Original Article

Posttraumatic Stress Disorder among Secondary School Students during the COVID-19 Lockdown in Enugu

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Abstract

Background: School closure, lockdown, loss of jobs, and harsh economic situation during the COVID-19 are linked with a high risk of posttraumatic stress (PTS) in secondary school students. Studies have shown that in the absence of other coping strategies such as resilience and social support, adolescents and youths may adopt a negative coping style to address PTS disorder (PTSD). **Aim:** This study aimed to investigate the prevalence of PTS among secondary school students and evaluate the impact of social support and resilience on PTS in this group of students, especially during the lockdown. **Materials and Methods:** A cross-sectional study was conducted among students attending six secondary schools in Enugu. Three standardized questionnaires were used in the data collection. PTS due to COVID-19 was evaluated with Impact to Event Scale-6, the Child and Youth Resilience was used to determine the resilience of the students, and the Oslo 3-item was used to ascertain the level of social support. Data were analyzed using the IBM Statistical Package for the Social Sciences (SPSS)-Chicago, Illinois, USA; version 25. **Results:** Four hundred and ninety-six students with a mean age of 16.5 ± 1.9 years and M: F of 1:1.1 were studied. The majority of the students (62.9%) had PTS due to the effects of COVID-19. A large number of students in senior secondary three-class, 64.8%, experienced PTS due to COVID-19 compared with their counterparts in junior secondary three class, 54.7%, but the difference in proportions was not statistically significant ($\chi^2 = 3.358$, $P = 0.067$). A good number of fathers of the students with secondary education or less (67.6%) experienced PTS due to COVID-19 when compared with their counterparts who had tertiary education (58.4%) ($\chi^2 = 4.497$, $P = 0.034$). Resilience and social support had no influence on PTSD among secondary school students ($\chi^2 = 0.381$, $P = 0.548$) ($\chi^2 = 0.504$, $P = 0.777$), respectively. **Conclusion:** The prevalence of PTSD was high among secondary school students during the lockdown in the COVID-19 pandemic. Resilience and good social support did not influence this.

Keywords: COVID-19, Enugu, posttraumatic stress disorder, secondary school students

Introduction

Since December 31, 2019, and as of November 12, 2020, 52,143,259 cases of COVID-19 were reported, with 1,284,610 deaths.[1]

Reports from the African continent revealed that 1,918,097 cases had been reported.[1] In Nigeria, 64,516 cases were confirmed, with 1162 deaths recorded in 36 states.[2]

School closure, lockdown, loss of jobs, and harsh economic situations are associated with an increased risk of posttraumatic stress (PTS) symptoms or PTS disorder (PTSD) in the general population and adolescents/youths.[3] A study noted that 25.6% of survivors of the severe acute respiratory syndrome (SARS) outbreak developed PTSD at 30-month follow-up.[3]

Over 52 million cases have been reported to date. With the second wave spreading like wildfire, there is a notable psychological impact than other pandemics in recent times.[3,4] PTSD during the COVID-19 outbreak is triggered by several factors ranging from fear of infection and death, limitations in the availability of health care,[5] experiences of stigma and

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discrimination,[6] and the traumatic effects of measures such as lockdowns, curfews, and quarantine[7,8] to the dire economic situation.

Some studies have shown an increased burden of PTSD among people in the COVID-19 pandemic. For instance, Dutheil *et al*.[5] noted that about 30%–50% of the subjects had some degree of PTSD during the COVID-19 pandemic. The authors also noted a strong link between PTSD and suicide. Female gender and marital status have been associated with an increased episodes of PTSD.[9,10] Notably, the impact and burden of PTSD were likely to be far more protracted in COVID-19 pandemic than the September 11, 2001, terrorist attack.[11,12]

It is noted that in the absence of other coping strategies such as resilience and social support, adolescents/youths may adopt a negative coping style (NCS) to address PTSD.[13,14] Several studies have shown that people who used NCS after traumatic events such as hurricanes, earthquakes, and tsunami harmed their PTSD symptoms.[15,16] They resorted to denial, blaming, disengagement, and social withdrawal, which further worsens PTSD among them.

Long-term follow-up care, resilience, and social support to curb the menace of PTSD are suitable to reduce the morbidity and mortality that may arise from this disorder.[8]

Some studies have documented the prevalence of PTS and the effects of resilience and social support on PTSD in the general population during the COVID-19 pandemic. However, there are few documented studies among adolescents/youths.[12] For instance, in a study by Liang *et al*. on adolescents and young adults aged 14–35 years in China, the prevalence of PTSD was noted to be 12.8%.[12] The high prevalence was attributed to harmful coping mechanisms.

In our locale, there are unreported morbidity and PTSD-associated suicide triggered by severe economic hardship and school closures among adolescents and young adults. This could be caused by parental neglect and a lack of policies that will help promote the growth and development of the adolescent child. This work aims to investigate the prevalence of PTS among secondary school students and to evaluate the impact of social support and resilience on PTS on these students, especially during the lockdown.

Materials and Methods

Study area

The study was done in six secondary schools in Enugu city.

Ethical approval

This was given by the Ethics and Research Committee of the University of Nigeria Teaching Hospital, Enugu (IRB: 00002323).

Study design

A cross-sectional study was conducted among secondary school students who attended secondary schools in Enugu city.

Study population

Four hundred and ninety-six secondary school students from six different secondary schools were consecutively enrolled in the study.

Inclusion criteria

Students present during the lockdown and at the time of study in the selected secondary schools and who gave consent were included in the study.

Exclusion criteria

Students who were not present during the lockdown and those who did not give consent were excluded from the study.

Sample size determination

The sample size of 496 students was estimated using the following formula:[13]

$N = Z^2 (PQ)/d^2$

Sampling technique

The selection of students was made in two stages. The 33 public secondary schools and 51 privately owned secondary schools in Enugu city were listed according to their student's number. The first six schools (each from public and private schools) were selected from the three local government areas. Again, one public and one private school were then selected from each of these local government areas by simple balloting.

Subsequently, a list of all students who gave consent for the study was made. This gave a total of 1963, which served as the sampling frame. Dividing this number by the sample size of 496 gave a sampling interval of 4. Hence, every 4th student was enrolled on each day of data collection, based on their sitting arrangement. The index student on each day of data collection was selected by balloting.

Data analysis

Data were analyzed using the IBM Statistical Package for the Social Sciences (SPSS) software version 25. The mean and standard deviation were presented as continuous variables, whereas frequencies and proportions were analyzed using the Chi-square test, and binary logistic regression (multivariate analysis) was used in the study, and the level of statistical significance was determined by $P < 0.05$. To determine the predictors of PTS among the students, only variables with $P < 0.2$ on bivariate analysis were included in the logistic regression model.

The outcome variable of the study was the proportion of students who experienced PTS due to COVID-19. This was assessed using the impact to event scale-6 (IES-6). The questionnaire has six variables with a five-point Likert response from 0 to 4 (0 = not at all; 1 = a little bit; 2 = moderately; 3 = quite a bit, and 4 = extremely). The total score for each respondent ranged from 0 to 24. Adolescents with a score of 9 and above were categorized as having PTSD, whereas those who scored <9 had no disorder.

The resilience status of students was assessed using the Child and Youth Resilience Measure (12 items).[14] This consists of

twelve variables with a five-point Likert scale that included 1 = not at all, 2 = a little, 3 = sometimes, 4 = quite a bit, and 5 = a lot. The total score of each respondent to the 12 variables was calculated, after which the mean score of the entire students was obtained (the mean score was 51.6 ± 6.7). Students who scored above the mean score were classified as resilient, whereas those who scored less than or equal to the mean were regarded as not being resilient.

The social support of the students was assessed using the Oslo 3-item Social Support Scale. This comprises three variables, with each response scored between 1 and 5. The scores for each respondent ranged between 3 and 14. Depending on the total score of each respondent, they were categorized as poor social support (score of 3-8), moderate social support (score of 9-11), and strong social support, (score of 12-14).

The socioeconomic class of the respondents' parents was determined using Oyedeji's social classification method.[17]

Results

The mean age of the respondents was 16.5 ± 1.9 years. The highest proportion of them, 78.6%, were in the age group 15–19 years, whereas the least balance, 3.4%, were 20 years and above. The majority of them, 52.2%, were female. A higher proportion of the students, 80.8%, were in senior secondary three class. The highest proportion of the parents of the students, 35.5%, were in the high socioeconomic class, whereas the least, 31.5%, were in the low socioeconomic class.

Table 1 shows the responses of the students to the IES-6. The highest proportion of them, 22.0%, felt watchful and on-guard because of COVID-19, whereas the least proportion, 17.1%, never did. The highest proportion of the students, 24.2%, tried not to think about it (COVID-19), whereas the least proportion, 16.1%, did so moderately. The highest proportion of the students, 42.3%, had no trouble concentrating because of COVID-19, whereas the least proportion, 9.1%, moderately had trouble concentrating.

Table 2 shows the prevalence of PTS due to COVID-19 among students. The majority of the students had PTS due to the effects of COVID-19.

Table 3 shows the factors associated with PTS among students. A higher proportion of students in senior secondary three class, 64.8%, experienced PTS due to COVID-19 when compared with those in junior secondary three class, 54.7%, but the difference in proportions was not found to be statistically significant (χ^2 = 3.358, P = 0.067). A significantly higher proportion of students whose fathers had secondary education or less, 67.6%, experienced PTS due to COVID-19 when compared with those whose fathers attained tertiary education, 58.4% (χ^2 = 4.497, P = 0.034).

Table 4 shows the predictors of PTS due to COVID-19 among the students. Those in the senior secondary classes were 1.325 times more likely to experience PTS when compared with those in junior secondary classes (adjusted odds ratio [AOR] = 1.325, 95% confidence interval [CI]: 0.826–2.127). The students whose fathers attained tertiary education were 1.38 times less likely to experience PTS due to COVID-19 when compared with those whose parents had secondary education or less (AOR = 0.724, 95% CI: 0.496–1.057).

Discussion

Trauma that occurs in children and adolescents presents with debilitating effects on development, with life-long impact on psychological development and mental health. Adolescent health professionals need to understand the impacts of traumatic stress on children and adolescents,[15,16,18] as they have limited coping strategies and are more vulnerable to traumatic disasters than adults. It was documented that after any traumatic event, a high percentage of children will experience symptoms of PTSD and about 20%–30% develop the full disorder in the first 6 months. The pattern and prevalence of PTSD in children are different from that in adults due to their level of development, cognitive, and emotional maturity.[19,20]

This study revealed a high prevalence (62.9%) of PTSD among adolescents/youths during the lockdown from the COVID-19 pandemic. Several studies have shown varying prevalence. A prevalence of 31.8% was obtained in the USA, whereas 29.5%, 5.8%, and 12.8% were obtained in Italy, Spain, and China, respectively.[21-23]

The prevalence rates reported above were seen in the adult population. However, few studies among adolescents still showed lower prevalence compared with 62.9% obtained in our study. In China, within 1 month of the COVID-19 pandemic, the prevalence of PTSD among adolescents was 12.8%, a value lower than 41% reported by the previous SARS pandemic.[24,25]

Table 1: Responses to Impact of Event Scale-6 by the students

Variable	Not at all, *n* (%)	A little bit, *n* (%)	Moderately, *n* (%)	Quite a lot, *n* (%)	Extremely, *n* (%)
I thought about it when I didn't mean to	136 (27.4)	155 (31.3)	64 (12.9)	94 (19.0)	47 (9.5)
I felt watchful or on-guard	85 (17.1)	89 (17.9)	109 (22.0)	94 (19.0)	119 (24.0)
Other things kept making me think about it	121 (24.4)	122 (24.6)	61 (12.3)	116 (23.4)	76 (15.3)
I was aware that I still had a lot of feelings about it, but I didn't deal with them	174 (35.1)	107 (21.6)	70 (14.1)	92 (18.5)	53 (10.7)
I tried not to think about it	120 (24.2)	98 (19.8)	80 (16.1)	87 (17.5)	111 (22.4)
I had trouble concentrating	210 (42.3)	99 (20.0)	45 (9.1)	74 (14.9)	68 (13.7)

Besides, Xinli *et al*.[26] noted a prevalence rate among youths whose mean age was 20.5 years to be 30.8%. The high prevalence obtained in our study when compared to those mentioned above may be due to the differences in methodology, culture, duration, and severity of the disaster. The high prevalence of 62.9% seen in this study could also be due to the high degree of apprehension and loss of concentration among adolescents as documented in our study. Studies done in Nigeria showed prevalence rates of 23.5%[27] and 26.7%.[28] However, these studies were not strictly on adolescents and also not done during the pandemic. Comparing with studies done among the age group, especially during the pandemic, would have been more revealing. However, there is a dearth of such published works.

Table 2: Prevalence of posttraumatic stress due to coronavirus disease-2019 among the students

Variable	Frequency (*n*=496), *n* (%)
Posttraumatic stress	
Yes	312 (62.9)
No	184 (37.1)

There are no gender correlates of PTSD in this study. Although there were no consistent findings on the relationship between gender and PTSD, some studies showed female preponderance.[10,29-34]

Respondents in the senior secondary class were 1.325 times more likely to experience PTSD when compared with those in junior secondary class.

This finding could be due to the high cluster of students in the senior secondary that was enrolled in the study. Other studies have shown that adolescents in junior high school or lower educational level had higher PTSD than other groups.[34,35] The reason for this as explained by the findings of Baral *et al*.[36] is that a higher educational level improves one's understanding of issues related to PTS and psychological distress with attendant cultivation of positive measures toward it.

Older students showed more PTSD than those who are younger, though it was not statistically significant. Several studies suggest a positive relationship between PTSD and children's age after a major traumatic event like an earthquake.[34] It was noted in a study that after 1 month of

Table 3: Factors associated with posttraumatic stress among the students

Variable	Posttraumatic stress (*n*=496)		*P*
	Yes, *n* (%)	No, *n* (%)	
Age of students (years)			
<17	128 (60.4)	84 (39.6)	1.012 (0.314)
≥17	184 (64.8)	100 (35.2)	
Gender			
Male	146 (61.6)	91 (38.4)	0.329 (0.566)
Female	166 (64.1)	93 (35.9)	
Class of study			
Senior secondary three	260 (64.8)	141 (35.2)	3.358 (0.067)
Junior secondary three	52 (54.7)	43 (45.3)	
Socioeconomic class of parents			
High socioeconomic class	105 (60.0)	70 (40.0)	1.082 (0.582)
Middle socioeconomic class	105 (63.6)	60 (36.4)	
Low socioeconomic class	102 (65.4)	54 (34.6)	
Employment status of Father			
Unemployed	24 (57.1)	18 (42.9)	2.808 (0.246)
Self-employed	168 (66.4)	85 (33.6)	
Salaried employment	120 (59.7)	81 (40.3)	
Educational attainment of mother			
Tertiary education	149 (58.4)	106 (41.6)	4.497 (0.034)
Secondary education and less	163 (67.6)	78 (32.4)	
Parents living together			
Yes	227 (61.0)	146 (39.0)	2.258 (0.133)
No	85 (68.5)	39 (31.5)	
Oslo Social Support Scale			
Poor social support	46 (64.8)	25 (35.2)	0.504 (0.777)
Moderate social support	137 (64.0)	77 (36.0)	
Strong social support	129 (61.1)	82 (38.9)	
Resilience status of students			
Resilient	195 (53.9)	110 (36.1)	0.381 (0.548)
Not resilient	117 (61.3)	74 (38.7)	

Table 4: Predictors of posttraumatic stress due to coronavirus disease-2019 among the students

Variable	AOR	*P*	95% CI	
			Lower	Upper
Class of study				
Senior secondary three	1.325	0.243	0.826	2.127
Junior secondary three	1			
Educational attainment of mother				
Tertiary education	0.724	0.094	0.496	1.057
Secondary education and less	1			
Living with both parents together				
Yes	0.789	0.296	0.506	1.230
No	1			

CI: Confidence interval, OR: Odds ratio, AOR: Adjusted OR

major traumatic events, the incidence of PTSD in survivors under 15 years of age was significantly higher than that in survivors over 15 years.[36] Furthermore, children of younger age display more overt aggression and destructiveness as well as behavioral reenactments of the traumatic event compared to older adolescents.[36-38]

A significantly higher proportion of students whose mothers had a maximum of secondary education experienced PTS due to COVID-19 when compared with those whose mothers had tertiary education. In other words, the higher the mother's education level, the less likely PTSD. This may be attributed to the fact that parents with a higher level of education have a better understanding of factors that predispose children to develop PTS.

It is surprising to note that social support and resilience had no impact or effect on PTSD among the students in this study. Resilience is a dynamic process and a defense mechanism against PTSD.[39] However, it has been shown to be associated with many variables, such as genetics, environment, and social interactions,[40] and this may explain the finding in our study. Poor social support and negative coping strategies are predictors of both acute and chronic PTSD.[41,42] Studies have repeatedly emphasized the role of social support on mental health outcome. However, in a meta-analysis conducted by Ge *et al*.,[42] there was no relationship between social support and mental health, especially in females. The effect of social support and resilience on mental health is influenced by age.

Conclusion

The prevalence of PTSD was high among secondary school students during the lockdown in the COVID-19 pandemic. However, this was not influenced by resilience and good social support.

Recommendation

Alternative measures other than lockdown and school closures may be necessary to curb the high prevalence of PTSD. Furthermore, the researchers have communicated the findings of the study to the management of the schools. Counseling and health education sections aimed at alleviating and preventing PTSD among these students are recommended.

Limitation

A community study may help resolve the noninfluence of resilience and social support on PTSD in secondary school students.

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Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. COVID-19 Situation Update Worldwide, as of 11 November, 2020. Available from: https://www.ecdc.europa.eu/en/geographical-distribution-2019-ncov-cases. [Last accessed on 2020 Nov 19].
2. NCDC Coronavirus COVID-19 Microsite. Available from: https://covid19.ncdc.gov.ng/. [Last accessed on 2020 Nov 19].
3. Maunder RG. Was SARS a mental health catastrophe? Gen Hosp Psychiatry 2009;31:316-7.
4. Jakovljevic M, Bjedov S, Jaksic N, Jakovljevic I. COVID-19 pandemia and public and global mental health from the perspective of global health securit. Psychiatr Danub 2020;32:6-14.
5. Dutheil F, Mondillon L, Navel V. PTSD as the second tsunami of the SARS-Cov-2 pandemic. Psychol Med 2021;51:1773-4.
6. Horesh D, Brown AD. Traumatic stress in the age of COVID-19: A call to close critical gaps and adapt to new realities. Psychol Trauma 2020;12:331-5.
7. Brooks SK, Webster RK, Smith LE, Woodland L, Wessely S, Greenberg N, *et al.* The psychological impact of quarantine and how to reduce it: Rapid review of the evidence. Lancet 2020;395:912-20.
8. Chew QH, Wei KC, Vasoo S, Chua HC, Sim K. Narrative synthesis of psychological and coping responses towards emerging infectious disease outbreaks in the general population: Practical considerations for the COVID-19 pandemic. Singapore Med J 2020;61:350-6.
9. DePierro J, Lowe S, Katz C. Lessons learned from 9/11: Mental health perspectives on the COVID-19 pandemic. Psychiatry Res 2020;288:113024.
10. Kun P, Tong X, Liu Y, Pei X, Luo H. What are the determinants of post-traumatic stress disorder: Age, gender, ethnicity or other? Evidence from 2008 Wenchuan earthquake. Public Health 2013;127:644-52.
11. Lowe SR, Bonumwezi JL, Valdespino-Hayden Z, Galea S. Posttraumatic stress and depression in the aftermath of environmental disasters: A review of quantitative studies published in 2018. Curr Environ Health Rep 2019;6:344-60.
12. Liang L, Gao T, Ren H, Cao R, Qin Z, Hu Y, *et al.* Post-traumatic stress disorder and psychological distress in Chinese youths following the COVID-19 emergency. J Health Psychol 2020;25:1164-75.
13. Available from: http://www.ascdegreecollege.ac.in/wp-content/uploads/2020/12/Research-Methodology-for-Health-Professionals.pdf. [Last assessed 2020 Nov 20].
14. Panter-Brick C, Hadfield K, Dajani R, Eggerman M, Ager A, Ungar M. Resilience in context: A brief and culturally grounded measure for Syrian refugee and Jordanian host-community adolescents. Child Dev 2018;89:1803-20.
15. Pollice R, Bianchini V, Roncone R, Casacchia M. Marked increase in substance use among young people after L'Aquila earthquake. Eur Child Adolesc Psychiatry 2011;20:429-30.
16. Vlahov D, Galea S, Resnick H, Ahern J, Boscarino JA, Bucuvalas M, *et al.* Increased use of cigarettes, alcohol, and marijuana among Manhattan, New York, residents after the September 11th terrorist attacks. Am J Epidemiol 2002;155:988-96.
17. Oyedeji GA. The socio-economic and cultural background of hospitalised children in Ilesha. Niger J Paediatr 1985;12:111-7.

18. Pina AA, Villalta IK, Ortiz CD, Gottschall AC, Costa NM, Weems CF. Social support, discrimination, and coping as predictors of posttraumatic stress reactions in youth survivors of Hurricane Katrina. J Clin Child Adolesc Psychol 2008;37:564-74.
19. Carr VJ, Lewin TJ, Webster RA, Hazell PL, Kenardy JA, Carter GL. Psychosocial sequelae of the 1989 Newcastle earthquake: I. Community disaster experiences and psychological morbidity 6 months post-disaster. Psychol Med 1995;25:539-55.
20. Yuanyuan L, Ya Z, Xiaoyan C, Fang F, George M, Christina H. Post-Traumatic Stress Disorder in Children and Adolescents. Available from: https://www.intechopen.com/books/psychosomatic-medicine/post-traumatic-stress-disorder-in-children-and-adolescents-some-recent-research-findings. [Last accessed on 2020 Nov 19].
21. Schnurr PP, Friedman MJ, Bernardy NC. Research on posttraumatic stress disorder: Epidemiology, pathophysiology, and assessment. J Clin Psychol 2002;58:877-89.
22. Kar N. Psychological impact of disasters on children: Review of assessment and interventions. World J Pediatr 2009;5:5-11.
23. Liu CH, Zhang E, Wong GT, Hyun S, Hahm HC. Factors associated with depression, anxiety, and PTSD symptomatology during the COVID-19 pandemic: Clinical implications for U.S. young adult mental health. Psychiatry Res 2020;290:113172.
24. Forte G, Favieri F, Tambelli R, Casagrande M. COVID-19 pandemic in the Italian population: validation of a post-traumatic stress disorder questionnaire and prevalence of PTSD symptomatology. Int J Environ Res Public Health 2020;17:4151.
25. González-Sanguino C, Ausín B, Castellanos MÁ, Saiz J, López-Gómez A, Ugidos C, *et al*. Mental health consequences during the initial stage of the 2020 Coronavirus pandemic (COVID-19) in Spain. Brain Behav Immun 2020;87:172-6.
26. Chi X, Becker B, Yu Q, Willeit P, Jiao C, Huang L, *et al*. Prevalence and Psychosocial Correlates of Mental Health Outcomes Among Chinese College Students During the Coronavirus Disease (COVID-19) Pandemic. Front. Psychiatry 2020;11:803. doi: 10.3389/fpsyt.2020.0080.
27. Nwoga CN, Audu MD, Obembe A. Prevalence and correlates of posttraumatic stress disorder among medical students in the University of Jos, Nigeria. Niger J Clin Pract 2016;19:595-9.
28. Iteke O, Bakare MO, Agomoh AO, Uwakwe R, Onwukwe JU. Road traffic accidents and posttraumatic stress disorder in an orthopedic setting in South-Eastern Nigeria: A controlled study. Scand J Trauma Resusc Emerg Med 2011;19:39.
29. Kwek SK, Chew WM, Ong KC, Ng AW, Lee LS, Kaw G, *et al.* Quality of life and psychological status in survivors of severe acute respiratory syndrome at 3 months postdischarge. J Psychosom Res 2006;60:513-9.
30. Hong X, Currier GW, Zhao X, Jiang Y, Zhou W, Wei J. Posttraumatic stress disorder in convalescent severe acute respiratory syndrome patients: A 4-year follow-up study. Gen Hosp Psychiatry 2009;31:546-54.
31. Qi J, Yang X, Tan R, Wu X, Zhou X. Prevalence and predictors of posttraumatic stress disorder and depression among adolescents over 1 year after the Jiuzhaigou earthquake. J Affect Disord 2020;261:1-8.
32. Chi X, Becker B, Yu Q, Willeit P, Jiao C, Huang L, *et al.* Prevalence and psychosocial correlates of mental health outcomes among Chinese college students during the coronavirus disease (COVID-19) pandemic. Front Psychiatry 2020;11:803.
33. Liang L, Ren H, Cao R, Hu Y, Qin Z, Li C, *et al.* The effect of COVID-19 on youth mental health. Psychiatr Q 2020;91:841-52.
34. Liu N, Zhang F, Wei C, Jia Y, Shang Z, Sun L, *et al.* Prevalence and predictors of PTSS during COVID-19 outbreak in China hardest-hit areas: Gender differences matter. Psychiatry Res 2020;287:112921.
35. Astitene K, Aguenaou H, Lahlou L, Barkat A. Prevalence of post-traumatic stress disorder among school-age adolescent. Int Neuropsychiatr Dis J 2020;14:40-9.
36. Adhikari Baral I, Bhagawati KC. Post traumatic stress disorder and coping strategies among adult survivors of earthquake, Nepal. BMC Psychiatry 2019;19:118.
37. Dyregrov A, Yule W. A review of PTSD in children. Child Adolesc Ment Health 2006;11:176-84.
38. Rutten BP, Hammels C, Geschwind N, Menne-Lothmann C, Pishva E, Schruers K, *et al.* Resilience in mental health: Linking psychological and neurobiological perspectives. Acta Psychiatr Scand 2013;128:3-20.
39. Brown K, Westaway E. Agency, capacity, and resilience to environmental change: Lessons from human development, well-being, and disasters. Annu Rev Environ Resour 2011;36:321-42.
40. Ahmadian A, Mirzaee J, Omidbeygi M, Holsboer-Trachsler E, Brand S. Differences in maladaptive schemas between patients suffering from chronic and acute posttraumatic stress disorder and healthy controls. Neuropsychiatr Dis Treat 2015;11:1677-84.
41. Meli L, Birk J, Edmondson D, Bonanno GA. Trajectories of posttraumatic stress in patients with confirmed and rule-out acute coronary syndrome. Gen Hosp Psychiatry 2020;62:37-42.
42. Hou T, Zhang T, Cai W, Song X, Chen A, Deng G, *et al*. Social support and mental health among health care workers during Coronavirus Disease 2019 outbreak: A moderated mediation model. PLoS ONE 2020;15:e0233831. https://doi.org/10.1371/journal.pone.0233831.