (%)	
		Present	Absent
Age	< 20 years	74 (77.9)	21 (22.1)
	21-25 years	192 (65.5)	101 (34.5)
	> 25 years	14 (66.7)	7 (33.3)
Gender	Male	154 (69.7)	67 (30.3)
	Female	126 (67.0)	62 (33.0)
Study program	MBBS	223 (68.6)	102 (31.4)
	BDS	57 (67.9)	27 (32.1)
Year of study **	First	73 (83.9)	14 (16.1)
	Second	45 (70.3)	19 (29.7)
	Third	42 (64.6)	23 (35.4)
	Fifth	6 (66.7)	3 (33.3)
	Interns	51 (54.8)	42 (45.2)
Past history of mental illness	Yes	16 (76.2)	5 (23.8)
	No	264 (68.0)	124 (32.0)
Family history of mental illness	Yes	39 (72.2)	15 (27.8)
	No	241 (67.9)	114 (32.1)

in 23.7%, 28.1% and 22.8% students respectively. The prevalence of moderate to severe depression and stress was higher than that reported by Wang et al[12] (16.5% and 8.1% respectively) but lower than that of Gonzalez et al[13] (34.19% and 28.14% respectively). The prevalence of moderate to extremely severe anxiety in our study was similar to that of Wang et al (28.8%) but higher than that of Gonzalez et al (21.34%). The differences could be due to the sample size and the target population. The study by Wang et al included 1210 people from general population, however, authors have reported that student status was associated with higher depression, anxiety and stress. On the other hand the target population in the study conducted by Gonzalez et al included 2530 members of the university, both students and staff. The authors here have reported that students scored higher in all aspects compared to administrative and academic staff.

Two other studies have looked into the psychological impact of the pandemic on students. However they have only looked into the prevalence of anxiety and have reported prevalence rates of 15.43%[14] and 24.9%.[15] The prevalence of anxiety in our study is higher than both. The differences could be due to differences in sample size and the screening methods used in these studies.

The prevalence of students impacted by the pandemic in our study was 68.5% with moderate to severe impact present in 33.2%. When compared to the studies by Wang et al and Gonzalez et al,[13] the prevalence of moderate to severe impact in our study was lower than both. Again the differences could be due to differences in population involved resulting in different sociodemographic characteristics. The population in our study was much younger and included only students.

We found that 81% students with past history of mental illness reported depressive symptoms. Similarly 61.9% and 71.4% of students with past history of mental illness reported suffering from anxiety and stress respectively. The finding that people with a history of mental illness are more prone to develop adverse effects during this pandemic has been shown in two other studies.[16,17] There can be a number of reasons for this worsening such as usual concerns related to pandemic, disruption in mental health services and inadequate coping strategies. This finding also has neuro immunological implication. There have been studies reporting an increase in pro-inflammatory cytokines during depression and stress[18] Further studies can be carried out to monitor the relation between their levels and depressive symptoms during a pandemic.

We also found that the more number of students in early years of medical schooling were suffering from mental health related issues. This could be due to a relatively new environment while those in later years may have developed strategies to cope with stressful events through experience.

So far our study has shown that students suffered from considerable amount of depression, stress , anxiety. We need to heed some caution while interpreting these findings as medical school is well known to be a stressful environment and medical students in early years are known to suffer from more severe depression and anxiety than in later years.[19] This is particularly true for findings from DASS-21. Though the scale measures events during past one week, these events cannot be specifically attributed to the pandemic. Hence DASS-21 is considered as a non specific measure of the psychological impact of the pandemic.[20] This is less true for IES as it contains questions specific to a particular event. A few scales have been developed for covid specific stressors but they have been validated for use in middle age[20] and hence were not used in this study.

CONCLUSION

The prevalence of depression, anxiety and stress during the pandemic and the impact of pandemic among the students was high. The students in early years of medical schooling and those with past history of mental illness were doing particularly worse than others. The findings reflect the need for formulating psychological interventions to help the students during this pandemic.

REFERENCE

1. World Health Organization. Coronavirus disease 2019 (COVID-19) Situation Report -1. 21 Jan 2020 [Internet]. Available from https://www.who.int/docs/default-source/coronaviruse/situation-reports/ 20200121-sitrep-1-2019-ncov.pdf?sfvrsn=20a99c10_4 [Accessed 3rd July 2020]

2. World Health Organization. Coronavirus disease 2019 (COVID-19) Situation Report -10. 30 Jan 2020 [Internet]. Available from https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200130-sitrep-10-ncov.pdf?sfvrsn=d0b2e480_2 [Accessed 3rd July 2020]

3. World Health Organization. Coronavirus disease 2019 (COVID-19) Situation Report -51. 11 March 2020 [Internet]. Available from https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200311-sitrep-51-covid-19.pdf?sfvrsn=1ba62e57_10 [Accessed 3rd July 2020]

4. World Health Organization. Weekly Epidemiological Update. 20 Oct 2020 [Internet]. Available from https://www.who.int/docs/default-source/coronaviruse/situation-reports/20201020-weekly-epi-update-10.pdf [Accessed 21st Oct 2020]

5. Shrestha R, Shrestha S, Khanal P, Kc B. Nepal's first case of COVID-19 and public health response. *J Travel Med*. 2020; 27(3):taaa024. doi: 10.1093/jtm/taaa024

6. World Health Organization. Nepal Situation Updates on Covid-19. Situation Report -1. 20 April 2020 [Internet]. Available from https://www.who.int/docs/default-source/nepal-documents/ novel-coronavirus/who-nepal-sitrep/who-nepal--sitrep-covid-19-20apr2020.pdf?sfvrsn=c788bf96_2 [Accessed 3rd July 2020]

7. Ministry of Health and Population. Covid-19 situation update. 21 Oct 2020 [Internet]. Available from https://covid19.mohp.gov.np/ [Accessed 21st Oct 2020]

8. Bedford J, Enria D, Giesecke J, et al. COVID-19: towards controlling of a pandemic. *Lancet*. 2020; 395(10229):1015-1018. doi:10.1016/S0140-6736(20)30673-5

9. Grubic N, Badovinac S, Johri AM. Student mental health in the midst of the COVID-19 pandemic: A call for further research and immediate solutions. *Int J Soc Psychiatry*. 2020; 20764020925108. doi:10.1177/0020764020925108

10. Zhai Y, Du X. Addressing collegiate mental health amid COVID-19 pandemic. *Psychiatry Res*. 2020;288:113003. doi:10.1016/ j.psychres.2020.113003

11. 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. doi:10.7759/cureus.7541

12. Wang C, Pan R, Wan X, et al. 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):1729. doi:10.3390/ ijerph17051729

13. Odriozola-González P, Planchuelo-Gómez Á, Irurtia MJ, de Luis-García R. Psychological effects of the COVID-19 outbreak and lockdown among students and workers of a Spanish university. *Psychiatry Res*. 2020;290:113108. doi:10.1016/j.psychres.2020.113108

14. Wang C, Zhao H. The Impact of COVID-19 on Anxiety in Chinese University Students. *Front Psychol*. 2020;11:1168. doi:10.3389/ fpsyg.2020.01168

15. Cao W, Fang Z, Hou G, et al. The psychological impact of the COVID-19 epidemic on college students in China. *Psychiatry Res*. 2020;287:112934. doi:10.1016/j.psychres.2020.112934

16. Alkhamees et al. The psychological impact of COVID-19 pandemic on the general population of Saudi Arabia. Compr. *Psychiatry* 2020;102:Article 152192

17. Hao et al. Do psychiatric patients experience more psychiatric symptoms during COVID-19 pandemic and lockdown? A case-control study with service and research implications for immunopsychiatry. *Brain Behav Immun*. 2020;87:pp. 100-106 doi.org/10.1016/ j.bbi.2020.04.069

18. Liu Y., Ho R.C., Mak A. Interleukin (IL)-6, tumour necrosis factor alpha (TNF-α) and soluble interleukin-2 receptors (sIL-2R) are elevated in patients with major depressive disorder: a meta-analysis and meta-regression. *J. Affect. Disord*. 2012;139(3):230–239. doi: 10.1016/j.jad.2011.08.003.

19. Inam SB. Anxiety and Depression among Students of a Medical College in Saudi Arabia. *Int J Health Sci (Qassim)*. 2007;1(2):295-300.

20. Chandu et al. Measuring the Impact of COVID-19 on Mental Health: A Scoping Review of the Existing Scales. *Indian Journal of Psychological Medicine* 2020;42(5). doi:10.1177/0253717620946439