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Research Article

The Prevalence and Risk factors of Stress among College-going Students of Giridih, Jharkhand: A Cross-sectional Study

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ABSTRACT

Background: According to the National Mental Health Survey (NMHS) 2015-16 among individuals 18 years or above in twelve Indian cities, mental disorders contributed to a significant load of morbidity and disability. A total prevalence for neurotic and stress-related disorders was identified to be 6.2% for Jharkhand. This compromised psychological health of students precipitates the form of multiple mental health disorders including stress. This study aims to determine the prevalence of stress and explores various factors associated with it.

Methods: A college-based cross-sectional study was conducted online on Google forms in degree colleges offering three or more three-year program courses in the Giridih district of Jharkhand. The study participants were 236 college students in between 18-30 years of age. This included the Perceived Stress Scale and captured various independent factors.

Results: The prevalence of stress among college-going students in Giridih, Jharkhand was estimated at 5% for low stress, 89% for moderate stress and 6% for high stress. Factors such as sleeping in free time, reading in free time, social media or television or gaming in free time and close family members with a history of depression were found to be associated with stress.

Conclusion: This study documents the high prevalence of stress in college-going students and explores the various factors that could possibly be the reason for stress in students. Identification of such factors is important for students to pave a progressive future pathway to achieve overall good physical, mental as well as psychological health.

Keywords: "Stress", "College Students", "Perceived Stress", "Undergraduates", "India"

Sonthalia P et al.
Epidem. Int. 2022; 7(3)

22

Introduction

"Stress is considered as a negative, behavioural, physiological process that takes place when the person tries to adapt or compromise with stressors".[1,3] For every individual, this stress bearing capacity differs according to the personality types and traits. Young adulthood plays the major role in shaping one's personality.[4] "Stress hassles educational success, obstructs a student's ability to indulge in campus lifestyle, and increase the chances of substance abuse and other potentially devastating behaviours".[3] This ultimately leads to lowered productivity, mental trauma, and subsequently in some cases suicides.

According to National Crime Records Bureau, every hour one student attempts suicide.[5] According to 2012 Lancet report, in India the age group 15-29 years reports the highest rate of suicide in the world and this statistics doesn't seem to lower.[6] According to Global Burden of Disease (GBD) report in India, in 2017 mental disorders contributed to 4·7% of the total Disability Adjusted Life Years (DALYs) as compared to 2·5% in 1990. According to the National Mental Health Survey (NMHS) 2015-16 among individuals 18 years or above in twelve Indian cities, mental disorders contributed to a significant load of morbidity and disability. A total prevalence for neurotic and stress related disorders was identified to be 6.2% for Jharkhand.[7] According to another study, the prevalence of stress among undergraduate students was found to be 68%, among which 5% fell in the high stress category.[8] A study conducted in undergraduate students of degree colleges between 18-25 years of age showed 60-80% of the student having increased stress level.[9]

College students face numerous academic, social, financial and psychological adjustment and difficulties in the changed atmosphere and new campus which overall affect their psychosocial well-being in addition to the learning outcomes.

The current education system focuses more on the academic performances and does not cater to the holistic growth of the students. Along with this, the number of assignments, tests, and curriculum overload and projects deadlines overburden them theoretically without giving any hand-on/practical experiences. Examination stress adds to their life events, hindering their inner potentialities to cope with obstacles and achieve better. Pressure from parents, schools and faculties for their academic qualifications poses a whole new challenge but they equally are not provided with good guidance.[3,4,10] Many other stressors such as lack of time management skill, inclusion in social and extra-curricular activities also pose a threat to overall mental health of students.[11,12]

In an attempt to explore stressor for college student the most commonly identified stressors were changed sleeping pattern (89%), changed eating pattern (74%), newer engagements (73%), and escalated academics burden (73%).[13] The financial stressors include hefty amount of college fees along with money required in extra (journals, projects, social activities, fests, and parties) expenditure of the college that low and middle income strata of students find it difficult to pay. Thus, this makes them overburdened with the financial responsibilities adding to the guilt of excess expenses put on the family.[14] The psychological factors includes anticipatory stress that is generally felt in coordination with concerns about future. Optimism, fear, doubt and low self-confidence gives rise to such disturbance that generates an overall trapped feeling, resulting in distress.[15]

World is grappling with serious issue of pandemic, leading to entire world witnessing stress and its aftermath. One of the survey indicated that 71 percent students had reported increased stress due to the COVID-19 pandemic.[16] The mental health of college students is uniquely impacted by the COVID-19 pandemic due to sudden closures of colleges and displacement from the social networking. The pandemic also poses a long term impact on job probability.[17] Since mental disorders are of chronic nature, they can result in a lifelong impact and thus require immediate redressal. Despite the increased prevalence rate and potential hazardous impact on well-being of college students, there have been very few studies that examine and explore the factors associated with stress. So, to address the following gaps a study was conducted to find the prevalence of stress among college going students and study its risk factors.

Material and Methods

It was a cross-sectional survey of students from colleges in Giridih district of Jharkhand. College students between ages of 18-30 years, enrolled between first to third years from three colleges (out of total eighteen) were included in the study. Study duration was in between February 2021 to June 2021.

A self-made structured questionnaire was administered to college students to estimate the prevalence of stress among the college going students and to assess the relationship between various demographic, social, academic, financial and psychological risk factors causing stress and inter-relationship between the same. The questionnaire was pilot tested to validate the questionnaire on the same age group students, who eventually were not part of the study.

Authorities in the selected colleges were contacted and they were explained about the nature and procedure of the study. Permission was obtained from the college authorities that included the principals and other administrative officers. The complete list of all the students along with

23

Sonthalia P et al.
Epidem. Int. 2022; 7(3)

their contact information from first to third year was obtained from the college authorities. During this time, the classes for the students was still conducted online on zoom platforms. Before administering the questionnaire, principals and faculties of the colleges were requested to host a zoom meeting along with the students and the research investigator to brief the students about the questions and how to record answers of the questionnaire on the Google form. These individuals were then contacted through social media handles like WhatsApp and email ids. For the same, college authorities were requested to add the research investigator in the college WhatsApp group of each respective years. The questionnaire in the form of Google form link was then circulated in such groups. Informed consent was taken from individuals for their involvement in this study. Before administering the questionnaire to the students, they were assured about the confidentiality and privacy of their opinions and personal information. The questionnaire was compiled in English.

Perceived Stress Scale-10 scale, a standard validated questionnaire was used to find out the prevalence of stress. PSS is a self-administered validated questionnaire used to target the age group 18-25 years old. Its score ranges from 0-40 with higher scores indicating higher perceived stress. The score range from 0-13 falls in low stress category, 14-26 in moderate stress and 27-40 in high stress category. After obtaining 296 responses which also included the estimated sample size, Google form link was closed. All this data collected was then compiled in excel sheet and further analysed (Figure 1).
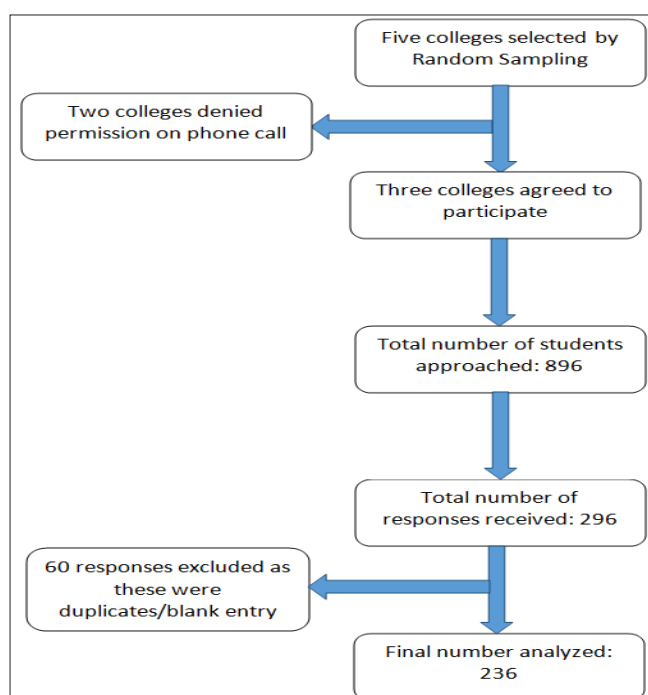

Figure 1.Participant Selection Flowchart

Ethical approval for the study was obtained from Institutional Ethics committee, Indian Institute of Public Health, Delhi (IIPHD_IEC_S_45_2020).

Sample size and Statistical analysis: Sample size calculated was 150 assuming a prevalence of stress of 86% with 5% absolute precision. After adjusting for non-response (adjusted for 20% non-response rate), the final sample size obtained was 188. Data cleaning and coding was carried out in MS-Excel before analysis. Data was then exported to Stata 15.1 for further data analysis. Analysis performed was descriptive as well as inferential. Categorical variables were presented as percentages and frequency while continuous variables were presented using mean and standard deviation. Proportion was calculated to find out the prevalence of stress. Mean stress score of the population was also calculated. T-test and one way Analysis of Variance (ANOVA) were conducted to look for the association between each independent factors and stress score. Linear regression was used to look at the independent factors associated with stress score. P-value <0.05 were considered as statistically significant.

Results

The total number of study participants were 236. The average age of participants was 19.4 years with higher proportion of males (82%). Twelve percent of the participants reported of consuming alcohol (out of which 4% consumed it once a month), 13% responded of smoking and 5% consuming chewable form of tobacco (Table 1).

Table 1.Socio-demographic factors, Personal and Lifestyle related Information of College going Students

Characteristics, n = 236	n (%)
Gender (n = 235) Male	193 (81.8)
Mean age in years, SD*	19.4 ± 1.3
Marital Status Unmarried Married	231 (97.8) 5 (2.2)
Employment Status Student with online class Student with offline class Student with part time job	82 (34.7) 139 (60.0) 15 (6.3)
Family Type Staying with family Away from family	158 (66.9) 78 (33.1)
Siblings No siblings 1-2 siblings ≥ 3 sibling	13 (5.5) 110 (46.6) 113 (47.9)

Sonthalia P et al.
Epidem. Int. 2022; 7(3)

24

Mean of daily sleep duration in hours, SD	6.4 ± 1.9
Physical Activity (n = 222)	
Never	65 (27.5)
1-2 times a week	78 (33.1)
3-4 times a week	41 (17.4)
5-7 times a week	38 (16.1)
Screen Time	
≤ 2 hour	130 (55.1)
≥ 3 hours	106 (44.9)
Free time Activity†	
Art and craft	77 (32.6)
Cooking	95 (40.3)
Sleeping	141 (59.8)
Social media/TV/Gaming	189 (80.1)
Reading	167 (70.8)
Alcohol consumption	29 (12.3)
Smoking	31 (13.2)
Chewable tobacco consumption	11 (4.6)
Physical Injury in last One Year	
Accident	22 (9.3)
Violence/Abuse	11 (4.7)
Self-induced injury	19 (8.1)
No injury	154 (65.2)
Do not want to answer	30 (12.7)
Family	
Chronically ill member for at least one year	22 (9.4)
Loss of immediate family member in last year (n = 229)	30 (12.8)
Loss of close acquaintance in last year (n = 226)	55 (23.4)
Close family member with history of depression (n = 221)	47 (19.9)
Satisfied with parents relationship	218 (92.4)
*SD: Standard deviation †Question with more than one responses, each response having n = 236	

More than half (56%) of the participants reported that they were being affected with some elements of academic curriculum. On exploring the various concerns related to the academic curriculum, most of the concerns were of exams, assignments, internal tests, future worries, career and job related worry, irregular online classes, incomplete syllabus and poor rapport with the faculties. (Table 2).

The study explored the outcome stress (ordinal outcome) which was measured using Perceived Stress Scale (PSS)

(Figure 2). In order to assess the association of stress with other independent factors, bivariate analysis was carried out taking total PSS score as a continuous variable. Mean and SD of each independent variable with PSS score was calculated.

Table 2.Academic, Financial, Psychological and COVID-19 factors of College going Students

Characteristics, n = 236	n (%)
Choice of Course	
Preferred course	119 (50.4)
Second preference	26 (11)
Last resort	12 (5.1)
Other reasons	79 (33.5)
Affected with academic curriculum	132 (56.0)
Percentage of Marks in Last Semester	
≤ 70%	121 (51.3)
> 70%	115 (48.7)
Affected with Spoken English	
Never	45 (19.1)
Less frequently	149 (63.1)
More frequently	42 (17.8)
Satisfied with Support	
From Faculty	
No satisfaction	37 (15.7)
Some satisfaction	89 (37.7)
Total satisfaction	110 (46.6)
From Friends	
No satisfaction	33 (14.0)
Some satisfaction	77 (32.6)
Total satisfaction	126 (53.4)
Overloaded syllabus	108 (45.7)
Most of College Work†	
Assignments	146 (61.8)
Tests	55 (23.3)
Projects	39 (16.5)
Extra-curricular activities	66 (27.9)
Financial factors	
Family Income (p.a.)	
≤ 3 lakh	203 (86.0)
> 3 lakh	33 (14.0)
Money Left at Month end	
Never	82 (34.8)
Less frequently	108 (45.8)
More frequently	46 (19.4)
Psychological factors	

25

Sonthalia P et al.
Epidem. Int. 2022; 7(3)

Worrisome things about life† (n = 223)	
Attending online class	90 (38.1)
Relationship issues	50 (21.2)
Financial issues	127 (53.8)
Isolation	66 (28)
Family and own health	111 (47.0)
Stress Management Technique†	
Practice stretching and deep breathing exercise	68 (28.8)
Rest body as much as possible	71 (30.1)
Learn to be passive and take life as it comes	48 (20.3)
COVID-19 factors	
Effect on Mental Health due to Online Education during COVID-19	
Improved	59 (25.0)
Reduced	43 (18.3)
No change	84 (35.5)
Do not know	50 (21.2)
Personal Protective Measures†	
Hand sanitizing	213 (90.2)
Wearing mask	225 (95.3)
Social distancing	193 (81.8)
Check COVID-19 Updates	
0-12 hours	59 (25.0)
> 12 hours	71 (30.1)
Don't check	106 (44.9)
†Question with more than one responses, each response having n = 236	
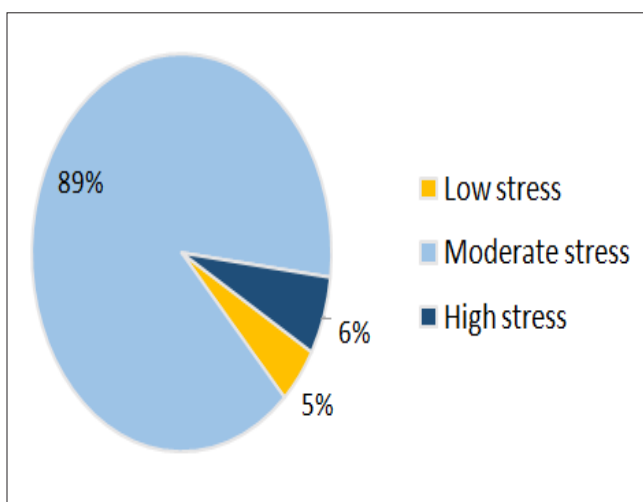
*Exact prevalence with CI
Low stress 4.6% (95% CI: 2.58, 8.25), Moderate stress 89% (95% CI: 84.2, 92.4) and High stress 6.4% (95% CI: 3.85, 10.30).

Figure 2.Prevalence of stress among college going students (n = 236)

Variables of importance identified from the literature and those with p-value <0.05 from bivariate analysis were used in the final model of multivariable linear regression analysis. Sleeping in free time (1.2, 95% CI: 0.14, 2.29), spending time on social media or television or gaming in free time (1.2, 95% CI: -0.03, 2.45) and having a close family member with history of depression (1.7, 95% CI: 0.46, 2.96) had higher stress score. Those who did not indulge in reading activity in their free time was (1.9, 95% CI: 0.77, 3.08) found to be having higher stress score. All these variables were statistically significant with p-value <0.05 (Table 3).

Table 3.Multivariable Linear Regression Analysis of Significant (P<0.05) Independent Variables from Bivariate Analysis with PSS Score

Characteristics	Unadjusted	Adjusted
	Beta Coefficient (95% CI) P-value	**Beta Coefficient (95% CI) P-value**
Gender (n = 235) Female Male	Reference -1.5 (-2.95, -0.21) 0.023	Reference -0.7 (-2.11, 00.59) 0.268
Sleeping in free time No Yes	Reference 1.2 (0.20, 2.32) 0.020	Reference 1.2 (0.14, 2.29) 0.027*
Reading in free time Yes No	Reference 1.7 (0.65, 2.92) 0.002	Reference 1.9 (0.77, 3.08) 0.001*
Social media/TV/ gaming in free time No Yes	Reference 1.5 (0.28, 2.89) 0.017	Reference 1.2 (-0.03, 2.45) 0.057*
Close family member with history of depression No Yes Do not want to answer	Reference 1.9 (0.65, 3.27) 1.2 (-0.94, 3.34) 0.010	Reference 1.7 (0.46, 2.96) 1.5 (-0.46, 3.52) 0.014*
Satisfied with parents relationship No Yes	Reference -1.8 (-3.82, 0.11) 0.065	Reference -1.6 (-3.49, 0.22) 0.085
*Statistically significant variables		

Sonthalia P et al.
Epidem. Int. 2022; 7(3)

26

Discussion

The prevalence of stress among college going students in Giridih, Jharkhand was estimated at 5% for low stress, 89% for moderate stress and 6% for high stress. The mean PSS score of the study population is 19.39. This high prevalence of stress could be attributed to the fact that study was conducted during COVID-19 pandemic, thus external factors in combination with the internal factors could have overall aggravated the level of stress among the study participants.

These findings are comparable to a study conducted in Kerala wherein 89% of the students were found to be stressed on daily basis.[18] According to a study conducted on undergraduate college going students, around 60-80% of students reported of having high stress level affecting their social performance at work.[9] These results are congruent with the present study. An online survey conducted during COVID-19 pandemic (2020) indicates moderate level of stress among 74.1% of the participants with the mean PSS score for the study participants as 16.56.[19] According to a study conducted on undergraduate college going students, around 60-80% of students reported of having high stress level affecting their social performance at work.[9] These results are congruent with the present study. An online survey conducted during COVID-19 pandemic (2020) indicates moderate level of stress among 74.1% of the participants with the mean PSS score for the study participants as 16.56.[19]

Socio-demographic factors such as sleeping in free time, reading in free time, social media or television or gaming in free time and close family member with history of depression were the factors found to be significantly associated with stress. These factors showed higher stress score in the present study.

Former studies have shown greater social media usage and spending more time on social media associated with higher mental health problems.[17] A larger proportion of college students documented feelings of "tremendous stress" levels and consistent social media usage as an indicator for psychological distress.[13] Thirty percent students reported of being involved in social media when they get stressed.[18] Previous findings show the impacts of social media and its prolonged use as negatively associated with stress.[20] Previous research has frequently showed association between change in sleeping habits and stress. Change in sleeping habits could be due to academic workload, worries about future job or career, financial difficulties or other academic, environmental and psychological factors. Twenty three percent of the students reported of changed sleeping pattern when stressed and 28% used sleeping as the major stress managing method.[18] Analysing relations in between sleep and mental health is important because students tend to sleep less or more with the associated mental health problems. The present study emphasizes that individual who were more stressed tend to sleep more which could be attributed to the fact that they used sleeping as one of the coping mechanism for stress management. Participants with a previous family history of depression has experienced mental health issues ten times more and were more likely to develop one of the symptom in the later stages of life.[21] This is in alignment to the present study where family member with history of depression were more likely to suffer with stress. This in long term could precipitate to more severe psychological health problems such as depression.

The study also has several strengths. This is one of its first kind of study carried out on mental health of college students in Giridih, Jharkhand. Choice of tool was appropriate for the purpose of this study as PSS is one of the most widely used tool globally, as well as has been used in many Indian college settings.[22,23,24,25] The study is based on sound methodology with random sampling done in the initial stage of college selection that reduced the chances of selection bias, also increased generalizability to the population and overall external validity. The sample size achieved was greater than the estimated sample size, thus improving the internal validity of the study with the bigger captured data. The usage of self-administered questionnaire reduced interviewer bias. However, the findings of this study have to be interpreted in the light of some limitations. The study tool was standardized but self-reported, that might have introduced some respondent bias. Since this study was cross-sectional in design, causality cannot be demonstrated in the relationship between stress and associated factors.

The findings of the present study adds to the sparse pool of evidence on burden of stress among college going students specific to Giridih district. The unique exploratory factors of the study also adds the evidence to the existing literature about several possible characteristics pertaining to stress, which otherwise is not taken into consideration. Early identification of factors and interventions are need of the hour to improve the overall quality of life and catering to the mental and emotional health of the students. Students can be provided assistance to overcome their problems in academic as well as personal life by assigning and enhancing mentor/mentee programs. Implementable steps should be taken to introduce stress management classes in the course curriculum. In order to identify loopholes in students' life, the study explores the various factors, identification of which is important for students to pave a progressive future pathway to achieve overall good physical, mental as well as psychological health.

27

Sonthalia P et al.
Epidem. Int. 2022; 7(3)

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References

1. Prabu DPS. A Study on Academic Stress among Higher Secondary Students. 2015;6.
2. Jain G, Singhai M. academic stress amongst students: a review of literature. 2017;4(2):10.
3. Subramani C. Academic stress and mental health among high school students. 2017;4.
4. Gosar A, Venkatraman S. Literature Review on Examination Stress amongst School Going Students. World Journal of Research and Review [Internet] 2019 [cited 2020 Sep 8]; 9(3). Available from: https://www.wjrr.org/download_data/WJRR0903005.pdf
5. Saha A, Chaudhury S, Saldanha D, Srivastava K. Stressful life events and severity of alcohol consumption in male psychiatric inpatients. Industrial Psychiatry Journal 2017; 26(1):13.
6. Reddy KJ, Menon KR, Thattil A. Academic Stress and its Sources among University Students. Biomedical and Pharmacology Journal 2018;11(1):531–7.
7. Murthy RS. National Mental Health Survey of India 2015-2016. Indian J Psychiatry 2017;59(1):21–6.
8. Deb et al. E-ISSN No: 2455-295X. 2019;5(4)-7.
9. Sarbeen, Jayaraj D, Gollust SE, Golberstein E, Hefner JL. Prevalence of stress and anxiety among college students. American Journal of Orthopsychiatry 2017;77(4):534-42.
10. Waghachavare VB, Dhumale GB, Kadam YR, Gore AD. A Study of Stress among Students of Professional Colleges from an urban area in India. Sultan Qaboos University Medical Journal 2013;13(3):429.
11. Nandamuri PP, C H G. Sources of academic stress - a study on management students. JMS 2011;1(2):95-106.
12. Yumba W. A Case of the Undergraduate students. 2008; 23.
13. Lippold JL. College Students' Social Media Uses and Affective Correlates. 2020;71.
14. Mental Health Problems For College Students Are Increasing [Internet]. Healthline2016 [cited 2021 Apr 3]; Available from: https://www.healthline.com/health-news/mental-health-problems-for-college-students-are-increasing-071715
15. Causes of Stress in College Students - Q&A With Dr. Traci Lowenthal and Dr. Steve Langerud [Internet]. Affordable Colleges Online2020 [cited 2021 Apr 10]; Available from: https://www.affordablecollegesonline.org/balancing-student-stress/
16. Son C, Hegde S, Smith A, Wang X, Sasangohar F. Effects of COVID-19 on College Students' Mental Health in the United States: Interview Survey Study (Preprint) [Internet]. Journal of Medical Internet Research; 2020 [cited 2021 Apr 3]. Available from: http://preprints.jmir.org/preprint/21279
17. Kleiman EM, Yeager AL, Grove JL, Kellerman JK, Kim JS. Real-time Mental Health Impact of the COVID-19 Pandemic on College Students: Ecological Momentary Assessment Study (Preprint) [Internet]. JMIR Mental Health; 2020 [cited 2021 Apr 3]. Available from: http://preprints.jmir.org/preprint/24815
18. Pullokaran LJ. Academic Stress among college students in Kerala, India. IJSRP [Internet] 2018 [cited 2020 Sep 8]; 8(11). Available from: http://www.ijsrp.org/research-paper-1118.php?rp=P837936
19. Grover S, Sahoo S, Mehra A, Avasthi A, Tripathi A, Subramanyan A, et al. Psychological impact of COVID-19 lockdown: An online survey from India. Indian Journal of Psychiatry 2020;62(4):354.
20. Karim F, Oyewande AA, Abdalla LF, Ehsanullah RC, Khan S. Social Media Use and Its Connection to Mental Health: A Systematic Review. Cureus [Internet] 2020 [cited 2021 May 31];12(6). Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7364393/
21. Monroe M et al, Gm S, Ih G. Life stress and family history for depression: the moderating role of past depressive episodes. Journal of psychiatric research [Internet] 2014 [cited 2021 May 30]; 49. Available from: https://pubmed.ncbi.nlm.nih.gov/24308926/
22. Garg R, Singla A, Garg J. Perceived stress among doctors working in a dedicated COVID-19 hospital in North India. IJMS 2020;0(0):1-4.
23. Anuradha A, R D, Jd R, P S, Ab P. Stress and Stressors among Medical Undergraduate Students: A Cross-sectional Study in a Private Medical College in Tamil Nadu. Indian journal of community medicine : official publication of Indian Association of Preventive & Social Medicine [Internet] 2017 [cited 2021 Jun 10]; 42(4). Available from: https://pubmed.ncbi.nlm.nih.gov/29184323/
24. Abhishek S, M C, S A, P M, A B, R A, et al. A descriptive study of perceived stress among the North Indian nursing undergraduate students. Iranian journal of nursing and midwifery research [Internet] 2013 [cited 2021 Jun 10]; 18(4). Available from: https://pubmed.ncbi.nlm.nih.gov/24403933/
25. Ranadip C, A M, K M, S N, Pr K, Sk L. Perceived psychological stress among undergraduate medical students: Role of academic factors. Indian journal of public health [Internet] 2017 [cited 2021 Jun 10];61(1). Available from: https://pubmed.ncbi.nlm.nih.gov/28218165/