Section: Community Medicine

Research

ASSOCIATION OF EFFECTS OF COVID-19 PANDEMIC WITH STRESS, ANXIETY AND DEPRESSION AMONG STUDENTS OF CLASS 9th-12th IN THE SCHOOLS OF DISTRICT AMRITSAR

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Abstract

Background: Adolescence is a tumultuous period of life where provision of stable environment is of paramount importance for proper growth and development. Disruption of this stability due to COVID-19 and its related lockdowns may have had huge effect on the individuals going through this turbulent period of life. **Materials and Methods:** A cross sectional study was conducted among students of 9th -12th class of government and private schools of urban and rural areas of Amritsar. Sample size was calculated using formula N > 4pq/ d2. Data was collected during the period of one year. Pre tested, semi structured questionnaire and DASS -21 scale were used. Chi squared tests were applied and statistical analysis was conducted using Epi-Info. P value <0.05 was considered to be statistically significant. **Result:** The prevalence of Stress, Anxiety and Depression was found to be 53%, 58% and 54% respectively having significant associations with online teaching and loneliness due to COVID-19. **Conclusion:** Stress, anxiety and depression were associated with factors like consistency with online classes, availability of device for online classes, academic performance & insecurity due to lockdown and loneliness. There is need to set up a healthy routine, busy enough to keep the students engaged in academics as well as extra-curricular activities to reduce the risk of stress, anxiety and depression among adolescents.

INTRODUCTION

India is the country with largest adolescent population in the world, where 21% (243 million) of the population consists of the age group of 10-19 years. Worldwide there are 1.2 billion adolescents, which is approximately 1 in every 6 persons.[1] Although adolescence is the healthiest period of life, rapid changes in mental and physical growth along with evolving understanding of the world can overwhelm an adolescent outside his/her coping capacity and put them at an increased risk of mental disorders, most commonly mood disorders like stress, anxiety and depression. It is a ripe stage where the onset of many psychiatric illnesses increases sharply.

Stress is the body's reaction to an unpleasant factor. Stress goes away once the threat is gone and does not impair the lifestyle of an individual. Usually, it is a response to daily pressures or a threatening situation. But if sustained for longer periods, it can give rise to Anxiety which doesn't go away when the threat ceases and can significantly impair social, occupational and other important areas. Various studies done in India report prevalence of stress among school students ranging from 40%-50%.[2-4] Anxiety is now the leading mental health problem around the world, with its incidence rising, especially among youth. Increasing numbers of children and adolescents are being diagnosed with Anxiety. Studies show that as many as one in eight children may experience significant anxiety. These figures could be underestimated since anxiety among a large number of children and adolescents goes undiagnosed owing to the internalized nature of its symptoms (Tomb & Hunter, 2004).[5] Anxiety is reported to be 17-59%,[3,6,7] among Indian adolescents. Unrelenting Stress and anxiety lay a foundation stone Depression. Depression affects adolescents far more often than many of us realize, as these years can be extremely rough. It is estimated that 1 in 20 teenagers, experience an episode of major depression, making it one of the most common medical illnesses young people face.[7] Indian studies conducted on adolescents

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report prevalence of depression to be 40% – 54%.[3,9]

Global prevalence of anxiety and depression increased by a massive 25% during the first year of COVID-19 pandemic, according to a scientific brief released by the World Health Organization (WHO) today. This information was labeled as just the tip of the iceberg by Dr Tedros Adhanom Ghebreyesus, WHO Director-General. One major causes of this increment are social isolation resulting from the pandemic. Loneliness, fear of infection, suffering and death of loved ones, grief after bereavement and financial worries have also all been cited as stressors leading to anxiety and depression. Young people are said to be the worst hit as they already are disproportionally at risk of suicidal and self-harming behaviors. Therefore, it is of paramount importance to study the adolescent population for the extent of how much they have been affected by COVID-19 pandemic and how this catastrophe has altered their present as well as their future.[10]

MATERIALS AND METHODS

Study Population

Students studying in 9th-12th class of government and private schools consisted the study population. Those who gave their written assent were included in the study whereas those who did not and those who were already suffering from a mental disorder were excluded from the study.

Study Period

1 year (1 st April 2020 – 31st March 2021)

Sample Size and Sampling Technique

Sample size was calculated using the prevalence rate of stress among students, found to be 47% in a similar study conducted at Chandigarh in the year of 20142. Formula N > 4pq/ d2 was used, where p= prevalence of the problem, q = (1-p) and d = absolute error/precision (taken as 5% for the current study)11. Assuming power of the study to be 80% and α to be 5% required sample size was calculated to be 399 using the above formula. Taking the non - response ratio to be 20%, the final sample size for the study was decided to be 480. However, 444 students participated in the study due to the prevailing COVID-19 pandemic and lockdowns.

Data Collection Tool

Data collection tools consisted of a pre-tested semi structured questionnaire developed to collect the desired information on the socio-demographic profile and contributory factors towards Stress, Anxiety and Depression and a standardized Depression Anxiety and Stress Scale -21 used for assessment of presence of Depression, Anxiety and Stress. DASS -2 1 consists of 3 subscales and each of the three DASS-21 subscales contains 7 items. Scores for depression, anxiety and stress are calculated by summing the subscale items individual scores which were marked on a likert scale of 0-312.

Methodology

After required ethical committee's and District Education Officer's approvals, 4 schools as per the selection criteria were randomly selected. Consents of Principals of selected schools were taken and students in equal representations from each class were selected using simple random sampling. Written informed consents were obtained from the parents/guardians of the selected students along with written assent from students themselves. Data was collected over the period of 1 year using self-administered, pre-tested, semi structured questionnaire and DASS -21 scale. Circulation of google forms was done among the students through whatsapp groups during COVID-19 lockdown and personal visits were conducted once restrictions were lifted. Visits to the schools were conducted in such a manner so that school's routine schedule was not disturbed. Students of only one class were studied during a visit and next visit was planned as per the convenience of the school's Principal. Students were sensitized regarding stress, anxiety and depression and instructions related to filing-up the forms were also discussed. After fully ensuring the students regarding the confidentiality of their responses performas were distributed to be filled. The performas were collected after an average period of 45 minutes.

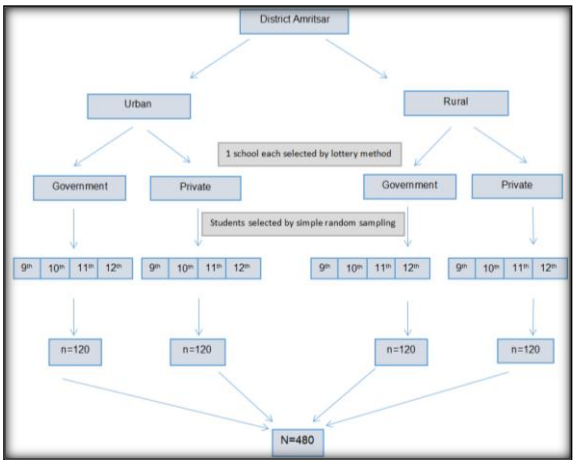

Figure 1: Sampling Technique used for the study.

Statistical Analysis

Prevalence of depression, anxiety and stress were calculated by dividing the number of students having score above the respective cut offs of DASS-21 by total students and was compared across various groups. Mean scores of all the subscales were calculated along with standard deviation of the same. Responses of each student were compiled using Microsoft excel and later imported into Epi-Info for the statistical analysis. The distribution of various variables was represented through frequencies and proportions whereas, for continuous variables mean ± standard deviations were calculated. Association of various contributing factors with three subscales was established by using Chi-square test where p-value of less than

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0.05 (on both sides) was considered to be statistically significant. If any of the expected cell value of <5 was found then Fisher's exact test was used. Those who were found to have stress, anxiety and depression were advised to seek counseling and appropriate treatment.

RESULTS

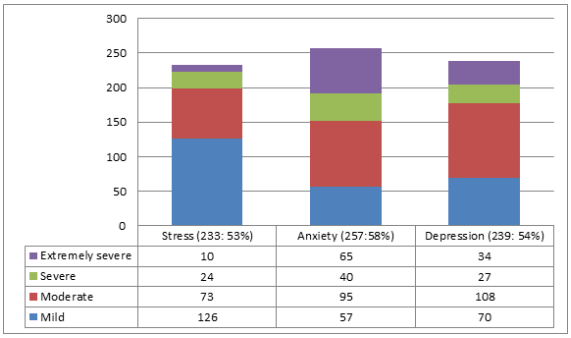

Figure 2: Distribution of depression, anxiety and stress in study participants (N = 444

Majority of the students, 218(49%) were of 16-17 years of age followed by 138 (31%) of those in the age group of 13-15 years and only 20% (93) were above 18 years of age. A total of 227 (51%) students were male and 217 (49%) students were female. Out of the total 444 study participants, students participating from rural areas were 245 (55%) whereas those from urban areas were 199 (45%).

The overall prevalence of Stress was 53% (233/444) in study participants with majority of them (126; 54%) having mild stress, anxiety was found to be in 257 (58%) students with most (95; 40%) having moderate anxiety and 239 (54%) study participants had depression with high prevalence (108; 46%) of moderate depression. [Figure 2].

Consistent availability of a device for attending online classes was found among 51% (226) while in 49% (218) it was not the case. However, unavailability of a device had highly significant association with depression (60%; p = 0.01) and anxiety (66%; p = 0.001). Those students who reported to be inconsistent with their online classes, had higher rates of depression (67%; p = 0.000), anxiety (68%; p = 0.001) and stress (64%; p = 0.003). Majority of the students (77%) reported to get insecure about their academic future, which was highly associated with depression (60%; p = 0.000), anxiety (64%; p = 0.000) and stress (59%; p = 0.000). A total of 172 students (39%) who reported to decline in their academic performance after the start of COVID-19 pandemic had higher rates of depression (57%), anxiety (62%) and stress (54%) among which anxiety had significant association. More than half of the students (265; 60%) reported of loneliness during the times of COVID-19 pandemic lockdown, which was highly associated with depression (60%; 0.001), anxiety (63%; p = 0.004) and stress (58%; 0.002).

Table 1: Association of effects of COVID-19 with depression, anxiety and stress in study participants (N = 444)

Variable	Depression(n=239)	Anxiety (n=257)	Stress (n=233)
Availability of device			
Yes (226)	109 (48)	114 (50)	110 (49)
No (218)	130 (60)	143 (66)	123 (56)
	χ2 - 5.80; df-1; p-0.01*	χ2 - 10.45; df-1; p- 0.001*	χ2 - 2.67; df-1; p- 0.10
Consistent with online classes			
Yes (293)	138 (47)	154 (52)	136(46.2)
No (151)	101 (67)	103 (68)	97 (64)
	χ2 - 15.7; df-1; p-0.000*	χ2 - 10.01; df-1; p-0.001*	χ2 - 12.69; df-1; p- 0.003*
Insecurity about academic performance due to COVID			
Yes(341)	204(60)	219(64)	202(59)
No (103)	35(34)	38(37)	31(30)
	χ2 - 21.25; df-1; p = 0.000*	χ2 - 24.23; df-1; p = 0.000*	χ2 - 26.93; df-1; p = 0.000*
Academic performance during COVID			
Good (272)	84 (49)	88 (51)	85 (49)
Bad (172)	155 (57)	169(62)	148 (54)
	χ2 - 2.81; df-1; p- 0.09	χ2 - 5.20; df-1; p-0.02*	χ2 - 1.05; df-1; p- 0.30
Loneliness during COVID			
Yes (265)	159 (60)	168 (63)	155(58)
No (179)	80 (45)	89 (50)	78 (44)
	χ2 - 10.07; df-1; p-0.001*	χ2 - 8.19; df-1; p-0.004*	χ2 - 9.53; df-1; p-0.002*

DISCUSSION

Prevalence of anxiety was reported be highest (58%) in the present study, which was followed by depression (54%) and stress (53%). Similar results have been noticed in different parts of country where the prevalence of stress, anxiety and depression ranged from 19%-49%; 24%-81% and 21%-65%.[2,3,11-13] In our study, 27% of the anxious, 14% of depressed and 4% of stressed were graded to be suffering from extremes of these conditions.

The pandemic of COVID-19 undoubtedly had impact on mental health of students. Stress (64%), anxiety (68%) and depression (67%) were seen significantly higher among those students who were not consistent with their online classes. Similarly, those who had insecurity about their future academic performance had high levels of stress (59%), anxiety (64%) and depression (60%). This

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may be attributed to the disruption of normal school routine of the students and new trend of online classes. Because of less student teacher interaction, quality of teaching falls and this reflects upon the academic result of the students. Many students reported loneliness during COVID-19 which was significantly associated with stress (58%), anxiety (63%) and depression (60%). Isolation at homes, home schooling, loss of physical contact with friends and family resulting into interruption of social life due to COVID-19 lockdown is the major contributor to this finding.[14] Peer interaction and quality time with friends in the form of activities like sports and indoor games is important to protect a child from feeling lonely in such times.

CONCLUSION

Present study not only highlights the prevalence of stress, anxiety and depression among the students of classes 9th-12th but also emphasizes on the negative impacts of COVID-19 on the already unstable life of an adolescent. COVID-19 pandemic has pushed many adolescents towards loneliness and academic insecurity. Since public lockdowns can cause a disruption in daily routines easily, a personal structure or routine that is rewarding should be set that brings a sense of control. Predictability of routine can help fight the out-of-control feelings that stress, anxiety and depression can cause.

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