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Stress level amongst college women during COVID-19 pandemic

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Abstract
The purpose of the study was to determine the stress level during COVID-19 pandemic amongst the College women in Delhi, India. A total of 293 College women studying in Gargi College, New Delhi, India were the subjects of this study. For the study, the technique of respondent-driven sampling was utilized to collect data online, through the medium of a Google Form. Since COVID'19 and the implementation of multiple lockdowns from March 2020, these college women have been studying via the virtual mode on different online platforms and different Learning Management systems. The Student Stress Inventory (SSI) was developed by Mohammad Aziz Shah *et al*. in 2015 and its validity and reliability established on Malaysian youth. As Malaysia is a part of Asia, it was considered useful for this study on the College women in Delhi, India. The SSI consists of 40 negative questions which cover four subscales of stress i.e. Physical, Interpersonal, Academic and Environmental. The resultant data was computed and analyzed using descriptive research methodology. The obtained result showed that 57% of undergraduate college women have moderate levels of stress, 40% have mild levels of stress and only 3% respondents suffered from severe levels of stress. According to the mean value of a 4-point ordinal Likert scale, majority of the college women were moderately stressed due to academic and environmental factors during COVID-19 and subsequent lockdowns, which is supported by other research studies.

Keywords: Lockdown, COVID-19, student stress, respondent-driven sampling

Introduction
"Stress is an inescapable part of life that generally touches a wide range of groups of population with no regard to their age, gender, educational status or socioeconomic status. It is seen that stress, depression and anxiety are prevailing mental health problems among college students" [1].

"Stress is an everyday fact of life. Even primitive man could not escape from its clutches. Student stress occurs due to different causes such as academic pressure, parental expectations, peer group pressure, and interpersonal relationships with friends, family, and teachers. As regards the prevailing pandemic, the lockdown impact was not the same for everyone. Most students faced a lot of stress due to online classes and online exams. Student life is one of the most memorable times for everyone; they can share many things, make new friends and explore the new world by interacting with others. The virtual mode does not provide the same vibes. Then COVID-19 also is a stressful cause, which can disturb the mental health of a student. Mental health issues are one of the leading impediments to academic success. Mental health can affect students' motivation, concentration and social interactions which are crucial factors for students to succeed in higher education'' [2].

The primary aim of this study was to assess the stress level of Undergraduate College women during COVID'19 pandemic and the subsequent multiple lockdowns. The respondent-driven sampling through a Google Form resulted in differential counts amongst respondents studying in 1st Year, 2nd Year and 3rd year respectively. Since the university and colleges were on a semester break from 10th March 2020 to 16th March 2020, the Delhi Government announced-lockdown [4] implemented from 16th March onwards resulted in the colleges reopening only for three days after the semester break. The University of Delhi and the constituent colleges were advised to work from home (University order 330/COVID-19/M/2020) dated 19th March 2020) [4]. The national lockdown was announced by PM Modi on 22nd March 2020 to be implemented from 23rd March 2020 onwards. Consequently, all teaching for all respective

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courses was advised to be conducted through the virtual mode by the University of Delhi. Only 3rd year science students were allowed to go to colleges batch-wise, for offline practical classes observing the specific COVID-19 protocol, as this would have been the final year for them and the final result would be important for their future. Initially, it was a struggle for both teachers and students mostly to teach and learn online. To cope with the situation, both students and the teachers learnt new ways of teaching online; devices were made compatible, apps downloaded, or new devices purchased. Many outstation students had gone back home for the semester break and their study was hampered by their books and laptops located in their paying guest accommodations in Delhi, resulting in them facing many personal and social issues in online classes. For these students and other students also, internet connectivity was an additional issue.

Objective
To determine the Stress level of Gargi College undergraduate college women during the period from March 2020 to April 2021.

Methodology
The study was delimited to undergraduate women students of Gargi College. Student Stress Inventory [5] was selected as the research instrument. The research was conducted during the 2nd wave of COVID-19 and the subsequent lockdown phase in April 2021. The Student Stress Inventory (2015) developed by Mohammad Aziz Shah Mohamed Arip and his associates in 2015-16 at Faculty of Education and Human Development, Sultan Idris Education University, 35900 Tanjong Malim Perak, Malaysia [5] was used as a tool for the study since the reliability and validity were established on an Asian population and also because it was administered on university students. The data for this study was collected through the administration of a specifically created Google form for SSI, using the respondent-driven sampling technique. A total of 293 college women studying in the undergraduate courses in Gargi College responded. While administering the form, guidelines on filling the form were clearly mentioned. The respondents were asked to immediately respond after reading each statement according to the first answer that came to their mind. The students were also asked to reach out if there was any ambiguity or query regarding the Inventory. The descriptive research method was used to analyses the data.
"Measuring the stress level of university students is inbuilt in the SSI, which comprised 40 negative items to measure 4 subscales (10 items in each subscale) mentioned below. As for the scoring, the SSI was designed with an ordinal scale of 'Never', 'Somewhat frequent' 'Frequent' and 'Always' values. The value marks given for each choice were 1 for 'Never', 2 for 'Somewhat Frequent', 3 for 'Frequent' and 4 for 'Always'. (Refer table 3-6) Higher Scores of a respondent reflect a higher level of stress. The subscales were the following (Refer Table 6) [5].

Result and analysis
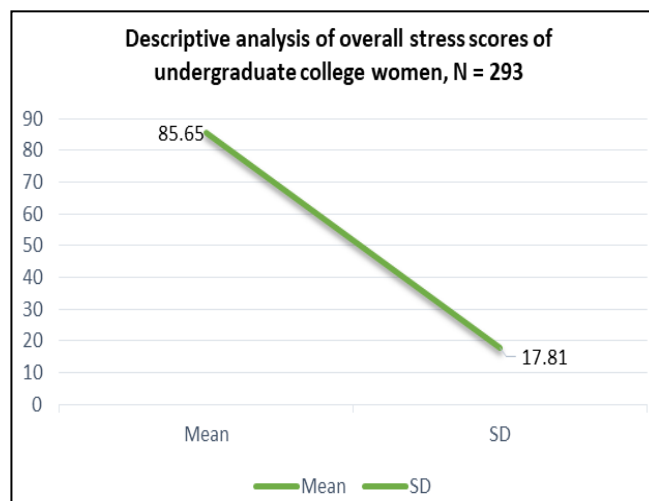## Descriptive analysis of overall Stress scores

Fig 1: Descriptive analysis of overall stress score of undergraduate college women

Table 1 shows the Mean and Standard deviation values of all the responses as a whole with regard to overall Stress Scores. A mean value of 85.65 was derived and the standard deviation was 17.81.

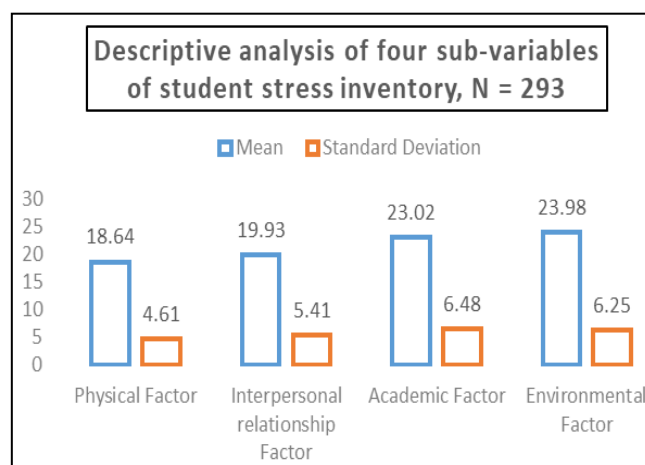## Descriptive analysis of four sub-variables of student stress inventory

Fig 2: Descriptive analysis of four sub-variables of student stress inventory

Figure 2 shows the mean and standard deviation value of all four subscales. For the Physical factor, the value was 18.64±4.61, for Inter personal relationship 19.93±5.41, for Academic 23.02±6.48 and for Environmental 23.98±6.25 respectively.

Table 1: Frequency distribution of the sub-variable – physical

S. No.	Item – Physical Factor	Never	Somewhat Frequent	Frequent	Always	N
1	Headaches	22.53	50.51	23.89	3.07	293
2	Back pain	32.08	43.69	19.11	5.12	293
3	Sleep problem	77.82	17.41	4.44	0.34	293
4	Difficulty breathing	31.12	31.82	24.83	12.24	286
5	Excessive worry	16.38	29.69	30.72	23.21	293
6	Stomach pain/nausea	48.46	36.18	12.63	2.73	293

7	Constant tiredness/fatigue	22.53	33.79	29.69	13.99	293
8	Sweating/sweaty hands	57.00	23.21	11.60	8.19	293
9	Frequent cold/flu/fever	54.61	35.49	6.48	3.41	293
10	Drastic weight loss	78.50	14.33	5.12	2.05	293

Table 2 depicts the frequency distributions of specific factors that contribute to students' Physical stress. Even though a majority of the physical stressors had very little contribution to a high level of stress for students, values of some stressors were somewhat high. For instance, 23.21% of participants have responded that they always experienced excessive worry as a result of stress. But values of headaches, back pain, difficulty breathing, stomach pain / nausea, constant tiredness/fatigue, sweating/sweaty hands and frequent cold/flu/fever were quite high in the category of 'somewhat frequent' as compared to sleeping issues or drastic weight loss. This shows that stress indeed has a part to play in generating psycho-somatic illnesses.

Table 2: Frequency distribution of the sub-variable – interpersonal relationship

S. No.	Item – Interpersonal Relationship	Never	Somewhat Frequent	Frequent	Always	N
1	I find it difficult to meet my parents' high expectations	35.15	38.91	17.06	8.87	293
2	My parents treat me as a helpless person	75.77	15.02	6.14	3.07	293
3	I feel guilty if I fail to fulfill my parents' hopes	14.58	34.24	15.93	35.25	293
4	My parents wish only for my success	8.53	12.63	17.41	61.43	293
5	I find it difficult to get along with group mates when doing academic tasks	47.78	29.35	12.29	10.58	293
6	My friends do not care about me	57.00	26.62	8.19	8.19	293
7	I feel disturbed when having problems with my boyfriend / girlfriend	53.24	19.11	11.26	16.38	293
8	My family is not supportive	70.99	19.11	5.80	4.10	293
9	My lecturers/ teachers are not supportive	59.73	25.60	8.19	6.48	293
10	I feel frustrated by the lack of faculty management	35.84	35.49	15.70	12.97	293

Table 3 depicted the frequency distributions of stress on Interpersonal relationships. 35.25% of subjects were feeling guilty due to not matching up to parents' high expectations (item no.3), similarly 61.43% had stress probably because of their parents' exerting extra pressure to attain success (item no. 4). Here too, episodes of stress being somewhat frequent are high in items 1, 5, 6, 9, and 10.

Table 3: Frequency distribution of the sub-variable – academic factor

S. No.	Item - Academic Factor	Never	Somewhat Frequent	Frequent	Always	N
1	I have a financial problem because of the expenses of the College / University	70.31	16.04	7.17	6.48	293
2	I find it difficult to juggle time between study and social activity	20.14	36.52	25.60	17.75	293
3	I feel nervous delivering the class presentation	22.53	36.52	15.02	25.94	293
4	I feel stressed as the submission deadline nears	30.72	33.11	17.41	18.77	293
5	I feel stressed to sit for the examination	20.48	35.49	22.87	21.16	293
6	I find it difficult to juggle time between study and society involvement	22.53	34.47	20.82	22.18	293
7	I lose interest in courses	24.91	37.20	21.50	16.38	293
8	I feel the burden of academic workloads	18.77	40.27	21.50	19.45	293
9	I feel stressed dealing with difficult subjects	12.97	35.49	28.33	23.21	293
10	I feel difficulty in handling my academic problem	25.60	40.27	19.80	14.33	293

Table 4 shows the frequency distributions of specific factors that contribute to students' academic stress. 25.94% of subjects accepted that they feel nervous while delivering the class presentations (Item No 3), similarly 23.21% of the population also accepted that they feel stressed when they are studying difficult subjects. (Item No 9). Besides these, item NOS 2, 4, 5, 6, 7, 8 and 10 also display somewhat frequent or frequent or both kinds of episodes which is quite concerning.

Table 4: Frequency distribution of the sub-variable – environmental factor

S. No.	Item – Environmental Factor	Never	Somewhat Frequent	Frequent	Always	N
1	I have a transportation problem	56.66	26.28	11.60	5.46	293
2	I feel stressed with the bad living conditions of the hostel/PG	68.26	16.72	7.51	7.51	293
3	Surrounding noise distracts me	21.50	36.52	22.18	19.80	293
4	Pollution makes me uneasy	15.02	31.40	24.57	29.01	293
5	Hot weather makes me avoid going out	12.63	23.21	29.35	34.81	293
6	Messy living conditions distract me	17.75	25.60	22.87	33.79	293
7	I feel frustrated because of inadequate campus facilities	42.32	35.15	10.92	11.60	293
8	Crowding makes me feel uneasy	19.11	31.06	22.53	27.30	293
9	Waiting in a long line make me feel uneasy	18.09	32.08	20.82	29.01	293
10	I feel scared being at an insecure place	9.56	23.21	23.89	43.34	293

Table 5 depicted the frequency distributions of specific factors that contribute to students' environmental stress. 43.34% of subjects accepted that they feel scared always when they are in an insecure place (Item No 10), 34.81% population also admitted that they were stressed due to hot weather (Item No 5), similarly 33.79% girls admitted that disturbing living conditions also cause stress (Item No 6), 29.01% of subjects accepted that pollution also gave them stress (Item No 4). Item numbers 1.3, 4, 5, 6, 7, 8, 9 and 10 also depict that these situations are somewhat frequent or frequent or both which is an important point to note.

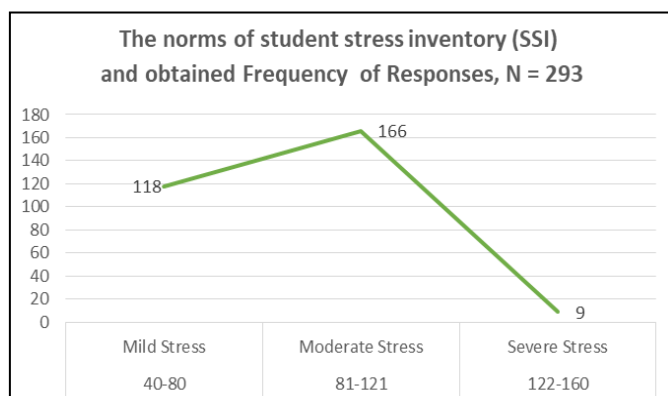**The norms of student stress inventory (SSI) with obtained Frequency**

Fig 3: Norms of student stress inventory and the obtained frequency of responses

Figure 3 shows the categories of Student Stress Inventory as per the Manual of Student Stress Inventory. [5] As per the norms given in the manual, the respondents of this study fall in all three stress categories. 57% of the college women or the respondents have Moderate Stress, followed by 40% with Mild Stress and 3% with Severe Stress.

Discussion of findings
The limitations of the study were:
1. This study was conducted using an online tool (Google Form) which was specifically adapted for the Student Stress Inventory, administered on college women pursuing an undergraduate course in Gargi College, Delhi University, Delhi, India, and hence the veracity of respondent responses cannot be guaranteed. It was endeavored to address queries and doubts, but it is possible that longer duration of thinking, which was undesirable, would have been applied in such settings where the respondent is not face to face with the researcher.
2. The data collection was also done through respondent-driven sampling, which meant that the respondent selection was not in the researcher's control.

The purpose of the present study was to determine the level of stress amongst undergraduate college women during the COVID-19 pandemic. The data was computed and analyzed by a descriptive research method. Findings of the present study found that the majority of college women have Moderate levels of stress (57%), followed by mild (40%) and severe (3%) levels of stress. The academic and environmental factors have higher mean values than the physical or interpersonal relationship variables. Though the mean values

of physical or interpersonal relationship variables are lesser, they are also quite important in this study as the values are not low.
According to the manual, "People with Moderate stress levels are Good in adjusting to their social environment, they are Medium in their levels of resiliency, are average achievers, are average in self-motivation and are also average in time management while people who fall under mild stress are having low vulnerability to diseases, Optimum physical health, Have good social connectedness, Better in getting along with people, High achievers, with High self-motivation, Good in time management, Better in adjusting to social environment, Low in the level of resiliency. In addition, people falling under Severe stress category have high vulnerability to sickness, Bad physical health, have low social connectedness, are worse in getting along with people, are low achievers, low in self-motivation, lack time-management, lack of adjustment to social environment, but are high in level of resiliency" [5].
Parallel findings were also observed in other research studies on student level of stress at College and University level. These similar studies showed that the majority of the students experienced moderate to high levels of academic and environmental stress, but low levels of psychological, social and physiological factors stress [6].
"Students have been facing a lot of mental stress due to the uncertainty of their future during the pandemic, and some have confessed how hard they are trying to cope with studying online [7]".
"A certain amount of stress is an inevitable and useful part of studying. It assists students to work harder, be focused and return to study rather than doing other things. However, if students are too stressed, they cannot study effectively" [8].
Stress can be either eustress or distress depending on a person's personal outlook, personality and resilience. Eustress is definitely required to perform well on challenging tasks. When the students and teachers were thrown into the deep end due to the pandemic, it was seen and experienced that there was a mad scramble to learn online learning-teaching techniques, to find out which streaming platform would be best for a one-hour duration class, whether the devices that one had were sufficient or learn to manage Learning Management systems like Google classroom or My e-academy. Though the online learning system fostered anonymity amongst the students, the WhatsApp and telegram groups created for every class were very interactive. Students were free to message a teacher to ask a doubt. It was up to the teacher to respond to the message or to call up the student if the problem was serious.
All students are not from the same city or from the same background, there could also have been family members in the house with COVID-19 or other diseases, grandparents or parents who needed medical attention, or the student herself could have been infected with the Sars Cov-2 virus. Submission of assignments on time, appearing for internal tests, appearing for practical examinations without really experiencing it, where applicable, appearing for final examinations online are some of the other stress factors. The online examinations themselves were a major source of stress because the final year students were expected to answer 4 questions in 3 hours of allocated time and number, scan and upload them on the DU portal in an additional one hour. More stress was generated when it could not be uploaded online, though there was an alternate system of emailing the answer

sheet to college, in place. But as per verbal feedback from students, it was indeed a stressful experience, but soon forgotten once the answer sheets were submitted.

Another source of stress could have been the long hours of classes being viewed on mobiles constantly, resulting in headaches and eye-stress, though they had the freedom to attend the classes that they wished to. One good thing was that at least the compulsory attendance of 67%, was waived off due to the varying conditions that the student might be going through. This might have been a source of great relief to the students and that might be why there are very few students with severe stress levels in this study.

A 40% incidence of mild levels of stress in 118 college women was seen in this study which can be attributed to the fact that this study was conducted when the students were habituated to the online mode of teaching for the past one year and were able to cope with it much better than the others due to maybe better resilience and better family conditions. They were maybe able to decipher the news obtained from multiple sources of media better and had learnt that it was important to sit tight and ride out this situation as well as they can. The news of vaccinations being available for the 18+ group also would have led to some kind of relief in stress. It is also possible that this student sample might not have fallen sick or would have recovered soon, if ill.

An incidence of 3% severe stress level could be because of deteriorating family conditions due to loss of job or sources of income, unavailability of appropriate devices and connectivity, unsuitable family environment, feelings of helplessness or frustration, lack of textbooks, natural disasters like cyclones or even domestic violence. All the reasons mentioned in the previous paragraph also could be applicable to these students albeit at a magnified level.

Thus, it can be said that in the present study, the students' overall level of stress (i.e., average level for all the four mentioned sub-scales for stress) was found to be moderate, which is quite concerning according to the interpretation in Manual of Student Stress Inventory by Mohamed Arip 2015 [5]. These students could have medium levels of resilience to stress and are average achievers with average self-motivation. This result is parallel to several previous findings mentioned previously.

Conclusion
1. The majority of the College women (57%) suffer from a Moderate Stress level, followed by Mild (40%) and Severe Stress levels (9%).
2. The Academic and Environmental factors have more mean value than the other two subscales, which shows that a maximum of college women were concerned slightly more about their Academic and Environmental stressors than Physical and Inter-relationship stressors.
3. The difference in mean values amongst the four subscales is not really too much.
4. COVID-19 pandemic and subsequent lockdowns with no access to printed textbooks or no access to college library along with being inflicted with the pandemic could be the reasons for moderate and severe stress amongst college women.
5. The college women who are falling in the category of moderate or severe levels of stress, are not really coping with stressful situations well.
6. The incidence of severe stress level was only (3%) in the undergraduate college women may be due to no insistence on compulsory attendance in classes, strict

adherence to the COVID-19 protocol, better immune system, good physical health, good social connectedness, ability of getting along with people on the mobiles through video or audio calls, better self-motivation, and time-management. Also, only the final year students had to appear for online final examination. Additionally, my college has been organising several webinars on COVID-19, Psychological issues and other needed resources, where students could participate. Online Fresher's welcome, Farewell sessions, Sports Day, Annual Day etc. were held to keep the students engaged and involved. Peer mental-health initiatives have been working hard to listen to the issues of students and also teacher mentors are working with the students to lessen their isolation. This can be another reason for the low level of severe stress.

On the basis of this study, it can be recommended that all students should be counselled at set intervals by their student mentors and teacher-mentors to address any issues, if necessary. Online interaction sessions of a class can be held so that students can know each other better. Parents can be counselled to not put unrealistic pressure on their wards. Teachers should be like friends to their students, understanding their issues and flexible in approach during this pandemic and even otherwise.

A further study can be done on the severely stressed cases to analyses the causes for the severe stress. It is rightly said that anyone who thinks positively can learn to tackle any kind of a situation with equanimity and ease.

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