Depression, anxiety, stress and perceived mental healthcare need of Sri Lankan undergraduates studying in selected countries affected by COVID-19

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ABSTRACT

Introduction: The spread of COVID-19 pandemic has caused a considerable level of stress among the university students. The objective of this study was to determine depression, anxiety, stress and perceived mental healthcare needs of Sri Lankan undergraduates studying in countries affected by COVID-19.

Methods: A cross-sectional study was conducted with Sri Lankan undergraduates studying in Russia, India and Sri Lanka from 01st July 2020 to 31st December 2020. Snowball sampling technique was used. An online self-reported questionnaire designed based on published literature was used for data collection. Data were analysed using SPSS software version 21.

Results: A total of 187 Sri Lankan undergraduates studied in India (26.7%), Russia (39.6%) and Sri Lanka (33.7%) were enrolled. Of the total, 61.5% of participants were female. The prevalence of depression, anxiety and stress among participants were 11.58%, 11.58% and 3.16%, respectively. There was no statistically significant difference in depression, anxiety and stress among undergraduates with reference to gender, age, type of degree, marital status, status of living or studying country. The present study concludes that prevailing COVID-19 pandemic has caused considerable stress, depression and anxiety among undergraduates. However, reported depression, anxiety and stress were less compared to studies done on other Asian undergraduates.

Keywords: *Anxiety, COVID-19, depression, stress, undergraduates.*

Introduction

Corona-virus disease (COVID 19) is a highly contagious respiratory disease. This disease is caused by a novel coronavirus, SARS-CoV-2. The first case of COVID-19 was reported from Wuhan, China in December 2019 and was rapidly spreading around cities of China (1). The first confirmed COVID-19 case outside China was reported on 13th January 2020 in Bangkok. Afterwards, a steep increase of COVID-19 was observed in Asia, Europe and Africa. The number of confirmed cases and deaths were constantly increasing worldwide (2). Considering the global spread and severity of the disease the World Health Organization (WHO) declared the COVID 19 outbreak as a pandemic on 11th March 2020 (3). As of 30th May 30th 2021, the total number of global confirmed cases and deaths of COVID-19 were 169,597,415 and 3,530,582 respectively. In Sri Lanka, on May 30th, 2021, confirmed cases of COVID-19 were 183,452 and there were 1,441 deaths (4).

Many countries implemented a range of control measures, such as restricting travel for foreign nationals, closing down public spaces, and shutting down the entire transit system to control the transmission of COVID-19 from human-to-human (5). Further, to limit the spread of the COVID-19 among the younger population, many countries closed schools, colleges, universities, and other educational institutions. This directly affects over 80% of the world's student population (6). Due to the COVID-19 pandemic, a growing number of universities across the world had either postponed or canceled all activities such as workshops, conferences, and sports and moved rapidly to transition of various courses and programs from face-to-face to online delivery mode. Moreover, universities across the world were asking international students not to travel overseas to countries of their origin and continue their studies while being confined to hostels (6).

This had caused a tremendous level of stress among the university fraternity, inclusive of students. Changes in daily routine including lack of outdoor activity, disturbed sleeping patterns, social distancing had affected the mental well-being of the students. International students staying far from home were not only worried about their health, safety, and education but they also had a huge number of concerns for the wellbeing of their families. Students who managed to go home were worried about being unable to return to their respective institutions for further studies. This stress had lead to unfavorable effects on the learning and psychological health of students (7). The COVID-19 pandemic also had a serious impact on the future careers of these university graduates. They had experienced major interruptions in teaching and assessments in their study programmes. They may likely to graduate late due to the postponement of the final examinations of their respective fields of study. Further, the graduates had to face the severe challenges of the global recession caused by the COVID-19 crisis (7).

Hence, the present study was conducted to determine the depression, anxiety, stress and perceived mental healthcare need of Sri Lankan undergraduates who study in countries affected by COVID-19.

Methods

A cross sectional study was conducted after obtaining the ethical approval (Ref. No. 02.06.2020 : 3.5) from the Ethics Review Committee, Faculty of Allied Health Sciences, University of Ruhuna, Sri Lanka. The study was conducted with the participation of Sri Lankan undergraduates studying in high-risk areas of COVID-19 in Sri Lanka, India and Russia from 01st of July to 31st of December 2020. Sample collection from the undergraduates studying in India and Russia was conducted while undergraduates were residing in the respective countries. The calculated sample size was 243 (http://www.raosoft.com/samplesize.html) and snowball sampling technique was used to recruit participants. An online self-reported questionnaire designed based on the previous literature and Depression, Anxiety and Stress Scale - 21 (DASS21) were used for data collection (Figure 1) (8-10). The consent form was appended to it. The questionnaire consisted of four sections. Section I consisted of questions on demographic data. Section II consisted of 4 questions on perceived mental care needs. These questions were answered on 'Yes' / 'No' basis with an additional "No idea" option. Section III consisted of 18 questions on anxiety related to COVID-19 (Figure 2). These questions were answered on a 4-point Likert scale ranging from Never/ Several days/ Over the half of the days/ Nearly every day. Undergraduates were asked to answer these questions considering the previous 3 months they have spent. Section IV consisted of Depression, Anxiety and Stress Scale-21 (DASS-21). DASS-21 has three scales to assess depression, anxiety and stress with each scale containing 7 items, making it a 21-item scale. It is a set of self-reported scales designed to measure the emotional states of depression, anxiety and stress.

The depression scale assesses dysphoria (a state of unease or generalized dissatisfaction with life), hopelessness, devaluation of life, self-deprecation, lack of interest/ involvement, anhedonia (inability to feel pleasure in normally pleasurable activities) and inertia (a tendency to do nothing or to remain unchanged). The anxiety scale assesses autonomic arousal (chronic and persistent arousal of the autonomic nervous system that isn't caused by an underlying medical condition), skeletal muscle

effects, situational anxiety, and subjective experience of anxious effect. The stress scale is sensitive to levels of chronic non-specific arousal.

It assesses difficulty in relaxing, nervous arousal, and being easily upset/agitated, irritable/over-reactive and impatient. Scores for depression, anxiety and stress are calculated by summing the scores for the relevant items.

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you over the past week. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

0 - Did not apply to me at all

1 - Applied to me to some degree, or some of the time

2 - Applied to me to a considerable degree or a good part of time

3 - Applied to me very much or most of the time

1 (s)   I found it hard to wind down 0 1 2 3

2 (a)   I was aware of dryness of my mouth 0 1 2 3

3 (d)   I couldn't seem to experience any positive feeling at all 0 1 2 3

4 (a)   I experienced breathing difficulty (e.g. excessively rapid breathing, breathlessness in the absence of physical exertion) 0 1 2 3

5 (d)   I found it difficult to work up the initiative to do things 0 1 2 3

6 (s)   I tended to over-react to situations 0 1 2 3

7 (a)   I experienced trembling (e.g. in the hands) 0 1 2 3

8 (s)   I felt that I was using a lot of nervous energy 0 1 2 3

9 (a)   I was worried about situations in which I might panic and make a fool of myself 0 1 2 3

10 (d) I felt that I had nothing to look forward to 0 1 2 3

11 (s) I found myself getting agitated 0 1 2 3

12 (s) I found it difficult to relax 0 1 2 3

13 (d) I felt down-hearted and blue 0 1 2 3

14 (s) I was intolerant of anything that kept me from getting on with what I was doing 0 1 2 3

15 (a) I felt I was close to panic 0 1 2 3

16 (d) I was unable to become enthusiastic about anything 0 1 2 3

17 (d) I felt I wasn't worth much as a person 0 1 2 3

18 (s) I felt that I was rather touchy 0 1 2 3

19 (a) I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart missing a beat) 0 1 2 3

20 (a) I felt scared without any good reason 0 1 2 3

21 (d) I felt that life was meaningless 0 1 2 3

Figure 1: Depression, Anxiety and Stress Scale - 21 Items (DASS-21)

		Not sure at all	Several days	Over the half of the days	Nearly every day
1	From the last week, how often do you think about Novel Coronavirus Pandemic?	18.2%	41.2%	6.4%	34.2%
2	From the last one week, how often you feel paranoid about contacting the novel Corona Virus infection?	36.4%	34.2%	5.9%	23.5%
3	From the last week, how often you avoid partying?	25.1%	15.5%	7.0%	51.9%
4	From the last week, how often you avoid social contact?	20.9%	28.9%	10.7%	39.6%
5	From the last week, how often you avoid large meetings and gatherings?	19.8%	20.3%	5.9%	54.0
6	From the last week, how often you avoid ordering food online?	26.2%	21.9%	5.3%	46.0%
7	From the last week, how often you have talked to your friends about the corona Pandemic?	16.6%	46.0%	10.7%	26.7%
8	From the last one week, how often you have had difficulty sleeping by being worried about the Coronavirus pandemic?	70.1%	17.1%	5.3%	7.0%
9	From the last week, how often you feel affected by the posts on social media about corona Virus infection?	37.4%	41.2%	7.0%	14.4%
10	From the last week, how often do you feel affected by the talks of Novel Corona Virus Pandemic on the newspaper and news channels?	39.6%	39.6%	7.5%	12.3%
11	From the last week, how often do you feel the need to buy and stock all essentials at home?	33.7%	50.8%	4.8%	10.7%
12	From the last week, how often do you get afraid if anyone in your social circle reports of being sick?	29.4%	42.8%	9.1%	17.1%
13	From the last week, how often do you feel the need to use the sanitizer/gloves?	9.6%	20.9%	9.6%	59.9%
14	From the last week, how often do feel the need to constantly wash your hands?	9.1%	17.6%	5.3%	67.4%
15	From the last one week, how often do you feel worried about yourself, and close ones regarding the spread of Novel COVID19 Viral Infection?	19.8%	30.5%	12.8%	35.3%
16	From the last week, how often do you use a mask without any apparent signs and symptoms of the infection?	14.4%	19.8%	8.0%	57.2%
17	From the last week, how often does the Idea of Novel Corona Viral Infection freak you out leading to inappropriate behaviors with anyone?	44.9%	31.6%	10.2%	12.3%
18	From the last week, how often does the Idea of Novel Corona Viral Infection freak you out post on social media?	41.7%	39.6%	4.8%	13.9%

Figure 2: COVID-19 related anxiety of the study participants

Recommended cut-off scores for conventional severity labels (normal, moderate, severe) are shown in Table 1.

Data were analysed with ANOVA & t-test using SPSS software version 21.

Table 1: Recommended cut off values for DASS-21 scale

	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+

Scores on the DASS-21 will need to be multiplied by 2 to calculate the final score.

DASS - 21 Scoring Instructions

The DASS-21 should not be used to replace a face-to-face clinical interview. If you are experiencing significant emotional difficulties you should contact your general practitioner for a referral to a qualified professional.

Results

A total of 187 Sri Lankan undergraduates were enrolled from India (33.7%), Russia (39.6%) and Sri Lanka (26.7%). Demographic data of the study participants are shown in Table 2.

Majority of the study participants were females (62.2%). More than 50% of the participants were studying health sciences (Medicine or Medical Laboratory Science). Almost all the study participants (97.3%) were not married. About 50% of the study participants were 2nd year undergraduates. Majority of the study participants (66.3%) were living alone, without their family. A considerable proportion of the study participants mentioned that social media was the source of information about COVID-19, followed by television, newspapers, and other channels such as websites.

Table 2: Demographic data of the study participants

Demographic data		Number and Percentage of Undergraduates n (%)
Country	Sri Lanka	63 (33.7)
	Russia	74 (39.6)
	India	50 (26.7)
Degree	Medicine	84 (44.9)
	Engineering	42 (22.5)
	Medical Laboratory Sciences	26 (13.9)
	Social sciences and Humanities	18 (9.6)
	Bioscience	12 (6.4)
	Agriculture	5 (2.1)
Gender	Female	115 (62.2)
	Male	70 (37.8)
Academic Year	1st Year	30 (16.0)
	2nd Year	90 (48.1)
	3rd Year	35 (18.7)
	4th Year	30 (16.0)
	5th Year	2 (1.1)
Living status	Living with family	63 (33.7)
	Living alone	124 (66.3)
Marital status	Married	5 (2.7)
	Not married	182 (97.3)
Source of Information	Social Media	135 (72.2)
	Television	41 (21.9)
	Other Channels	8 (4.3)
	Newspaper	3 (1.6)

n - number; % - percentage

Perceived Mental Care Needs

There were 47.6% of participants thought that it would be nice to talk to someone about their worries of the COVID-19, 21.4% thought that there was no need to talk to someone about their worries of the COVID-19 and 29.4% had no idea whether they need to talk to someone about their worries or not.

Among the study participants, 67.4% thought that it was necessary to get mental health help if one panics in lieu of the Pandemic situation, 12.8% stated that it was not necessary to take mental health help and 19.3% of them had no idea about getting mental health help. About 84.5% thought that it would be beneficial if mental health professionals help people during COVID-19 pandemic, 8.6% thought that it would not be beneficial if mental health professionals help people during COVID-19 pandemic and 6.4% had no idea about whether it would be beneficial if mental health professionals help people during the pandemic. Among the participants, 74.3% suggested to obtain mental health help to people who are highly affected by the COVID19 pandemic, 10.2% did not suggest to obtain mental health help and 13.9% had no idea about obtaining mental health help.

COVID-19 related anxiety

More than 50% of the participants had avoided partying, large meetings and gatherings nearly every day during the previous 3 months. Further, more than 50% of the participants, used sanitizers/ gloves/ masks and washed hands constantly nearly every day of the study. Further, 2/3 the participants had wanted to constantly wash their hands nearly every day (Figure 2).

Depression Anxiety and Stress Scale (DASS 21)

Among the study participants, 11.58% (n=22) had symptoms of depression (6.32% - mild symptoms; 5.26% - moderate symptoms), 11.58% (n=22) had symptoms of anxiety (5.26% - mild symptoms; 3.16% - moderate symptoms; 3.16% - severe symptoms) and 3.16% (n=6) had symptoms of stress (2.11% - mild symptoms; 1.05% - moderate symptoms). There was no statistically significant difference in depression, anxiety and stress among undergraduates with reference to gender, age, type of degree, marital status, status of living, or country in which they are studying.

Discussion

Epidemics and pandemics are periodic phenomena. Impacts of the epidemics and pandemics are often intense, which may adversely affect the mental well-being of a given population. The fear and anxiety related to epidemics and pandemics also influence the behavior. Hence, this study attempted to evaluate the depression, anxiety, stress and perceived mental healthcare needs of Sri Lankan undergraduates studying in countries affected by COVID-19.

The reported depression, anxiety and stress among undergraduates in present study are 11.58%, 11.58% and 3.16%, respectively. Similarly, a study which was conducted in Shenyang, Liaoning Province in China reported that prevalence of depression in the study participants was 9.6% (11). Moreover, a study conducted in a sample of home-quarantined Chinese university students, stated that the prevalence of depression among study subjects were 9.0% (12). However, the reported depression, anxiety and stress of the present study were lower compared to most of the previous studies. A study which was conducted among medical students in India using DASS-21 scale reported that the depression, anxiety and stress during COVID-19 outbreak was 35.5%, 33.2% and 24.9%, respectively which was higher than the findings of the present study (13). Further, the same study reported that there was no significant difference in depression, anxiety and stress with relation to gender, year of study, place of residence and family's monthly income (13). Moreover, a study conducted in Malaysia reported the levels of severity of depression, anxiety, and stress among the university students were 36.4%, 36.7%, and 42.4%, respectively (14).

There were no published articles on depression, anxiety, stress and perceived mental health of undergraduates in Sri Lanka. However, a study which was conducted on psychological impacts of COVID-19 among pregnant mothers in Sri Lanka reported that the overall prevalence of anxiety and depression were 17.5% and 19.5%, respectively (15). These findings suggests that depression, anxiety and stress towards COVID-19 among undergraduates were lesser compared to pregnant mothers.

Although 66.3% of the study subjects were living alone without their family members, majority of the participants adhered to good health practices such as using sanitizers, gloves and masks where necessary. In addition, they used to wash hands constantly. Majority of the study participants had avoided ordering food online. Further, they had avoided partying, social contacts, large meetings and gatherings. Adhering to good health practices may be one reason for reported low prevalence of depression, anxiety and stress among undergraduates in present study. University students are more knowledgeable. Hence, undergraduates may be more likely to consider the pandemic objectively, which might again be a reason for low prevalence of depression among undergraduates.

Nearly half of the participants thought that it would be nice to talk to someone about their worries of the COVID-19. Majority of the participants stated that it was necessary to get mental health help if one panics in lieu of the pandemic situation and suggested to obtain mental health help to people who are highly affected by the COVID19 pandemic. In addition, majority of them stated that it would be beneficial if mental health professionals help people during COVID-19 pandemic. This explained well that the undergraduates have the basic understanding what measures they should take if they start to experience depression, anxiety and stress. This again may be a reason for low prevalence of depression among undergraduates.

Similarly, several studies had proved that adhering to good health self-care practices lower the psychological distress (16, 17). A study which was conducted in United State of America to assess the impact of self-care practices on psychological distress on nursing students had found that utilization of self-care practices leads low level of psychological distress (16). Further a study carried out on medical students in USA reported that adhering to self-care practices throughout their training may lower risk for higher levels of distress during medical education (17).

Limitations

Students were asked to fill the questionnaire recalling the previous 3 months period. Responses depend on student's ability to recall past event.

Hence, recall bias is a limitation in this study. Sample collection from the undergraduates studying in India and Russia was conducted while undergraduates were residing in India and Russia. Depression, Anxiety and stress may be less when students are living with their family rather than while they are away in a foreign country.

Conclusions

The findings of the present study conclude that COVID-19 pandemic has caused considerable stress, depression and anxiety among under--graduates. Further, good self-care practices among undergraduates towards COVID-19 lower the psychological distress among them. However, it would have been better if there was an organized program to address the mental health issues of study subjects during the COVID-19 pandemic. Moreover, these findings of the current study are useful in identifying the need of such programs to find out students with a high risk of mental health problems. Universities should plan short term and long term psychological services for undergraduates and encourage undergraduates to get support from mental health professionals when necessary.

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