Stress and its coping strategies among undergraduate health science students of Pokhara during COVID-19 pandemic

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ABSTRACT

Introduction: Mental health of students was affected during COVID-19 pandemic due to fear of infection, mandatory lockdown, interruption in academic activities, challenges in distance learning, and social isolation. This study aimed to assess the level of stress and coping strategies adopted by the undergraduate health science students of Pokhara during the COVID-19 pandemic. **Methods:** A cross-sectional study design was used to assess the level of stress and coping strategies among undergraduate students from May 2021 to November 2021. A structured questionnaire was developed in Google form and a link to the questionnaire was sent to the study participants using email and social media. Descriptive and bivariate analysis was done using SPSS software. **Results:** In total, 18.4% of the respondents had a high level of stress and 59.4% had an average level of stress. The most frequently used coping strategy was accepting reality and learning to live with it i.e. acceptance (36.8%). Following this, doing something to think less about the situation, such as watching movies/TV, reading, sleeping /playing online games/ attending online courses during COVID-19, i.e. self-distraction (31.6%) was another common strategy. Patterns of assignments, postponed exams, changes in exam patterns, and delayed academic year were found to be significantly associated with stress among the study population. **Conclusions:** The majority of the respondents had an average to high level of stress during the COVID-19 Pandemic. A substantial portion adopted acceptance and self-distraction as strategies to cope with stress. The students should be taught different effective coping strategies to manage stress. There is a need for a clear academic plan, teaching-learning activity guidelines, and exam modalities for such emergency situations.

Keywords: Coping strategies, COVID-19, stress, undergraduate students.

INTRODUCTION

Stress can come in different ways in an individual's daily life. Stress is viewed as the body's reaction, both neurologically and physiologically, to adapt to a new condition.[1] It is a feeling of physical, emotional, or mental tension that can have a positive or negative impact on us. Young adult students (age 18 to 25 years) constitute a particularly vulnerable population for stress and mental health problems as they are at the crucial phase of life where they make many major life decisions and go through the transition from adolescence to adulthood.[2] In addition, they are under pressure from academics with an obligation to succeed, an uncertain future, and difficulties integrating into the system.[3] Coping strategies are positive or negative mechanisms, that involve engagement such as problem-solving and expression of emotion, which reduces or handles stressful or uncomfortable situations and affects mental and physical well-being.[4] Strategies for coping with stress are cognitive and behavioral skills (developed in reaction to stressful events),

which have the purpose of decreasing momentary aversive qualities and improving personal control perception.[5] Effective coping strategies are important for stressful situations and can prevent experiences that lead to stress-related mental illness.[6]

The rise of the COVID-19 pandemic led to a global atmosphere of stress, anxiety, and depression due to disrupted travel plans, social isolation, closure of schools/universities and businesses, and media information overload.[7] Moreover, students' routine life as well as mental health, could not remain unaffected.[8] A study shows that sudden change in the education system with closed educational institutions, and the implementation of web-based teaching in a virtual learning platform, was difficult for many students and lecturers, which was an additional source of stress.[9] Study conducted among university students in Poland in different phases of COVID-19 pandemic found that young adult students (18 to 24 years) experienced significantly higher levels of stress than adult students (≥25 years).[10] In a descriptive study conducted in 41 countries, they revealed that significantly higher scores of perceived stress were observed among women, youth, students, and those who expressed concern and those who perceived increased susceptibility to COVID-19.[11] Literature suggests that delay in academic activities, financial difficulties, prolonged lockdown, overload of COVID-19 related information, home schooling, fear of COVID-19 infections, and restrictive measures such as quarantine, isolation and social distancing had an impact on psychological well-being of people.[12]

Studies conducted among medical students showed a high prevalence of stress.[5,13,18] However, very few detailed studies among paramedical, and health science students had been conducted who might be having significant levels of stress as well. Thus, this study aimed to assess the prevailing level of stress, factors contributing to stress, and the coping strategies adopted by undergraduate health science students during the COVID-19 pandemic situation.

METHODS

A cross-sectional study was conducted in Pokhara Metropolitan from May 2021 to November 2021. The study population were undergraduate health science students enrolled at academic institutions in Pokhara. The calculated sample size was 264 using the formula for the finite population size; Sample size (n) = N Z^2 P.(1-p)/ d^2.(N-1) + Z^2 P.(1-p) where, N= Total population size=1234 (Total number of Health science students in Pokhara in

the year 2021), Z = Standard normal variate (value at 95% level of confidence = 1.96), p= 24.1%= 0.241 (Prevalence of Stress among undergraduate students of Pokhara, 2017)[14], d = Allowable error 0.05 (5% margin of error) and adding 15% non-response rate to the sample. The included sample was 266 for the study, as the number of samples was taken proportionately from all the selected institutions, and respondents for the data collection were selected conveniently. Paramedical health science students were included in the study, and medical students i.e. MBBS and BDS were excluded in the study.

The data collection tool consisted of different sections including socio-demographic characteristics, lifestyle-related characteristics, academic characteristics, and the COVID-19 Student Stress Questionnaire (CSSQ) developed by Maria Clelia Zurlo.[15] CSSQ considered low stress among respondents with scores 0 to 6, moderate with scores 7 to 15, and high with scores 16 to 28. It consists of seven items on a 5-point Likert-type scale ranging from zero ("Not at all stressful") to four ("Extremely stressful"). Coping strategies were assessed by the Modified Brief COPE Inventory developed by Carver.[16]

A self-administered Google form was used to collect data from the respondents. The data collection tool was made in simple and clear English language and the questionnaire was sent to the eligible respondents through email and messenger. The filled responses were extracted in Excel sheets. Statistical Package for the Social Sciences (SPSS) was used for data editing and analysis. Descriptive and Inferential analyses were performed. A chi-square test was performed to find the association between stress and independent variables at 5% level of significance. Ethical approval for the conduction of this study was taken from the Institutional Review Committee (IRC), Pokhara University (Ref. No. 26/2078/079). Permission was also taken from the respective institutions to conduct the study. An informed consent was provided by all the respondents by filling up the consent form in the first section of the e-questionnaire before starting the survey. The survey was anonymous, and confidentiality was ensured.

RESULTS

Table 1 shows that the majority (78.9%) of respondents belonged to the age group of more than 20 years. Regarding sex, 81.2% were female. Likewise, the majority, 94.4% of respondents were unmarried. Regarding ethnicity, the majority (74.1%) of respondents were Brahmin/Chhetri; followed by 25.9% with other ethnic groups including

Janajati, Madhesi, and Dalit/Religious minorities. A majority (80.1%) of the respondents belonged to a nuclear family. On the other hand, 35% of the respondents had service as the major source of income in their family with the majority of respondents (64.71%) having monthly income in their family less than or equal to 60,000.

Table 1: Socio-demographic characteristics (N=266)

Variables	Frequency (n)	Percentage (%)
Age group (in Years)		
≤20	56	21.1
>20	210	78.9
Mean age (21.90±1.63) Max 30 years, Min 19 years		
Sex		
Female	216	81.2
Male	50	18.8
Marital status		
Unmarried	251	94.4
Married	15	5.6
Ethnicity		
Brahmin/ Chhetri	197	74.1
Others (Janajati, Madhesi, Dalit/ Religious minorities)	69	25.9
Family type		
Nuclear	213	80.1
Joint/ Extended	53	19.9
Source of income		
Business/Agriculture	124	46.6
Others (service, pension, daily wages)	142	53.4
Monthly income (in Rs)		
≤60,000	172	64.7
>60,000	94	35.3

The level of stress among students was categorized by using the COVID-19 Student Stress Questionnaire (CSSQ). Table 2 depicts that the majority (59.4%) of respondents had average level of stress, 22.2% had low level of stress and 18.4% of the respondents had high level of stress.

Table 2: Level of stress among students (N=266)

Stress level	Frequency (n)	Percentage (%)
Low stress	59	22.2
Average stress	158	59.4
High Stress	49	18.4

Table 3 shows the most frequently used coping strategy by the respondents was accepting the reality of the fact that the situation has happened and learning to live with it (36.8%). Following this, doing something to think less about the situation, such as watching movies/TV, reading, sleeping /playing online games/ attending online courses during COVID-19 (31.6%), and taking action (yoga, eating

a healthy diet, etc) to make the situation better (28.6%) was the other common strategy. Likewise, less frequently used coping strategies were using alcohol/drugs to get through stressful situations (1.5%), self-blaming (5.6%), and refusing to believe that the situation has happened (5.3%).

Table 3: Coping Strategies adopted by the students (N=266)

Coping Strategies	Responses			
	Not at all n(%)	Little bit n(%)	Medium n(%)	A lot n(%)
Refusing to believe situation has happened.	135(50.8)	81(30.5)	36(13.5)	14(5.3)
Using alcohol/drugs to get through stressful situations	240(90.2)	17(6.4)	5(1.9)	4(1.5)
Getting emotional support from others	42(15.8)	136(51.1)	58(21.8)	30(11.3)
Taking action (yoga, eating healthy diet etc)	21(7.9)	85(32)	84(31.6)	76(28.6)
Getting help and advice from other when stressed	44(16.5)	112(42.1)	78(29.3)	32(12)
Trying to come up with a strategy about what to do and how to be safe	19(7.1)	84(31.6)	94(35.3)	69(25.9)
Giving up attempts to cope with stress	109(41)	71(26.7)	52(19.5)	34(12.8)
Looking for something good in what is happening	27(10.2)	83(31.2)	96(36.1)	60(22.6)
Making jokes and sharing memes related to COVID-19	154(57.9)	61(22.9)	32(12)	19(7.1)
Doing something to think less about the situation, such as watching movies/TV, reading, sleeping/playing	24(9)	67(25.2)	91(34.2)	84(31.6)
Accepting the reality of the fact that it has happened	24(9)	60(22.6)	84(31.6)	98(36.8)
Expressing negative feelings when stressed	94(35.3)	114(42.9)	41(15.4)	17(6.4)
Self-blaming for things that happened	195(73.3)	38(14.3)	18(6.8)	15(5.6)
Praying or meditating more than usual	69(25.9)	100(37.6)	52(19.5)	45(16.9)

Table 4 shows that 78% had an average to high level of stress among those who were more than 20 years old. Similarly, 78.7% had average to high stress among females, and 84.1% had average to high stress among those who belonged to ethnic groups Dalit, Janajati, Madhesi, and Muslim. Likewise, 78.9% of the respondents had average to high stress among those who belonged to nuclear family, 79.8% had average to high stress among those whose family income source was business, agriculture and 80.1% of the respondents had average to high stress among those who had family monthly income less than 60,000. Socio-demographic variables were not found to be significantly associated with stress.

Table 4: Association of socio-demographic variables with stress

Variables	Level of stress		Chi-square value	p-value
	Low n(%)	Average/High n(%)		
Age (in years)				
≤20	13(23.2)	43(76.7)	0.04	0.83
>20	46(21.9)	164(78)		
Gender				
Female	46(21.3)	170(78.7)	0.52	0.47
Male	13(26)	37(74)		
Ethnicity				
Brahmin/Chhetri	48(24.4)	149(75.6)	2.10	0.14
Others	11(15.9)	58(84.1)		
Family type				
Nuclear	45(21.1)	168(78.9)	0.68	0.40
Joint/extended	14(26.4)	39(73.6)		
Source of income				
Business/ Agriculture	25(20.2)	99(79.8)	0.54	0.45
Others (Service, daily wages, pension)	34(23.9)	108(76.1)		
Average monthly income (in Rs)				
≤60,000	37(19.9)	149(80.1)	1.87	0.17
>60,000	22(27.5)	58(72.5)		

Table 5 shows an association of academic and COVID-19-related variables with stress. Of the total respondents, 78.3% of the respondents had average to high stress among those studying in 1st and 2nd year while 81% had average to high stress among those who worried about the pattern of assignments they had. Likewise, 78.7% had average to high stress among those who were worried about postponed exams, 79.5% had average to high stress among those who were worried about changes in exam patterns and 68.9% of the respondents had average to high stress among those who were worried about the delayed academic year. In total, 78.3% of the respondents who followed COVID-19 news had average to high stress with 79.9% having average to high stress among those who had their family/friends with COVID-19 infection or in isolation. Worriedness about assignments, postponed exams, changed patterns of exams, and delayed academic year were found to be statistically significant with stress (p<0.05).

Table 5: Association of academic and COVID-19-related variables with stress

Variables	Level of stress		Chi-square value	p-value
	Low n(%)	Average/high n(%)		
Year				
1st and 2nd	23(21.7)	83 (78.3)	0.02	0.87
3rd and 4th	36(22.5)	124 (77.5)		
Assignments				
Yes	50(22.9)	168 (77.1)	0.39	0.52
No	9(18.8)	39 (81.3)		
Worried about assignment				
Worried	28(19)	119 (81)	4.19	0.04*
Not worried	21(31.8)	45 (68.2)		
Worried about exam postponed				
Worried	27(21.3)	100 (78.7)	5.49	0.02*
Not worried	5(55.6)	4 (44.4)		
Worried about changing exam pattern				
Worried	30(20.5)	116 (79.5)	4.44	0.03*
Not worried	9(40.9)	13 (59.1)		
Worried about academic delayed year				
Worried	23(31.1)	51 (68.9)	4.98	0.04##*
Not worried	4(80)	1 (20)		
Following COVID-19 news				
Yes	57(21.7)	206(78.3)	3.47	0.12##
No	2(66.7)	1(33.3%)		
Friends/ family infected				
Yes	35(20.1)	139(79.9)	1.24	0.26
No	24(26.1)	68(73.9)		

Fisher's exact test

DISCUSSION

The study found that all the respondents had some level of stress in this study. The majority (59.4%) of the respondents had moderate stress in this study, which is less than in a study conducted among college students in India where the prevalence of moderate stress was 81% during COVID-19 pandemic. In this study, about three-fourths, 77.8% of respondents had an average to high level of stress which was supported by recent studies among university students in US and UK where 84.7% of students had average to high perceived stress.[17,18] In the previous study conducted on medical undergraduate students in Nepal during the non-pandemic period, stress was found among 27% of students which is lower than the finding of this study.[13]

Different studies done among undergraduate students showed that the age group of 18 to 21 years has higher stress as compared to other age groups[5,19] which is similar to the findings of this study. In this study (78.9%) females had average to higher stress than males which is similar to surveys conducted among students of different countries.[5,19]

Regarding academic variables, findings from a study showed that the stress level of students in 1st year was higher which is similar to findings from our study where 1st and 2nd year students had higher stress.[19] It might be due to the interruption of education at the beginning of their educational life, a lower level of professional knowledge and skills. A study conducted among US college students revealed that delayed graduation was one of the contributors to stress, which is similar to findings from our study where worry about delayed academic year/

graduation is significantly associated with stress.[20]

The level of stress was significantly higher among people who had at least one family member, relative, or friend who contracted COVID-19 disease which is similar to findings from our study (79.9%).[18,21] Study shows that people who followed COVID-19 news the most, experience more stress[22] which is similar to the findings of our study where respondents who often followed COVID-19 news experienced higher average to high stress.

To cope with the stressors, students used various coping strategies in our study. In a study conducted among undergraduate medical students, commonly used coping strategies were "regular exercise", "watching online movies and playing online games", "religious activities" and "learning to live in COVID-19 situation and accept it" which resembles findings from our study where most frequently used coping strategies by the students was accepting the reality of the fact and learning to live with it.[5] Similarly, doing something to think less about the situation, such as watching movies/TV, reading, sleeping /playing online games/ attending online courses during COVID-19, and taking action (yoga, eating healthy diet, etc.) to make the situation better was also more frequently used strategy which is consistent to finding from our study.[5] A study showed most effective strategy embraced by students to cope with stress was indulging in religious activities which contradicts the findings from our study.[5]

CONCLUSIONS

Around four-fifths of the respondents had average to high levels of stress. The most frequently adopted coping strategies by the students were acceptance of reality and self-distraction. Worriedness about the pattern of assignments, worriedness about exams postponed, worriedness about changing exam patterns, and delayed academic year were statistically significant with stress. Therefore, the students should be taught different effective coping strategies to manage stress. There is a need for a clear academic plan, teaching-learning activity guidelines, and exam modalities for such emergency situations.

AUTHORS' CONTRIBUTION

MSD contributed to conceptualization, design, literature search, data collection, data analysis, manuscript preparation, and editing. NRG contributed to conceptualization, literature search, data analysis, manuscript preparation and review. BS contributed to manuscript editing and review. AP contributed to data collection, data analysis and manuscript preparation. AS contributed to literature search, data collection and data analysis. SG contributed to data collection and data analysis. NB contributed to data analysis and manuscript preparation. Final editing and confirmation have been given by all authors.

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