Rakesh Singh[1]*, Pragya Rai[2], Madhusudan Subedi[1], Babita Singh[3], Moses Chicco Banda Aron[4], Chandra Bahadur Sunar[1], SM Yasir Arafat[5], Sharika Mahato[6]

Association of perceived isolation and resilience with self-rated mental health among undergraduate medical students in Nepal during the COVID-19 pandemic

[1] School of Public Health, Patan Academy of Health Sciences, Lalitpur, Nepal.
[2] School of Medicine, Patan Academy of Health Sciences, Lalitpur, Nepal.
[3] Department of Psychiatric Nursing, National Medical College Teaching Hospital, Tribhuvan University, Birgunj, Nepal.
[4] Department of Monitoring, Evaluation and Research, Partners in Health, Malawi.
[5] Department of Psychiatry, Enam Medical College and Hospital, Dhaka1340, Bangladesh.
[6] Department of Monitoring, Evaluation and Research, The Leprosy Mission Nepal, Lalitpur, Nepal.

*email: rakes4r@gmail.com

Received: 2021-02-21; Accepted: 2021-05-04
DOI: 10.52095/gp.2021.1392.1015

Abstract

Background: The COVID-19 pandemic has devastatingly affected the entire world and destroyed the equilibrium of every sphere of life. Like other groups of people, medical students of Nepal have been facing the conditions of lockdown and social isolation that have arisen because of the pandemic.

Objective: We aimed to see the relationship of perceived isolation and resilience with self-rated mental health among undergraduate medical students in Nepal.

Materials and methods: A web-based online survey was carried out in July 2020 using a semi-structured questionnaire in Google form. Data analysis was performed in SPSS vs 20. Ordered logistic regression analysis was performed to examine the effects of perceived isolation, resilience and background characteristics on self-rated mental health.

Results: Out of 515 participants, 44.9% were male.31.4% reported having fair/poor mental health status and 21.9% reported feeling stressed often due to the COVID-19 pandemic. An increment of 1SD in perceived isolation is associated with about a 5% reduction in the odds of having better mental health (exp (−0.048) = 0.95; p=0.026). Similarly, an increment of 1SD in resilience is associated with about 13% lower odds of having better mental health (exp (−0.149) = 0.862 ; p<0.001).

Conclusion: This study is an early step towards the assessment of perceived isolation and mental health among undergraduate medical students amid the COVID-19 pandemic in Nepal. There is a need to conduct regular counselling sessions and strengthen the coping skills of medical students duringthe pandemic.

Keywords

Perceived isolation, loneliness, resilience, mental health, medical students, COVID-19

INTRODUCTION

A contagious respiratory illness named COVID-19 has swept around the globe and has been terrifying people since the World Health Organization (WHO) declared it as a public health emergency of international concern (WHO, 2020a). This virus has created havoc in the daily life of the entire world and Nepal is under no less threat.

To slowdown the spread of the virus, the government of Nepal enforced lockdown on 24 March 2020 (Singh &Subedi, 2020). Later, the government eased the lockdown in various phases (Giri, 2020), but today the country is currently under prohibitory orders in localised areas where the cases have been increasing(Himalayan Times, 2020).In line with the lockdown, the government prohibited the gathering of more than 25 people and closed all educational institutions (Shrestha, 2020). Due to this, medical colleges in Nepal suspended face-to-face teaching activities. With the considerable loss of learning time for undergraduate medical students, the pandemic has resulted in lowering self-esteem and confidence and there is an evitable loss of clinical skills (Guragai, 2020).

The WHO has already predicted a rise in the number of mental health problems due to the global pandemic (WHO,

2020b); with the fact that there is an increase in suicide rates after natural disasters such as floods, hurricanes and pandemics (Goldmann& Galea, 2014). Undergraduate medical students fall into those vulnerable groups for whom the pandemic has threatened mental well-being (Poudel &Subedi, 2020; Singh et al., 2020). Students are staying home, are missing peer interactions and have been experiencing communication gaps (Mian & Khan, 2020; Mukhtar, 2020). Some studies have also acknowledged that having a limited social network and low participation in social activities are additional risks to mental health (Brummett et al., 2001; Thoits& Hewitt, 2001). The COVID-19-related limitations may prompt psychological mediators such as sadness, worry, fear, anger, annoyance, frustration, guilt, helplessness, loneliness and nervousness (Rogers et al., 2020; Clay, 2020).

A study conducted in Changzhi Medical School in China proposed self-reported anxiety in 21% of participants (Cao et al., 2020). Further, a study done in Switzerland, which investigated students' social networks and mental health before and at the time of the pandemic, suggested that students' levels of stress, anxiety, loneliness, and depressive symptoms got worse, compared to measures before the crisis and also analysed that female students appeared to have worse mental health trajectories (Elmer et al., 2020).

During the pandemic, the majority of students reported to have been suffering from loneliness (Lim, 2020). Loneliness is the painful emotional experience of a discrepancy between actual and desired social contact (Perlman & Peplau, 1981; Richey et al., 2013).

Even before COVID-19, a survey was done on the degrees of loneliness and social support depicted the scenario that the undergraduates actually cope withdaily life well when they are surrounded by their friends and are on a normal schedule (Vogel, 2018). But with the pandemic, this social support of peer groups and social interaction is lost while adapting to the 'new normal' life particularly in developing nations like Nepal.

Despite these adverse situations, every human being has some flexibility to bounce back from stressful circumstances, and this very ability is referred to as resilience (Tugade& Fredrickson, 2004). A study found that resilience reduced the negative effect and increased the positive effect on psychological health during the COVID-19 pandemic (Yildirim et al., 2021).Studies have revealed an association of resilience to face adversities of life with the psychosocial and mental health of people (Qiu et al., 2020; Yildirim et al., 2021; Yildirim et al., 2020). This ability to cope in adverse situations requires support from the social relationships that a person has with family members, friends or colleagues (Schwarzer et al., 2004). Social support enhances well-being, increases resilience to hassle and protects mental health against adverse circumstances (Bennett et al., 2001; Ozbay et al., 2007).

In this regard, as undergraduate medical students experience similar stress and loneliness which comes with a price in wrecking their mental well-being, the assessment of their ability to cope with the adverse effects of the pandemic, presence of social support and their self-rated mental health status is essential to explore in relation to the impact of COVID-19. Therefore, we aimed to assess the relationship of perceived isolation, and resilience with self-rated mental health among undergraduate medical students currently enrolled in medical colleges in Nepal.

MATERIAL AND METHODS

Participants and procedures

Undergraduate medical students i.e. Bachelor of Medicine and Bachelor of Surgery (MBBS) students, enrolled in the first year to final year in medical colleges in Nepal were recruited in the study via purposive sampling. A web-based online survey was carried out using a semi-structured questionnaire in Google form to collect the data from the potential participants of the study. The questionnaire assessed background characteristics, perceived isolation, resilience, and self-rated mental health status. The survey was carried out from 12-18July 2020. A total of 515 undergraduate medical students participated in the survey.

Instruments

Perceived isolation was assessed via an isolation scale consisting of nine items – with six items assessing perceived social support and three items assessing perceived loneliness (Cornwell & Waite, 2009; Hughes et al., 2004). The measure of perceived loneliness comprised a three-point rating scale (1=hardly ever or never, 2=sometimes, 3=often) for three questions:

How often do you feel that you lack companionship? How often do you feel left out?

How often do you feel isolated from others?

Perceived social support was assessed across six areas with a three-point rating scale (1=often, 2=sometimes, 3= hardly ever or never). Questions included: How often can you open up to members of your family if you need to talk

about your worries? How often can you rely on members of your family for help if you have a problem? The same two questions were asked about the participant's friends and current partners. Higher scores on the loneliness scale indicatesa higher perceived loneliness andhigher scores on the social support scale indicates lower perceived social support. Perceived isolation was assessed by calculating the overall score from perceived loneliness and perceived social support with a higher score indicating greater perceived isolation.

Resilience was assessed in terms of the ability to bounce back (Smith et al., 2008; Yildirim &Solmaz, 2020) using a six items Brief Resilience Scale (BRS). Each of the six items was rated on a five-point scale from 1 (strongly disagree) to 5 (strongly agree). The overall BRS score was calculated by computing the sum of scores of six items, with higher scores indicating greater resilience. The scales used for assessing perceived isolation and resilience consisted of questions related to the feelings and experiences of the study participants. The current study utilised these scales to assess the participants' feelings based on their experiences over the past 30 days.

Self-rated mental health was assessed using a single question, asking: What would you say about your current mental health status?With responses being: excellent, very good, good, fair and poor (Cornwell & Waite, 2009; Mulvaney et al., 2007).

Data analysis

Statistical analysis was performed using SPSS vs20. Frequency, percentage, means/proportion and standard deviation were used to describe background characteristics and the score of perceived loneliness, social support, isolation, resilience and self-rated mental health status. Ordered logistic regression analysis was performed to examine the effects of perceived isolation, resilience and covariates (background characteristics) on self-rated mental health.

Ethical approval

Ethical approval was sought from the Nepal Health Research Council (NHRC) (registration number462/2020P). Once the ethical approval was obtained, potential participants were contacted throughemail and social media and were invited to participate in the online survey. The first page of the Google form used in the online survey consisted of the informed consent form and after the participating student had agreed to move ahead with the online survey, the main section of the questionnaire began. If they disagreed, the response was seen as refusing consent and the survey was terminated. So, digital informed consent was obtained from the study participants before their enrolment in the online survey.

RESULTS

The mean age of the study participants was 21.1±1.96 years. Out of 515 participants, 44.9% were male; 22.9% were enrolled in the fourth/final year of MBBS; 24.9% and 31.5% did not have a separate internet connection and separate room/space for communication at their residence respectively; 94.8% had their own electronic device for communication via the internet; only 19.2% had participated in a stress management session post the COVID-19 outbreak; 91.5% had attended online class in their medical course post the COVID-19 outbreak; 31.4% reported as having fair/poor mental health status; and 21.9% responded feeling stressed often due to the COVID-19 pandemic (Table 1). Table 2 depicts summary measures of perceived isolation, resilience, background variables and self-rated mental health status.

Table 3 presents results from ordered logistic regression analyses predicting self-rated mental health. In model 1, only background characteristics were considered predicting self-rated mental health. Perceived isolation and resilience were introduced in model 2 and 3 respectively. And lastly, model 4 considered perceived isolation and resilience simultaneously. In all the models, perceived isolation and resilience were found to be associated with self-related mental health. An increment of one standard deviation in perceived isolation is associated with 5% lower odds of having better mental health (exp (−0.048) = 0.95; p=0.026).

Similarly, an increment of one standard deviation in resilience is associated with about a 13% reduction in the odds of having better mental health (exp (−0.149) = 0.862; p<0.001). The associations were not much different when perceived isolation and resilience were considered simultaneously.

Moreover, the age of student was associated with better self-rated mental health in all the models.

In model 4, for an incrementof one standard deviation in age is associated with 13% higher odds of having better mental health (exp (0.134) = 1.14; p<0.034). Similarly, in model 4, the odds of male students rating their mental health as excellent were twice higher than female students (exp (0.694) = 2.00; p<0.001). The odds of students who had a personal device for communication rating their mental health as excellent were 2.3 times higher than those who did not have (exp (0.842) = 2.32; p<0.027). The

Table 1: Background characteristics and self-rated mental health status.

Variables		N (%)
Sex		
	Male	231(44.9)
	Female	284 (55.1)
Academic year of enrolment		
	First year	146 (28.3)
	Second year	118 (22.9)
	Third year	133 (25.8)
	Fourth/final year	118 (22.9)
Separate internet connection at residence		
	Yes	387 (75.1)
	No	128 (24.9)
Separate room for communication with other via internet		
	Yes	353 (68.5)
	No	162 (31.5)
Participation in stress management session after COVID-19 outbreak		
	Yes	99 (19.2)
	No	416 (80.8)
Attended online classes during pandemic		
	Yes	471 (91.5)
	No	44 (8.5)
Personal electronic device for communication		
	Yes	488 (94.8)
	No	27 (5.2)
Self-rated mental health status		
	Excellent	34 (6.6)
	Very Good	102 (19.8)
	Good	217 (42.1)
	Fair	135 (26.2)
	Poor	27 (5.2)
Self-rated feeling of stress due to COVID-19 outbreak, lockdown		
	Often	113 (21.9)
	Sometimes	341 (66.2)
	Hardly ever or Never	61 (11.8)

positive association between having a separate internet connection and better self-rating mental health was evident when only covariates and perceived isolation were considered in a model.

Nevertheless, the self-rated mental health was independent of the level of education, and history of participation in stress management sessions and online education.

DISCUSSION

The overall findings show that around one-third of study participants reported to having fair/poor mental health. The relationship of self-rated mental health with resilience and perceived isolation is noticeably seen from the regression analysis which shows that when perceived isolation and resilience were together in the analysis, there was around a 14% and 5% reduction in the odds of having better mental health.

COVID-19 has brought a lot of extra stress to the daily lives of people and this can ultimately increase mental health problems. The study focused on the issues like perceived loneliness, perceived isolation, stress and mental health, which are the words and terms often used to describe adverse circumstances affecting people during the COVID-19 pandemic. Out of 515 student respondents who participated in this study, about one-fifth responded to feeling stressed often due to the COVID-19 pandemic. This finding is similar to the study conducted in Changzhi Medical School in China which revealed self-reported anxiety in 21% of the participants (Cao et al., 2020). This finding is also consistent with other studies carried out in Switzerland and Oxford (Elmer et al., 2020; Lim, 2020). The reasons for the students feeling stressed may be the lack of a regular daily schedule. Students may find it hard living life at home after they were used to spending most of the time outside their household in normal circumstances. Studying at home without much guidance is not that helpful for undergrads because not every student feels comfortable studying outside the classroom or at home. With colleges launching online classes, adapting this

Table 2: Summary statistics for indicators included in the perceived isolation scale, resilience scale and covariates.

	Subscales	Mean or Proportion	SD	N
Scale: Perceived Isolation Scale				
Perceived Social Support		11.23	3.13	515
1.	How often can you open up to your family members if you need to talk about your worries?	1.77	0.69	515
2.	How often can you rely on family members for help if you have a problem?	1.50	0.60	515
3.	How often can you open up to your friends if you need to talk about your worries?	1.69	0.66	515
4.	How often can you rely on friends for help if you have a problem?	1.78	0.63	515
5.	How often can you open up to your partner if you need to talk about your worries?	2.24	1.12	515
6.	How often can you rely on your partner for help if you have a problem?	2.24	1.10	515
Perceived Loneliness		6.02	1.66	515
1.	How often do you feel that you lack companionship?	1.96	0.62	515
2.	How often do you feel left out?	2.03	0.66	515
3.	How often do you feel isolated from others?	2.03	0.67	515
Scale: Resilience		19.26	2.93	515
1	You tend to bounce back quickly after hard times.	3.43	0.98	515
2.	You have a hard time making it through stressful events during the COVID-19 pandemic.	3.18	0.98	515
3.	You think it does not take you long to recover from a stressful event.	3.1	1.02	515
4.	You think it is hard for you to bounce back when something bad happens.	3.22	0.99	515
5.	You think you usually go through difficult times without trouble.	3.18	0.99	515
6.	You think you tend to take a long time to get over setbacks in life.	3.16	0.97	515
Covariates				
	Age (years)	21.1	1.97	515
	Sex (Male)	0.45		515
	Personal device for communication (Yes)	0.95		515
	Separate internet connection (Yes)	0.75		515
	Participated in stress management (Yes)	0.19		515
	Attended online education (Yes)	0.92		515
	Year of enrolment in medical education			515
	First year	0.28		146
	Second year	0.23		118
	Third year	0.26		133
	Fourth/final year	0.23		118
Self-rated mental health				515
	Excellent	0.07	-	34
	Very Good	0.20	-	102
	Good	0.42	-	217
	Fair	0.26	-	135
	Poor	0.05	-	27

Table 3: Ordered logistic regressions of self-rated mental health[a] on perceived isolation, resilience and covariates[b].

	Model 1	Model 2	Model 3	Model 4
Age (years)	0.136** (0.031)	0.125* (0.047)	0.146 ** (0.021)	0.134 ** (0.034)
Sex (Male)[c]	0.650** (0.001)	0.640** (0.001)	0.709 ** (0.001)	0.694** (0.001)
Level of education[d]				
First year	0.335 (0.303)	0.339 (0.298)	0.475 (0.148)	0.487 (0.139)
Second year	-0.099 (0.728)	-0.143 (0.616)	0.063 (0.826)	0.022 (0.939)
Third year	0.316 (0.188)	0.306 (0.202)	0.399 * (0.098)	0.393 (0.103)
Personal device for communication[e](Yes)	0.937** (0.014)	0.938** (0.014)	0.849** (0.026)	0.842 ** (0.027)
Separate internet connection[e] (Yes)	0.445** (0.026)	0.462** (0.021)	0.299 (0.138)	0.313 (0.121)
Participated in stress management[e] (Yes)	-0.133 (0.519)	-0.136 (0.509)	-0.128 (0.537)	-0.133 (0.523)
Attended online class[e](Yes)	-0.214 (0.462)	-0.201 (0.491)	-0.352 (0.229)	-0.335 (0.254)
Perceived isolation		-0.048** (0.060)		-0.052** (0.041)
Resilience			-0.149** (0.001)	-0.151 ** (0.001)
Intercepts[g]				
1	1.29 (0.402)	0.238 (0.883)	-1.644 (0.313)	-2.828* (0.099)
2	3.473** (0.024)	2.428 (0.132)	0.574 (0.724)	-0.602 (0.724)
3	5.389** (0.001)	4.354** (0.007)	2.559 (0.116)	1.393 (0.414)
4	7.088** (0.001)	6.057** (0.001)	4.312** (0.008)	3.154 * (0.066)
N	515	515	515	515

* P<0.10 **P <0.05

[a]Self-rated mental health is coded so that higher values indicate better health.

[b]Estimates presented are survey-adjusted but unweighted; p values are presented in parenthesis.

[c]The reference is female.

[d]The reference is fourth/final year.

[e]The reference is no.

[g]The intercepts are expected mean value of self-rated mental health assuming no input in the model.

transition from routine teaching method is itself stressful (Goothy et al., 2020). Furthermore, the climate of fear that the disease has brought has been impacting the students (Mukhtar, 2020).

The study describes 31.4% of students reported having fair/poor mental health status, which is a matter of concern. A national study shows 76% and 85% of people with severe mental disorders in low- and middle-income countries receive no treatment for their mental health conditions (Nepal Health Research Council, 2017). This signifies the vulnerability of students to an increase in mental illness during dreadful times such as the current pandemic. The study also reports the odds of male students rating their mental health as excellent were twice as high than female students, which are comparable to the findings presented by the study done in Switzerland (Elmer et al., 2020; Sun et al., 2021).

There were various stressors responsible for the loneliness experienced by students. A study showed fear and worry about their health and of their loved ones, disruptions to sleeping patterns, decreased social interactions due to physical distancing and increased concerns about academic performance were the major factors of stress (Son et al., 2020). This study showed that many of the

students had a lack of companionship and some also felt it was difficult to open up to their family members if they needed to talk about their worries. This probably is true for those who experience average and lower levels of familial emotional support. A study done in Oman showed that one-third of students took emotional support from talking to family members/friends' help and good sleep as techniques to control stress (Jahan et al., 2016). The results of a study done in North Carolina in the US, illustrated that only family emotional support is protective against the impact of stress reactivity on depressive symptoms (Levens et al., 2016). According to a study done in China, the other reason why they are not comfortable in this current pandemic situation to freely talk with their parents is that the parents are also suffering from similar stresses around financial problems, fear of the disease, family conflicts and a lack of social support (Wu et al., 2020), which all adds to everyone's anxiety.

Resilience is seen as an adaptive deed performed in response to challenges which indicate an ability to survive and discourse the likely magnitudes of adversity (Arafat et al., 2019; Rehman et al., 2020; Lin et al., 2019). The study shows that there was an association of resilience to self-rated mental health; for an increment of one standard deviation in resilience was associated with about 13% lower odds of having better mental health.

This finding is congruent with other studies which have also depicted associations between medical students' better resilience and their lower levels of psychological distress, better life satisfaction, happiness, higher quality of life, fewer anxiety symptoms, and increased subjective well-being (Aboalshamat et al., 2018; Shi et al., 2015; Kim & Cho, 2012; Helou et al., 2019; Zhao et al., 2016).

The present study found that perceived isolation was associated with poor mental health. There have been earlier evidence of associations of perceived isolation, loneliness and mental health (Cacioppo et al., 2006). The COVID-19 outbreak has created a sense of uncertainty and stress about what is going to happen among the students. This stress may lead to an unfavourable effect on the learning and psychological health of students (Sahu, 2020). Furthermore, with four-fifths of the study participants not involved in stress management online sessions, this result probably shows that most of the students perceived these sessions either unnecessary or they didn't prioritise these sessions as part of a coping technique. Moreover, involvement in these sessions was not associated with mental health status. This may be due to the design of sessions not sufficiently serving the current needs of the students. Also, medical colleges might have focussed more on covering the syllabus on time through online platforms. It is important to minimise the academic loss of suspension of face-to-face classes through virtual platforms, but considering the mental health need of the students is also equally important. Thus, to balance the mental well-being of medical students, there must be regular monitoring of their mental health and stress levels using online tools to prevent the student from entering into a state of mental health disorder and depression (Goothy et al., 2020). Then according to the mental health status and as per requirements, proper counselling services should be made available to support the mental health and well-being of students in need. University authorities should conduct regular online or telephonic counselling activities along with online classes for the students.

Implications

Although the COVID-19 pandemic is rapidly evolving and the responses of government is changing from the very first case notification to the different waves of the outbreak, the findings of the current study indicate that undergraduate medical students are vulnerable to mental health disorders mainly due to the isolation created by the difficult circumstances of the pandemic, lockdown measures and travel restrictions. Henceforth, the results present baseline evidence of the need to recommend strategies for various concerned stakeholders including the students, teachers, parents, college administration and governments. To maintain a higher degree of mental well-being and deal with the difficult time during the pandemic, a multidimensional approach would be beneficial – the students and parents could involve themselves in stress management webinars; teacher and college administration could voluntarily engage the students in remotely organised teaching-learning exercises, activities uplifting resilience and mental well-being, and time-to-time screening of their mental health status. Medical universities and governments need to explore alternative methods of continuation of medical education during pandemics with minimal exposure to risks among vulnerable populations. They shouldequip and train a pool of qualified prospective healthcare professionals who are ready to serve during pandemics and disasters in limited-resource settings like Nepal.

Limitations

Although the study has brought novel results in the current context, it has a few limitations. Firstly, all outcomes were subjectively assessed through self-reported measures. Secondly, the study is limited with reliance on cross-sectional data. Thirdly, as the study design was cross-sectional the findings need to be interpreted with caution as it could not establish causation. Fourthly, due to the nature

of the study being a web-based online survey, potential respondents who were not in access to the internet during the data collection phase might have been left out whose perspective would have been important for the study.

CONCLUSION

This study is an early step towards assessment of perceived isolation among undergraduate medical students during the COVID-19 pandemic in Nepal and its effects on their mental health. The current pandemic has been unfolding and creating a changing context especially in low-resource nations like Nepal. It has created challenges in the daily lives of undergraduate medical students and threatened their mental well-being. Further in-depth studies encompassing mixed methods are recommended to explore the issues of isolation and mental health particularly during adverse situations of the pandemic, and to reveal causal mechanisms.

Acknowledgement

We thank the NHRC for giving permission to carry out this research. We express our deep gratitude to all the medical students who participated in this research. We would also like to thank Smriti Pant and Ambika Thapa Pachya for their sincere support while finalising the study protocol, and faculties from different medical colleges for helping us with data collection for the study.

Authors' contribution

RS: Conceptualisation, Methodology, Investigation, Software, Formal analysis, Data curation, Resources, Writing, Original draft preparation and editing. **PR**: Investigation, Visualisation, Writing draft, Reviewing and Editing. **MS**: Investigation**,**Writing, Reviewing and Editing. **BS**: Investigation, Writing, Reviewing and Editing. **MCBA:** Formal analysis, Writing, Reviewing and Editing. **CBS**:Investigation, Writing, Reviewing and Editing. **SMYA**: Analysis, Feedback on Manuscript, Writing, Reviewing and Editing. **SM**: Formal analysis, Visualisation, Writing, Reviewing and Editing.

Ethical approval

Ethical approval was sought from the NHRC to conduct the study (registration number-462/2020P).

Conflict of interest

The authors declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

Funding

This research received no specific grant from any funding agency, commercial or not-for-profit sectors.

Informed consent

Once the ethical approval was obtained from NHRC, potential participants were contacted through email and social media and were invited to participate in the online survey. The first page of the Google form used in the online survey consisted of the informed consent form and after the participating student agreed to move ahead with the online survey, the main section of the questionnaire began. If they disagreed, the response was taken as refusing consent and the survey was terminated taking the student to the end of the survey. Digital informed consent was obtained from the study participants prior to their enrolment in the online survey.

Study registration

The study was not registered externally.

REFERENCES

Aboalshamat, K.T., Alsiyud, A.O., Al-Sayed, R.A., Alreddadi, R.S., Faqiehi, S.S., &Almehmadi, S.A.(2018). The relationship between resilience, happiness, and life satisfaction in dental and medical students in Jeddah. Saudi Arabia Niger Journal of Clinical Practice, 21(8), 1038–43.

Arafat, S.M.Y., Papadopoulos, K., Mullick, M.S., & Uddin, M. (2019). The vulnerability and resiliency of childhood. Glob Psychiatry, 2(2), 113-20.

Bennett, S.J., Perkins, S.M., Lane, K.A., Deer, M., Brater, D.C., & Murray, M.D. (2001). Social support and health-related quality of life in chronic heart failure patients. Quality of Life Research, 10(8), 671-682.

Brummett, B.H., Barefoot, J.C., Siegler, I.C., Clapp-Channing, N.E., Lytle, B.L., Bosworth, H.B., ... Mark, D.B. (2001). Characteristics of Socially Isolated Patients with Coronary Artery Diseases Who are at Elevated Risk for Mortality. Psychosomatic Medicine, 63, 267-272.

Cacioppo, J.T., Hughes, M.E., Waite, L.J., Hawkley, L.C., &Thisted, R.A.(2006). Loneliness as a Specific Risk Factor for Depressive Symptoms: Cross-Sectional and Longitudinal Analyses. Psychology and Aging, 21, 140–51.

Cao, W., Fang, Z., Hou, G., Han, M., Xu, X., Dong, J., & Zheng, J. (2020). The psychological impact of the COVID-19 epidemic on college students in China. Psychiatry Research, 287, 112934.

Clay, R. (2020). COVID-19 and suicide. American Psychological Association-COVID-19 Special Report, 51(4). https://www.apa.org/monitor/2020/06/covid-suicide.

Cornwell, E.Y., & Waite, L.J.(2009). Social disconnectedness, perceived isolation, and health among older adults. Journal of health and social behaviour, 50(1), 31-48.

Elmer, T., Mepham, K., &Stadtfeld, C. (2020). Students under Lockdown: Comparison of students' social networks and mental health before and during the COVID 19 crisis in Switzerland. PLoS ONE, 15(7), e0236337.

Giri, A.(2020). Cabinet Decides To Ease Lockdown In Phases. The Kathmandu Post, 2020 June 10. https://kathmandupost.com/national/2020/06/10/cabinet-to-discuss-ways-to-ease-lockdown.

Goldmann, E., & Galea, S.b(2014). Mental health consequences of disasters. Annual Review of Public Health, 35, 169-183.

Goothy, K.S.S., Goothy, S., Choudhary, A., GG, P., Purohit, M., Chakraborty, H., ... Mahadik, V.K. (2020). COVID-19 lockdown impact on the mental health of students: need to start a mental health cell. MedCrave, MOJ Anatomy and Physiology, 7(2).

Guragai, M.(2020). Nepalese Medical Students in the COVID-19 Pandemic: Ways Forward. Journal of the Nepal Medical Association, 58.

Helou, M.A., Keiser, V., Feldman, M., Santen, S., Cyrus, J.W., &Ryan, M.S. (2019). Student well-being and the learning environment. Clinical Teacher, 16(4), 362–6.

Hughes, M.E., Waite, L.J., Hawkley, L.C., & Cacioppo, J.T. (2004). A Short Scale for Measuring Loneliness in Large Surveys: Results from Two Population-Based Studies. Research on Aging, 26(6), 655–72.

Jahan, F., Siddiqui, M.A., Mitwally, M., Jasim Al Zubidi, N.S., &Jasim Al Zubidi, H.S. (2016). Perception of stress, anxiety, depression and coping strategies among medical students at Oman Medical College. Middle East Journal of Family Medicine, 14(7), 16-23.

Kim, N.E., & Cho, S.M.(2012). Quality of life of medical students during clinical clerkship. Korean Journal of Medical Education, 24(4), 353–7.

Levens, S., Elrahal, F., &Sagui-Henson, S. (2016). The Role of Family Support and Perceived Stress Reactivity in Predicting Depression in College Freshman. Journal of Social and Clinical Psychology, 35, 342-355.

Lim, M. (2020). Achieving Resilience during COVID-19: Psycho-social risk and protective factors amidst a pandemic in adolescents'. Oxford ARC study, Mental health research matters, 2020 April 29. http://mentalhealthresearchmatters.org.uk/achieving-resilience-during-covid-19-psycho-social-risk-protective-factors-amidst-a-pandemic-in-adolescents/.

Lin, Y.K., Lin, C., Lin, B.Y., & Chen, D-Y.(2019). Medical students' resilience: a protective role on stress and quality of life in clerkship. BMC Medical Education, 19, 473.

Mian, A., & Khan, S. (2020). Medical education during pandemics: a UK perspective. BMC Medicine, 18(1), 100.

Mukhtar, S.(2020). Psychological health during the coronavirus disease 2019 pandemic outbreak', International Journal of Social Psychiatry, 66(5), 512-516.

Mulvaney, D., Norah, E., Alegria, M., &Sribney, W. (2007). Social Cohesion, Social Support, and Health among Latinos in the United States. Social Science and Medicine, 64(2), 477–95.

Nepal Health Research Council, Government of Nepal.(2017). National Mental Health Survey, Nepal: (2017-2021). http://nhrc.gov.np/projects/nepal-mental-health-survey-2017-2018/.

Ozbay, F., Johnson, D.C., Dimoulas, E., Morgan III, C.A., Charney, D., & Southwick, S. (2007). Social support and resilience to stress: from neurobiology to clinical practice. Psychiatry (Edgmont), 4(5), 35-40.

Perlman, D., & Peplau, L.A.(1981). Toward a social psychology of loneliness. Personal relationships in disorder. Chapter: 2:31–56. https://pdfs.semanticscholar.org/52d9/6cedd5fc0a7658e6e0a8a17d0dcab428850b.pdf.

Poudel, K., &Subedi, P.(2020). Impact of COVID-19 pandemic on socioeconomic and mental health aspects in Nepal. International Journal of Social Psychiatry, 66(8), 48–755.

Qiu, J., Shen, B., Zhao, M., Wang, Z., Xie, B., & Xu, Y.(2020). A nationwide survey of psychological distress among Chinese people in the COVID-19 epidemic: implications and policy recommendations. General Psychiatry, 33(2), e100213.

Rogers, J.P., Chesney, E., Oliver, D., Pollak, T.A., McGuire, P., Fusar-Poli P, ... David, A.S. (2020). Psychiatric and neuropsychiatric presentations associated with severe coronavirus infections: a systematic review and meta-analysis with comparison to the COVID-19 pandemic. Lancet Psychiatry, 7(7), 611-627.

Rehman, U., Shahnawaz, M.G., Khan, N.H., Kharshiing, K.D., Khursheed, M., Gupta, K., ... Uniyal, R. (2020). Depression, Anxiety and Stress among Indians in Times of Covid-19 Lockdown. Community Mental Health Journal, 1–7.

Richey, R., Barker, C., Shah, U., Peak, M., Nunn, A., Craig, J., ... Turner, M. (2013). Manipulation of medicines to deliver a required dose: development of a good practice guideline. Archives of Disease in Childhood, 98(6), e1.

Sahu, P. (2020). Closure of universities due to Coronavirus Disease 2019 (COVID-19): impact on education and mental health of students and academic staff. Cureus, 12(4).

Schwarzer, R., Knoll, N., &Rieckmann, N.(2004). Social support. In Kaptein, A., &Weinman, J. (Eds.). Health Psychology (pp. 158–182). Oxford, England: Blackwell.

Shi, M., Liu, L., Wang, ZY., & Wang, L. (2015). The mediating role of resilience in the relationship between big five personality and anxiety among Chinese medical students: a cross-sectional study'. PLoS One, 10(3), e0119916.

Shrestha, P.M. (2020). SEE postponed, public gatherings of more than 25 barred, and gyms, film halls closed. The Kathmandu post, 2020 march 19. https://kathmandupost.com/national/2020/03/19/

see-postponed-public-gatherings-of-more-than-25-barred-and-gyms-film-halls-closed.

Singh, R., Baral, K.P., &Mahato, S.(2020). An urgent call for measures to fight against increasing suicides during COVID-19 pandemic in Nepal. Asian Journal of Psychiatry, 102259.

Singh, R., &Subedi, M.(2020). COVID-19 and stigma: social discrimination towards frontline healthcare providers and COVID-19 recovered patients in Nepal. Asian Journal of Psychiatry, 53, 102222.
Smith, B.W., Dalen, J., Wiggins, K., Tooley, E., Christopher, P., & Bernard, J. (2008). The brief resilience scale: Assessing the ability to bounce back. International Journal of Behavioral Medicine,15(3), 194-200.

Son, C., Hegde, S., Smith, A., Wang, X., &Sasangohar, F. (2020). Effects of COVID-19 on College Students' Mental Health in the United States: Interview Survey Study. Journal of Medical Internet Research, 22(9), e21279.

Sun, S., Goldberg, S., Qiao, S., Lin, D., &Operario, D. (2021). Psychiatric symptoms, risk, and protective factors among university students in quarantine during the COVID-19 pandemic in China. Global Health, 17, 15.

The Himalayan Times (2020). Prohibitory order in Kathmandu valley extended till September 2. The Himalayan Times, 2020 August 26. https://thehimalayantimes.com/kathmandu/prohibitory-order-in-kathmandu-valley-extended-till-september-2/.

Thoits, P.A., & Hewitt, L.N. (2001). Volunteer Work and Well-Being. Journal of Health and Social Behavior, 42, 115-31.

Tugade, M.M., & Fredrickson, B.L. (2004). Resilient individuals use positive emotions to bounce back from negative emotional experiences. Journal of Personality and Social Psychology, 86(2), 320-333.

Vogel, L.(2018). Medicine is one of the loneliest professions. CMAJ: Canadian Medical Association journal- journal de l' Association medicalecanadienne, 190(31), E946.

World Health Organization WHO.(2020a). Mental Health and COVID-19' World health Organization, 2020. https://www.who.int/teams/mental-health-and-substance-use/covid-19.

World Health Organization WHO.(2020b). Statement on the second meeting of the International Health Regulations (2005) Emergency Committee regarding the outbreak of novel coronavirus (2019-nCoV)'.World health Organization.https://www.who.int/news-room/detail/30-01-2020-statement-on-the-second-meeting-of-the-international-health-regulations-(2005)-emergency-committee-regarding-the-outbreak-of-novel-coronavirus-(2019-ncov).

Wu, M., Xu, W., Yao, Y., Zhang, L., Guo, L., Fan, J., & Chen, J. (2020). Mental health status of students' parents during COVID-19 pandemic and its influence factors. General Psychiatry, 33(4), e100250.

Yildirim, M., Arslan, G., & Wong, P.T.P. (2021). Meaningful living, esilience, affective balance, and psychological health problems among Turkish young adults during coronavirus pandemic. Current Psychology, 1-12. doi: 10.1007/s12144-020-01244-8.

Yildirim, M., Özaslan, A., & Arslan, G. (2020). Perceived Risk and Mental Health Problems Among Healthcare Professionals During COVID-19 Pandemic: Exploring the Mediating Effects of Resilience and Coronavirus Fear. International Journal of Mental Health and Addiction, 16, 1-11.

Yildirim, M., &Solmaz, F. (2020). COVID-19 Burnout, COVID-19 Stress and Resilience: Initial Psychometric Properties of COVID-19 Burnout Scale. Death Studies, 1-25.

Zhao, F., Guo, Y., Suhonen, R., &Leino-Kilpi, H. (2016). Subjective well-being and its association with peer caring and resilience among nursing vs medical students: a questionnaire study. Nurse Education Today, 37, 108–13.