Research article

Assessment of the psychological impact and perceived stress due to COVID-19 lockdown in Young Adult population of India.

M. Sreelakshmi¹*, Irfanul Haque², Sarita Jangra Bhyan³, Ankit Gaur⁴, Aashi Jain¹, Amrita Kumari¹, Besty Thomas¹, Nancy Goel¹, Rashi Chauhan¹.

Department(s) and institution(s)

1. Pharm.D Intern, Department of Pharmacy Practice, Teerthanker Mahaveer College of Pharmacy, Moradabad, Uttar Pradesh, India.

2. Head of Department, Department of Clinical Pharmacology Jaypee Hospital, Noida, Uttar Pradesh, India.

3. Assistant Professor, Department of Pharmacy Practice, Teerthanker Mahaveer College of Pharmacy, Moradabad, Uttar Pradesh, India.

4. Clinical Pharmacist, Department of Pharmacy, Dr. BL Kapur Memorial Hospital, Delhi, India.

*Corresponding contributor: M. Sreelakshmi

Address: Institutional - Teerthanker Mahaveer College of Pharmacy, Moradabad, Uttar Pradesh-244001.

Postal – 210, PTS Colony, Malviya Nagar, New Delhi – 110017.

E-mail – sreelakshmi_710@yahoo.in
Abstract

Context: COVID-19 pandemic and the Lockdown implemented as a measure to contain the virus spread has taken a toll over the psychological well-being of the people especially the young adults, the confinement along with the environment of a highly infectious pandemic around the individual are put under great stress.

Aims: The current study aims to assess the psychological impact and perceived stress due to COVID-19 lockdown in Young Adult population of India.

Settings and Design: It is a cross sectional, observational study.

Methods and Material: The survey was conducted using Google forms involving snowball sampling technique which obtained 267 responses in total. (IES-R) and (PSS) scales were used for the study.

Statistical analysis used: Descriptive analysis were performed on the sociodemographic parameters and the comparison of means were done by Chi-square test in SPSS Statistic 21.0 (IBM SPSS Statistics, New York, United States).

Results: The mean IES-R and PSS scores obtained for the population in this study was 25.64±18.95 and 18.27±6.10 respectively. Out of the 267 respondents in total 61.4% (n=164) of them were males. Maximum of the respondents 62.54%(n=167) belonged to the age group of 18-23 with mean age being 23.14±2.913. 92.5% of the respondents were unmarried and only 26.6% belonged to the rural part of India. Females, younger individuals were found to have higher IES-R and PSS scores.
Conclusions: There is significant psychological burden and stress on the young Indian population with females and younger individuals particularly students are the most vulnerable population.

**Key-words:** COVID-19 lockdown, Psychological Impact, Perceived Stresses-R scale, PSS Scale, Young adults

**Key Messages:** Psychological wellbeing shall be one of the main priorities during this pandemic and measures shall be taken to maintain its balance.
Introduction

COVID-19 is a severe respiratory infection caused by a novel strain of coronaviruses named as SARS-CoV2 which was first isolated in Wuhan, Hubei, China in December 2019. Since then it alarmingly spread across the globe. The WHO declared it as public health emergency of concern on the 30th of January 2020 affecting 114 countries across the world and a pandemic on the 11th of March 2020. As per the data available on the 06th of July 2020, there were 11,125,245 confirmed cases across the globe and in India with 244814 number of active cases, 409082 cured or discharged and 19268 deaths. 1,2

The mode of transmission of SARS-CoV2 virus is through droplets, close contact, saliva, urine and feces. The commonly presented symptoms include fever, cough, diarrhoea, vomiting, fatigue.3 With no specific treatment or vaccine currently available for it, Social distancing, hand sanitisation/washing with soap, covering the face with the mask remain the best suggestive measures of prevention.

The Indian government declared the first nationwide lockdown on the 24th of March 2020 as a measure to control the spread of COVID-19 in country. The movement across the country was restricted with people confined to their homes for several days that followed.

With the freedom and liberty of movement being lost the young adults who make up most of India’s population are struck with boredom and excessive consumption of social media which is flooded with both appropriate and inappropriate content
regarding COVID-19 which eventually puts the individual into deep stress and negatively impacts the mind psychologically. The constant thought of confinement and the global burden caused by the COVID-19 makes it an epidemiological as well as a psychological concern.

The stress and the negative psychological impact due to the COVID-19 lockdown can be expected to cause long term psychological morbidities like Post Traumatic Stress Disorder and Depression like of that reported due to the SARS epidemic of 2003. In India every 3rd person is a young adult and the long-term psychological morbidities associated with COVID-19 will significantly interfere with every aspect of the country’s growth and development.

Since not much data has been published regarding the psychological impact and perceived stress among the general Indian population as compared to the other affected countries, the current study aims to assess the psychological impact and perceived stress among the young adults in India due to the COVID-19 lockdown.

This shall be the first study as per the best of our knowledge that deals with the assessment of psychological impact and perceived stress among the young adults in India.

**Aim of the study**

To assess the psychological impact and perceived stress among the young adults due to COVID-19 lockdown in India.
Materials and Methods

It is a cross sectional, observational study design, the questionnaire for the survey was designed using Google Forms which included the sociodemographic details, the IES-R (Impact of Event Scale -Revised) Scale to assess the psychological impact and the PSS (Perceived Stress Scale) to assess the perceived stress. The link of the from was circulated in a snowball sampling method through WhatsApp and mail. The ethical approval from the concerned authority of Jaypee Hospital, Noida (with approval registration number JHCL/CP/004/2020-21) was obtained to conduct the study. The survey was open to responses from 06 June 2020 to 17 June 2020 and it took 5-10 minutes to complete. The survey assured anonymity and confidentiality of the data to the respondent, and only proceeded to collect the data once the respondent clicked on the willingness to consent option voluntarily without expecting any benefit from the study.

Inclusion Criteria of the study

1. Age between 18-35 years.
2. Has access to internet and understands English.
3. Willing to participate and gives consent.
4. Resident of India.

Exclusion Criteria

1. Age below 18 years or above 35 years.
2. Not willing to participate and does not give consent.
Instruments used

1. Impact of Event Scale-Revised (IES-R) : IES-R is a 22 item self-reporting scale which has been widely used in researches and well validated in Indian population to assess the emotional distress due to a specific event in life measuring the traumatic symptoms in the preceding week with a scoring from 0 to 4 for each question. It also has 3 sub domains measuring the hyper-arousal, intrusion and avoidance symptoms. The total score may range from 0 to 88. Creamer et al. has reported a cut off of 34 as an indication of PTSD however, this scale is not concussively used to diagnose PTSD in clinical settings.

2. Perceived Stress Scale (PSS): PSS is a 10-item self-administered questionnaire to assess perceived stress in accordance with the symptoms of the preceding month on a 5-point Likert scale of 0-4. The total score calculated may range from 0-40 with greater composite scores indicative of greater perceived stress.

Statistical Analysis

Descriptive analyses were conducted to describe the sociodemographic characteristics of the respondents. Chi- square test was used to compare the means of the sociodemographic variables with the IES-R and PSS scores obtained. The statistical analyses were done with SPSS Statistic 21.0 (IBM SPSS Statistics, New York, United States).
Results

The results from the study demonstrate that out of the 267 respondents in total 61.4% (n=164) of them were males. Maximum of the respondents 62.54% (n=167) belonged to the age group of 18-23 with mean age being 23.14± 2.913. 92.5% of the respondents were unmarried and only 26.6% belonged to the rural part of India. 94.4% people reported no previously existing chronic illness. Almost half of the respondents (53.6%) were graduates and 65.9% of the population consists of students. 1.1% of respondents lost their jobs during this pandemic, 7.9% had to discontinue working and 24.7% people were working from home. 93.3% respondents were living with their families during the lockdown and 2.2% were living alone as indicated in Table 1.

Table 1: Sociodemographic profile of the survey respondents

| Variables           | Frequency (n=267) | Percentage (%) |
|---------------------|-------------------|----------------|
| **Gender**          |                   |                |
| Male                | 164               | 61.4           |
| Female              | 103               | 38.6           |
| **Age (Mean±SD)**   |                   |                |
| 18-23               | 167               | 62.54          |
| 24-29               | 87                | 32.58          |
| 30-35               | 13                | 4.88           |
| **Marital status**  |                   |                |
| Unmarried           | 247               | 92.5           |
| Married             | 20                | 7.5            |
| **Residence**       |                   |                |
| Rural               | 71                | 26.6           |
| Urban               | 196               | 73.4           |
| **Chronic illness** |                   |                |
| Yes                 | 15                | 5.6            |
| No                  | 252               | 94.4           |
| **Education**       |                   |                |
| Post graduate       | 68                | 25.5           |
| Graduate            | 143               | 53.6           |
| High school         | 25                | 9.4            |
| Doctorate           | 31                | 11.6           |
The mean IES-R and PSS scores obtained for the population in this study was 25.64±18.95 and 18.27±6.10 respectively. More than half (57.3%) of the population had IES-R scores less than 23 which indicates no clinical concern but the scores of 22.5% of the population was high enough to suppress the immune system functioning. The mean scores of sub domains of IES-R scale i.e.; Hyperarousal, Intrusion and Avoidance were 0.96±0.89, 1.16±0.96 and 1.28±0.87 respectively. More than half of the population (69.3%) experienced moderate stress, as indicated in Table 2.

**Table 2: Total IES-R and PSS scores**

| Scores                                | Frequency (n=267) | Percentage (%) |
|---------------------------------------|-------------------|----------------|
| 0-23 (No clinical concern)            | 153               | 57.3           |
| 24-32 (Partial PTSD)                  | 42                | 15.7           |
| 33-38 (Probable diagnosis of PTSD)    | 12                | 4.5            |
| 39 and above (Suppress immune system’s functioning) | 60 | 22.5 |
| Sub – Domains                         | Mean (n=267)      | Standard Deviation |
| Hyper -arousal                        | 0.96              | 0.89           |
| Intrusion                             | 1.16              | 0.96           |
| Avoidance                             | 1.28              | 0.87           |

† SD = standard deviation, NA= not applicable
Scores | Frequency (n=267) | Percentage (%)  
--- | --- | ---  
0-13 (low stress) | 63 | 23.6  
14-26 (moderate stress) | 185 | 69.3  
27-40 (high stress) | 19 | 7.1  

Females, unmarried respondents, urban residents were found to be more associated with higher IES-R and PSS scores. However, the moderate stress among the individuals those who had pre-existing chronic diseases were higher with low psychological impact.

The statistical comparison using Chi-square test shows that there was statistically significant difference (P<0.001) between the PSS and IES-R scores when compared with Gender and Marital status. However, there was no statistically significant difference (P>0.05) when these scores were compared with residence and history of chronic illness as shown in Table 3.

**Table 3: Statistical comparison of the PSS and IES-R scores with Gender, Marital status, residence and history of chronic illness using Chi-square test**
| TOTAL PSS SCORE | Total | Rural | Urban | χ² | P-value |
|----------------|-------|-------|-------|----|---------|
| 0-13           | 63    | 23    | 40    | 4.849 | 0.089    |
| 14-26          | 185   | 42    | 143   |     |         |
| 27-40          | 19    | 6     | 13    |     |         |
| TOTAL IES SCORE | 0-23  | 153   | 41    | 112 | 0.181   |
| 24-32          | 42    | 12    | 30    |     |         |
| 33-38          | 12    | 3     | 9     |     |         |
| 39 and above   | 60    | 15    | 45    |     |         |

| Residence Variables | Total | Rural | Urban | χ² | P-value |
|---------------------|-------|-------|-------|----|---------|
| TOTAL PSS SCORE     |       |       |       |    |         |
| 0-13                | 63    | 23    | 40    | 4.849 | 0.089    |
| 14-26               | 185   | 42    | 143   |     |         |
| 27-40               | 19    | 6     | 13    |     |         |
| TOTAL IES SCORE     | 0-23  | 153   | 41    | 112 | 0.181   |
| 24-32               | 42    | 12    | 30    |     |         |
| 33-38               | 12    | 3     | 9     |     |         |
| 39 and above        | 60    | 15    | 45    |     |         |

| Chronic Illness Variables | Total | Yes | No | χ² | P-value |
|---------------------------|-------|-----|----|----|---------|
| TOTAL PSS SCORE           |       |     |    |    |         |
| 0-13                      | 63    | 62  | 40 | 2.628 | 0.269  |
| 14-26                     | 185   | 172 | 143|     |         |
| 27-40                     | 19    | 18  | 13 |     |         |
| TOTAL IES SCORE           | 0-23  | 153 | 5  | 148 | 4.117  |
| 24-32                     | 42    | 3   | 39 |     |         |
| 33-38                     | 12    | 1   | 11 |     |         |
| 39 and above              | 60    | 6   | 54 |     |         |

Out of the 185 respondents who reported undergoing moderate stress fell into the age group of 18-23 and higher scores of IES-R scale signifying partial to severe PTSD was also reported in the same age group. Respondents living with the family were reported to have representing moderate stress and 55 of them had severe PTSD symptoms.
Student and graduate respondents reported facing moderate to severe stress and severe symptoms of PTSD. Table 4 shows that there was no statistically significant difference (P>0.05) when PSS and IES-R scores were compared with different variables such as age, living with, employment status and education.

Table 4: Statistical comparison of PSS and IES-R scores with Age, Living with, Employment status and Education using Chi-square test

| Age | Variables          | Total | 18-23 | 24-29 | 30-35 | χ²   | P-value |
|-----|--------------------|-------|-------|-------|-------|------|---------|
| TOTAL PSS SCORE | 0-13              | 63    | 36    | 23    | 4     | 2.367| 0.669   |
|       | 14-26              |       |       |       |       |      |         |
|       | 27-40              |       |       |       |       |      |         |
|       | 185                | 121   | 56    | 8     | 1     |      |         |
|       | 19                 | 10    | 8     | 1     |       |      |         |
| TOTAL IES SCORE | 0-23              | 153   | 94    | 53    | 6     | 3.974| 0.689   |
|       | 24-32              |       |       |       |       |      |         |
|       | 33-38              |       |       |       |       |      |         |
|       | 39 and above       | 60    | 39    | 16    | 5     |      |         |
|       | 42                 | 25    | 15    | 2     |       |      |         |
|       | 12                 | 9     | 3     | 0     |       |      |         |
| Living with | Variables          | Total | With family | With friends | Alone | χ²   | P-value |
| TOTAL PSS SCORE | 0-13              | 63    | 58    | 2     | 3     | 2.863| 0.581   |
|       | 14-26              |       |       |       |       |      |         |
|       | 27-40              |       |       |       |       |      |         |
|       | 185                | 173   | 9     | 3     |       |      |         |
|       | 19                 | 18    | 1     | 0     |       |      |         |
| TOTAL IES SCORE | 0-23              | 153   | 144   | 4     | 5     | 6.818| 0.338   |
|       | 24-32              |       |       |       |       |      |         |
|       | 33-38              |       |       |       |       |      |         |
|       | 39 and above       | 60    | 55    | 5     | 0     |      |         |
|       | 42                 | 38    | 3     | 1     |       |      |         |
|       | 12                 | 12    | 0     | 0     |       |      |         |
| Employment status: | Variables | Total | Student | Employed | Unemployed | χ²  | P-value |
| TOTAL PSS SCORE | 0-13              | 63    | 37    | 19    | 7     | 3.247| 0.517   |
|       | 14-26              |       |       |       |       |      |         |
|       | 27-40              |       |       |       |       |      |         |
|       | 185                | 126   | 43    | 16    |       |      |         |
|       | 19                 | 13    | 3     | 3     |       |      |         |
The statistical comparison shows that there was statistically significant difference (P<0.001) between the PSS and IES-R scores when compared with change in working pattern due to COVID-19 lockdown as shown in Table 5. Moderate to severe PSS scores and severe PTSD symptoms were noted in respondents working from home.

Table 5: Statistical comparison of PSS and IES-R scores with change in working pattern due to COVID-19 lockdown using Chi-square test

| Change in working pattern: | Total | NA | Working from home | Working from office | Discontinued working | Lost Job | χ²  | P-value  |
|---------------------------|-------|----|-------------------|---------------------|----------------------|----------|-----|----------|
| Variables                 |       |    |                   |                     |                      |          |     |          |
| TOTAL PSS SCORE           |       |    |                   |                     |                      |          |     |          |
| 0-13                      | 63    | 31 | 19                | 9                   | 3                    | 1        | 14.989 | <0.001   |
| 14-26                     | 185   | 113| 45                | 11                  | 14                   | 2        | 2    |          |
| 27-40                     | 19    | 13 | 2                 | 0                   | 4                    | 0        | 0    |          |
| TOTAL IES SCORE           |       |    |                   |                     |                      |          |     |          |
| 0-23                      | 153   | 89 | 39                | 14                  | 10                   | 1        | 13.282 | <0.001   |
| 24-32                     | 42    | 27 | 12                | 1                   | 2                    | 0        | 0    |          |
| 33-38                     | 12    | 6  | 5                 | 0                   | 1                    | 0        | 0    |          |
| 39 and above              | 60    | 35 | 10                | 5                   | 8                    | 2        | 2    |          |
Discussion

The present survey aimed at assessing the psychological impact and perceived stress of COVID-19 lock down in the young adults of India as they represent most of the country’s population.

Major of the survey respondents were males (61.4%) which is similar to that of the study published by (Varshney M et al.,2020). Majority of the respondent were well educated, urban residents and did not have any pre-existing chronic illness like the results obtained by (El-Zoghby SM et al.,2020) in a similar survey conducted in Egypt population. The mean IES-R score obtained from the study was 25.64 ± 18.95 which is greater than 19.79 ± 13.89, reported by (Varshney M et al.,2020) in Indian population but lesser than 32.98 ±15.42, reported in Chinese population by (Wang C et al.2020).8,9,10

It was found from the study that more than half (52.3%) of the population who responded to the survey experienced partial to severe PTSD symptoms similar to the percentage (53.8%) obtained by (Wang C et al.,2020) in Chinese population.11 Our study demonstrated that 76.4% people are under moderate to severe stress with a mean score of 18.27±6.10 similar to the results (18.5) obtained by (Chua et al. 2004) during the SARS outbreak.12
The results obtained from the study suggested that females and people belonging to a younger age group (18-23) experienced more psychological impact and perceived stress from COVID-19 which is in congruence with the studies conducted by (El-Zoghby SM et al., 2020), (Wang C et al., 2020) and (Mazza C et al., 2020) in Egypt, China and Italy respectively.\textsuperscript{9,11,13} The existing literature supports that people with existing chronic illness have more psychological impact due to COVID-19 however, our study could not draw comparison to it.

Limitations of the study:

1. The sample size is small hence cannot represent the entire picture of the country and its psychological and stress status.
2. The bias and limitations associated with snowball sampling technique exists in the study.
3. The survey could only be administered to people who have internet access and understand English.

Despite the study limitations, it provides insights into the psychological impact and the stress undergone by the young adults of India during the period of COVID-19 lockdown. And the fact that most of the study results were supported by the existing literature results strengthens the credibility of the study. The study definitely provides a small picture of the major concern of the hour i.e.; the mental well-being of our country’s young minds. The deteriorating psychological wellbeing of the young adults shall put them in the risk of serious psychological morbidities and addictions. This study shall help in framing up strategies to overcome and curb this hurdle.
Conclusion

The study concluded that the young adults of India are psychologically impacted by the COVID-19 lockdown and are under great amount of perceived stress. Females and younger respondents majorly students can be identified as the vulnerable population from the study. COVID-19 has clenched its claws deep into not only the physical health status of the world but also its psychological well-being along with creating a huge socioeconomic burden.

Conflict of interest: Nil

Acknowledgement: We are grateful to all the participants of the study and always obliged to Dr. Seema Singh Parmar (Associate Professor, Department of Psychiatry, Teerthanker Mahaveer Medical College and Research Centre, Moradabad, Uttar Pradesh) for being the source of inspiration.

References

1. E. Mahase. China coronavirus: WHO declares international emergency as death toll exceeds 200. BMJ 2020; 368 :408.

2. Coronavirus. Available from: https://www.who.int/emergencies/diseases/novel-
3. W-J Guan, Z-Y Ni, Y Hu, W-H Liang, C-Q Ou, J-X He et al. Clinical characteristics of 2019 novel coronavirus infection in China. N Engl J Med 2020; 382:1708-1720.

4. Mak I.W., Chu M.C., Pan P.C., Yiu M.G., Chan V.L. Long-term psychiatric morbidities among SARS survivors. Gen Hosp Psychiatry 2009; 31:318-326.

5. Impact of Event Scale -Revised, Source: The Hartford Institute for Geriatric Nursing, New York University, Rory Meyers College of Nursing.

6. John PB, Russell S, Russell PS. The prevalence of posttraumatic stress disorder among children and adolescents affected by tsunami disaster in Tamil Nadu. Disaster Manag Response 2007; 5:3-7.

7. Cohen S., Kamarck T. and Meremstein R. A global measure of perceived stress. Journal of Health and Social Behavior 1983; 24: 386-396.

8. Varshney M, Parel JT, Raizada N, Sarin SK. Initial psychological impact of COVID-19 and its correlates in Indian Community: An online (FEEL-COVID) survey. PLoS ONE 2020;15(5): e0233874.

9. El-Zoghby SM, Soltan EM, Salama HM. Impact of the COVID-19 Pandemic on Mental Health and Social Support among Adult Egyptians. J Community Health 2020;45(4):689–95.

10. Wang C, Pan R, Wan X, Tan Y, Xu L, McIntyre RS, et al. A longitudinal study on the mental health of general population during the COVID-19 epidemic in China. Brain, Behavior, and Immunity 2020; 87:40–8.

11. Wang C.; Pan R.; Wan X.; Tan Y.; Xu L.; Ho C.S.; Ho R.C. Immediate Psychological Responses and Associated Factors during the Initial Stage of the
2019 Coronavirus Disease (COVID-19) Epidemic among the General Population in China. Int. J. Environ. Res. Public Health 2020; 17: 1729.

12. Chua SE, Cheung V, Cheung C, McAlonan GM, Wong JW, Cheung EP, et al. Psychological effects of the SARS outbreak in Hong Kong on high-risk health care workers. Can J Psychiatry 2004; 49(6):391-3.

13. Mazza C. A nationwide survey of psychological distress among Italian people during the COVID-19 pandemic: Immediate psychological responses and associated factors. Int. J. Environ. Res. Public Health 2020; 17(9):3165.