EUROPEAN JOURNAL OF BIOMEDICAL AND PHARMACEUTICAL SCIENCES
http://www.ejbps.com

ISSN 2349-8870
Volume: 12
Issue: 4
Year: 2025

IMPACT OF COVID-19 LOCKDOWN ON LIFESTYLE-RELATED BEHAVIOURS: A WEB-BASED STUDY

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Article Received on 27/02/2025 **Article Revised on 17/03/2025** **Article Accepted on 07/04/2025**

ABSTRACT

Background: The COVID-19 pandemic and the subsequent lockdown measures imposed worldwide have significantly impacted various aspects of people's lives, including their lifestyle-related behaviours. This web-based study investigates the multifaceted effects of the pandemic-induced lockdown on behaviours such as physical activity, dietary patterns, and mental well-being. **Objectives:** To prevent community spread of COVID-19, lockdown measure which led people to change and adopt a newer lifestyle to deal with this stressful period. The study was conceived to assess the impact of lockdown on lifestyle and stress coping mechanism. **Methods:** It was web based respondent driven study. A representative sample of various age groups, occupation and education were recruited. A structured questionnaire was used to elicit responses through WhatsApp. The study was conducted from May-June, 2020. **Results:** The study had a female preponderance (69.3%) with subjects in the age group of 21-40 years as 61.5%. It was agreed by 75.5% subjects that they had dietary modification, reducing alcohol intake in 17.1%, including immunity boosters in diet by 14.8% and physical activity was intentionally included by more than three fourth (87.5%). **Conclusion:** Lockdown restrictions during COVID-19 has led to change in eating pattern, exercise and movement patterns and also to take adequate care of their physical and mental health during the current demanding times. Use of traditional and indigenous system of medicine has also increased in view of COVID-19 pandemic.

KEYWORDS: COVID-19, Lifestyle, Lockdown, Resilience, Stress.

INTRODUCTION

The world is experiencing a pandemic of COVID-19 caused by SARS-CoV-2. In an attempt to cut down the spread of the virus in India and to prevent the community spread (Stage 3 of the disease process) a 21 days lockdown (complete restriction on all international and domestic travel, social isolation, and suspension of all non-essential services) was announced by Prime Minister of India from 24th March 2020. On one hand, this could be a vital step in stemming the spread of the virus, however, on the other, there are likely to be issues related to the impact of this lockdown on patients with lifestyle diseases.[1] Lockdown imposed social isolation. Social Isolation can be major stress that can contribute to widespread change in the lifestyle of the population.[2]

The pace of life slowed down in lockdown, making people prone to a unique challenge in terms of access to nutritious food, money, basic supplies, social care, and medicine to support their physical health. These unprecedented times make it difficult to maintain a healthy lifestyle especially among people with predisposed health conditions and the elderly.[3]

The Covid-19 coronavirus pandemic has caused a lot of significant changes in our daily lives, and these apply to how we practice our diet and take care of our health. Since the lockdown situation due to the emergence of COVID-19 has been associated with restriction of physical activities and limited availability of resources to maintain a healthy lifestyle, it has resulted in an increase in the stress level of the general public.[4,5] Daily disinfection and proper hygienic practices have little effect if we always compromise our immune systems because of unhealthy lifestyle practices. This will make people more prone to lifestyle diseases. Thus it is important to inculcate healthy lifestyle practices to prevent chronic diseases and to cope with stress during the lockdown.

It is important to protect both the physical and mental health of individuals in this stressful period. Coping with stress is defined as all activities undertaken in a stressful situation. Dealing with stress is predominantly classified as a process, strategy, or style.[6] The study has been taken up in general public to determine modification of lifestyle during lockdown period and their stress coping mechanism in an unfamiliar life pattern arisen due to lockdown.

MATERIAL AND METHODS

This internet-based cross-sectional study was conducted from May-June, 2020. The sample size was calculated based on the assumption of change in lifestyle and diet due to COVID-19 as 50%, absolute precision of 7%, and a confidence level of 5% which gave a total of 250 subjects. The study included the persons who were 18 years or more of age, with access to mobile phone device and social network account to invite their peers and giving consent to participate in the study by submitting complete proforma. Those submitting incomplete proformas were excluded from the study.

A web-based respondent-driven sampling (WRDS) technique was utilized to recruit participants. A representative sample population from various age groups, occupation and education of both the gender was recruited by the authors as the first waves (core seeds). We selected a respondent as a seed of WRDS if he/she was committed to generate recruitment of peers in the study. Participants in the seed groups were informed of their role to assist in the recruitment of other participants through their individual social networks. The recruitment terminated after it got exhausted.

After being invited to enrol in the study through Whatsapp, the seeds were sent a web link that had information about the study and the questionnaire. The average time to complete the questionnaire is approximately 5-10 min. The consent was considered implied when a completed questionnaire was received. The web-based questionnaire had a total of 20 questions. These questions were divided into 5 domains. Diet pattern (4 items), physical activity (6 items), medication (3 items), hygiene (3 items), and coping mechanism (4 items). To determine the feasibility and reliability of the questionnaire, the web-based survey questionnaire was piloted among 20 subjects of varying ages and gender. The pilot group provided the investigators with recommendations to further optimize the questionnaire.

For coping mechanisms, Brief Resilient Coping Scale (BRCS) was used.[7] It captures tendencies to cope with stress and focuses on problem-solving, altering difficult situations, and controlling reactions to problems. It ranges from 1 to 5 scale response with 1 being "does not describe me at all" and 5 as "describes me very well". The total sum is categorized as low resilience (4-13), medium resilience (14--16), and high resilience (17-20). Prior permission from institutional research and ethics was taken.

Data were entered in Microsoft Excel spreadsheet and analyzed using SYSTAT software version 13.2 for Windows. Findings were summarized using frequencies, means (with standard deviation), and proportions.

RESULTS

A total of 257 respondents sent the completed forms. In the age group of 21-40 years, there were 61.5% subjects. There was a female preponderance with almost 70% females. Maximum subjects had a private job (48.2%), followed by a government job (15.6%). More than half of the subjects were educated with post-graduate degrees (56.8%). Detailed characteristics of subjects are tabulated in Table 1.

Table 1: Demographic characteristics of respondents (N=257).

Demographic variables	Categories	Frequency (%)
Age category	<20 years	9 (3.5%)
	21-30	99 (38.5%)
	31-40	59 (23.05)
	41-50	73 (28.4%)
	>50 above	17 (6.6%)
Gender	Female	178 (69.35)
	Male	79 (30.7%)
Occupation	Freelancer	16 (6.2%)
	Govt. Job	40 (15.6%)
	Home maker	31 (12.1%)
	Private Job	124 (48.2%)
	Retired	5 (1.9%)
	Unemployed	41 (16.0%)
Education	Matric	4 (1.6%)
	12^{th}	28 (10.9%)
	Graduate	79 (30.7%)
	Postgraduate	146 (56.8%)

Income	< Rs. 10000	15 (5.8%)
	10000-15000	73 (28.4%)
	50000-100000	42 (16.3%)
	>100000	127 (49.4%)

When asked about modification of diet done from the regular pattern during the lockdown, 194 (75.5%) subjects had an affirmatory answer. The modification of dietary intake was described as avoiding junk food (60.3%), maintaining regular timely meals (46.7%), increased water intake (42.8%), and avoiding fatty food (32.7%). Decreasing the portion size (21.4%), limiting salt/sugar intake (19.4%), and reducing alcohol intake (17.1%) were other food modifications practiced. The introduction of specific dietary ingredients to boost immunity was done by 14.8% of subjects.

Immunity booster was reportedly consumed by subjects so as to have a positive immune-protective effect. Two or more such preparations were taken by 165 (64.2%), followed by 3 or more immunity booster by 109 (42.4%) and 4 or more by 58 (22.5%) respectively. These preparations included vitamin C, ginger (Zingiber officinale), garlic (Allium sativum), nuts/dry fruits, green tea (kadha), and herbal medicines.

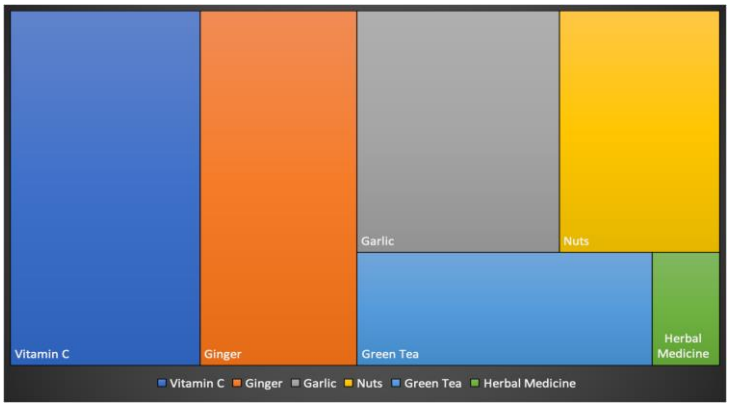

Figure 1: Treemap diagram showing distribution of Immunity booster preparations consumed by participants.

Taking of family meals together was reported as increased by 132 (51.4%) subjects. More than three fourth of subjects remained physically active by deliberately including some physical workout during the lockdown period, 225 (87.5%). The activities undertaken were doing household work (63.8%), walking in & around the house (50.6%), and online exercise classes (20.6%). Meditation was included in the daily routine by 55.6% of subjects which included breathing exercise (24.9%), chanting and Yoga (11.7% each), and Pranayam; a form of breathing exercise (7.4%). More than half (56.0%) of subjects said that meditation helped them in overcoming stress.

During the COVID-19 pandemic, several preparations of medication (allopathic/herbal) were reported taken by subjects. Regarding allopathic medication, Hydroxychloroquine (HCQ) was taken by 9.3%, whereas Azithromycin and Chloroquine were taken by 0.8% each. Herbal medication/preparation such as turmeric milk (23.3%) and tea (kadha) was taken by 10.5% respectively.

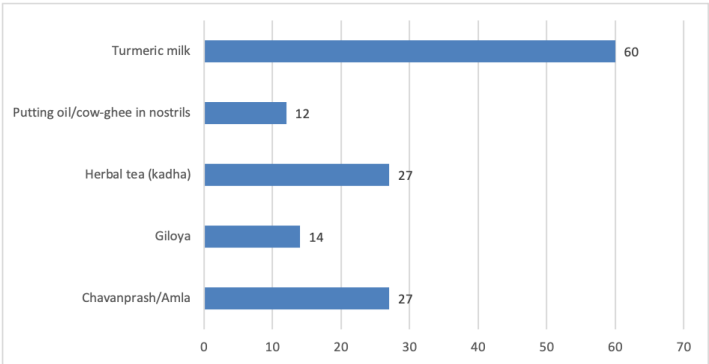

Figure 2: Bar diagram showing distribution of herbal medication/preparation consumed by participants.

A hundred percent response was received from subjects regarding specifically careful about hygiene during the lockdown period. The subjects resorted to preventive actions such as washing hands regularly (96.1%),

washing vegetables and fruits more carefully (86.4%), using sanitizer (81.3%), washing clothes more frequently (64.6%), and keeping items outside in sun (61.5%). When asked whether any lockdown period had any positive aspects, the majority of subjects responded that they had quality family time (64.6%). Other aspects included a break from monotonous routine work (38.5%), developing a new hobby (19.1%), and pursuing an old hobby (14.8%).

Regarding resilience and coping, there was high internal consistency as evident by the value of Cronbach's alpha (0.819). Low resilience was shown by 36.6% of subjects whereas medium and high resilience was depicted by 34.2% and 29.2% subjects respectively. Table 2 shows the distribution of responses by subjects item-wise.

Table 2: Coping among the study participants during COVID-19 pandemic using BRCS.

Brief resilient coping scale individual items	Does not describe me at all	Does not describe me	Neutral	Describes me	Describes me very well
I look for creative ways to alter difficult situations	16 (6.2%)	24 (9.3%)	89 (34.6%)	68 (26.5%)	60 (23.3%)
Regardless of what happens to me, I believe can control my reactions	16 (6.2%)	19 (7.4%)	92 (35.8%)	76 (29.6%)	54 (21.0%)
I believe I can grow in positive ways by dealing with difficult situations	4 (1.6%)	14 (5.4%)	57 (22.2%)	90 (35.0%)	92 (35.8%)
I actively look for ways to replace I encounter in life	14 (5.4%)	17 (6.6%)	87 (33.9%)	79 (30.7%)	60 (23.3%)

DISCUSSION

Among all Asian countries, India has the largest number of confirmed cases of COVID-19. Lockdown was an urgent national mitigation strategy to curb the Covid-19 pandemic in India. Many changes in lifestyle behavior aroused due to COVID-19. Many of them were due to restriction of movement during lockdown and others were to increase the immunity and to prevent Covid-19 infection. Studies have highlighted the importance of healthy diet and eating practices and regular physical activity in increasing immunity.[8,9] The role of Indian ancient herbal products, yoga, meditation, etc. has also been highlighted during this pandemic. The ministry has also recommended the maximum consumption of lukewarm water and steam inhalation from time to time during the day, as a prophylactic measure.[10]

The present web-based study was undertaken during lockdown to analyze the modifications made by the general public in their lifestyle either due to restricted movement or to increase immunity. The data was collected using google form. Most of the study participants (31.5%) were in the age group of 21-30 years, 61.35% were females and almost half of the participants were in private jobs. The education level in our study was quite high as more than half of the participants were post-graduate and above.

In our study, 194 (75.5%) subjects had agreed that they have modified their diet pattern during lockdown which is higher than the study conducted in Ludhiana[11] in which 52% of general public participants and 61% of health care workers modified their dietary habits with an increase in the intake of fruits to boost immunity during the pandemic. In the present study, the diet modification was in the form of avoiding junk food (60.3%), taking regular timely meals (46.7%), increased water intake by 42.8%, and 32.7% of participants avoided fatty food. An increase in regular and timely meal consumption was also reported by the study done in Delhi.[12] But the finding was in contradiction to that of the west.[13,14] The decrease in fast food consumption has also been reported in other studies conducted national and international.[10,15] The decrease could be due to the non-availability of outside food during the lockdown and even people had enough time to cook the meals and try new recipes at home. Decreasing the portion size (21.4%), limiting salt/sugar intake (199.4%), and reducing alcohol intake (17.1%) were other food modifications practiced.

Immunity booster was reportedly consumed by subjects so as to have a positive immune-protective effect. The introduction of specific dietary ingredients to boost immunity was done by 14.8% of subjects in the present study. These ingredients included vitamin C, ginger (Zingiber officinale), garlic (Allium sativum), nuts/dry fruits, green tea (kadha-a form of concoction of different ingredients), and herbal medicines. Narayan et al reported ginger (Zingiber officinale) and garlic (Allium sativum) consumption by 35% to boost immunity.[16] Many other studies also reported increased intake of vitamins, herbal tonics, and people turning to be vegan to boost immunity.[13,15]

Weight gain has been observed in many studies due to change in lifestyle during the pandemic.[10,12,17,18] India is already witnessing an epidemic of obesity and many other NCDs particularly diabetes, heart disease (CVD), and cancer. It was therefore important to be physically active during lockdown by maintaining social distancing and isolation. More than three fourth of subjects i.e. 225 (87.5%) in the present study remained physically active by deliberately including some physical workout during

the lockdown period. The activities undertaken included household work (63.8%), walking in & around the house (50.6%), and online exercise classes (20.6%). While these findings are contradictory to the findings of other studies where participants reported decreased physical activity and decreased exercise duration.[10,12,19] The reason could be that the household help was not available during the lockdown and also the participants of the present study being educated must be aware of the importance of physical activity.

During the lockdown, people had limited day-to-day social engagements such as workplace interactions, participation in recreational activities, socializing, and eating out which might lead to an increase in mental health distress. Many studies reported an increase in stress and anxiety levels due to fear of getting infected by coronavirus, boredom, loneliness, and financial loss at work.[20,21] To cope up with stress levels people inculcated various forms of yoga and meditation. Meditation was included in the daily routine by 55.6% of subjects which included breathing exercise (24.9%), chanting and Yoga (11.7% each), and Pranayam (7.4%). 44% of participants continued aerobic exercise and 17% performed yoga during the lockdown in a study by Ghosh et al.[17] More than half (56.0%) of subjects claimed that meditation really helped them in overcoming stress and made them happy and stable. Due to lockdown restrictions, 51.4% of participants reported increased family meals together. This would help in encountering the stress of lockdown.

During the COVID-19 pandemic, several preparations of medication (allopathic/herbal) were reported taken by subjects. Regarding allopathic medication, Hydroxychloroquine (HCQ) was taken by 9.3% which is a bit less than a study in which 19.9% of the respondents were taking hydroxychloroquine as prophylaxis for COVID-19 as advised by the Indian Council of Medical Research (ICMR).[22,23] While Azithromycin and Chloroquine were taken by 0.8% each. Herbal medication/preparation such as turmeric milk (23.3%) and tea (kadha) was taken by 10.5% respectively. They were taken as a prophylactic measure and as a protective shield to fight against coronavirus.

A hundred percent response was received from subjects regarding specifically careful about hygiene during the lockdown period. People became extra cautious and took appropriate measures to fight and tried every possible way to fight the Covid-19 pandemic. The subjects resorted to preventive actions such as washing hands regularly (96.1%), washing vegetables and fruits more carefully (86.4%), using sanitizer (81.3%), washing clothes more frequently (64.6%), and keeping items outside in sun for sanitization (61.5%). Frequent hand washing, use of sanitizer, etc have also been reported in another study.[24]

When asked whether any lockdown period had any positive aspects, the majority of subjects responded that they had quality family time (64.6%). These findings are similar to a study conducted at Ludhiana in which 69% of general public participants and 68% of health care workers also stated that spending time with family was the most positive impact of lockdown.[11] Other aspects included a break from monotonous routine work (38.5%), developing a new hobby (19.1%), and pursuing an old hobby (14.8%). An increase in screen time has been reported in the study by Rawat et al. to break the boredom due to lockdown.[10] 53% of the study participants reported an increase in screen time in order to reduce stress.[17]

Low resilience and coping were shown by one-third of subjects (36.6%) in the current study. In a study done in the United States among 1004 adults, average resilience was lower than published normative data, but greater among people who tended to get outside more, had exercise more and had more sleep and social support from peers and family.[25] Another study from Australia found very poor level of resilience in the general population (low resilient-97.3%). The current study had low levels of low resilient copers which may be explained to the adoption of healthy lifestyles, exercise patterns, and consumption of immunity enhancers.[26]

CONCLUSION

The covid-19 pandemic has shown us the unpredictability of human life. A significant proportion of people have turned to traditional eating, exercise, and immunity-boosting lifestyle pattern as evident in the current study. Lifestyle changes observed during lockdown have affected both the physical and the mental health of people. Thus it is important to educate people to adopt a healthy lifestyle under such unusual circumstances.

REFERENCES

1. Ghosal S, Sinha B, Majumder M, Misra A. Estimation of effects of nationwide lockdown for containing coronavirus infection on worsening of glycosylated haemoglobin and increase in diabetes-related complications: A simulation model using multivariate regression analysis. Diabetes Metab Syndr [Internet]. 2020/04/10, 2020; 14(4): 319–23. Available from: https://pubmed.ncbi.nlm.nih.gov/32298984
2. Hossain MM, Sultana A, Purohit N. Mental health outcomes of quarantine and isolation for infection prevention: a systematic umbrella review of the global evidence. Epidemiology and health, 2020; 42: e2020038.
3. Martínez-Velilla N, Casas-Herrero A, Zambom-Ferraresi F, Sáez de Asteasu ML, Lucia A, Galbete A, et al. Effect of Exercise Intervention on Functional Decline in Very Elderly Patients During Acute Hospitalization: A Randomized Clinical Trial. JAMA Intern Med, 2019; 179(1): 28–36.

4. Di Renzo L, Gualtieri P, Pivari F, Soldati L, Attinà A, Cinelli G, et al. Eating habits and lifestyle changes during COVID-19 lockdown: an Italian survey. J Transl Med, 2020; 18(1): 229.
5. Xiao H, Zhang Y, Kong D, Li S, Yang N. The Effects of Social Support on Sleep Quality of Medical Staff Treating Patients with Coronavirus Disease 2019 (COVID-19) in January and February 2020 in China. Med Sci Monit [Internet], 2020; 5, 26: e923549–e923549. Available from: https://pubmed.ncbi.nlm.nih.gov/32132521
6. Cohen S, Kamarck T, Mermelstein R. A global measure of perceived stress. J Health Soc Behav, 1983; 24(4): 385–96.
7. Sinclair VG, Wallston KA. The development and psychometric evaluation of the Brief Resilient Coping Scale. Assessment, 2004; 11(1): 94–101.
8. Diabetes (India) and Nutrition Expert Group, India NDO and CF (NDOC). Balanced nutrition is needed in times of COVID19 epidemic in India: A call for action for all nutritionists and physicians. Diabetes Metab Syndr [Internet]. 2020/08/27, 2020; 14(6): 1747–50. Available from: https://pubmed.ncbi.nlm.nih.gov/32927405
9. Jayawardena R, Misra A. Balanced diet is a major casualty in COVID-19. Diabetes Metab Syndr [Internet]. 2020/07/03, 2020; 14(5): 1085–6. Available from: https://pubmed.ncbi.nlm.nih.gov/32652495
10. Rawat D, Dixit V, Gulati S, Gulati S, Gulati A. Impact of COVID-19 outbreak on lifestyle behaviour: A review of studies published in India. Diabetes Metab Syndr [Internet]. 2021/01/13, 2021; 15(1): 331–6. Available from: https://pubmed.ncbi.nlm.nih.gov/33493852
11. Paul G, Sharma S, Singh G, Singh G, Sharma S, Paul B, et al. Assessment of knowledge gaps and perceptions about COVID-19 among health care workers and general public-national cross-sectional study. J Anaesthesiol Clin Pharmacol [Internet], 2020; 1, 36(3): 337–44. Available from: https://www.joacp.org/article.asp?issn=0970-9185
12. Chopra S, Ranjan P, Singh V, Kumar S, Arora M, Hasan MS, et al. Impact of COVID-19 on lifestyle-related behaviours- a cross-sectional audit of responses from nine hundred and ninety-five participants from India. Diabetes Metab Syndr [Internet]. 2020/10/06, 2020; 14(6): 2021–30. Available from: https://pubmed.ncbi.nlm.nih.gov/33099144
13. Ammar A, Brach M, Trabelsi K, Chtourou H, Boukhris O, Masmoudi L, et al. Effects of COVID-19 Home Confinement on Eating Behaviour and Physical Activity: Results of the ECLB-COVID19 International Online Survey. Nutrients [Internet], 2020; 28, 12(6): 1583. Available from: https://pubmed.ncbi.nlm.nih.gov/32481594
14. Wardle J, Steptoe A, Oliver G, Lipsey Z. Stress, dietary restraint and food intake. J Psychosom Res, 2000; 48(2): 195–202.
15. Alhusseini N, Alqahtani A. COVID-19 pandemic's impact on eating habits in Saudi Arabia. J Public health Res [Internet], 2020; 16, 9(3): 1868. Available from: https://pubmed.ncbi.nlm.nih.gov/33024727
16. Narayanan L, Pandit M, Basu S, Karmakar A, Bidhan V, Kumar H, et al. Impact of Lockdown due to COVID-19 Outbreak : Lifestyle Changes and Public Health Concerns in India, 2020; 10 [2021, 23]; Available from: https://www.preprints.org/manuscript/202006.0129/v1
17. Ghosh A, Arora B, Gupta R, Anoop S, Misra A. Effects of nationwide lockdown during COVID-19 epidemic on lifestyle and other medical issues of patients with type 2 diabetes in north India. Diabetes Metab Syndr [Internet]. 2020/06/02, 2020; 14(5): 917–20. Available from: https://pubmed.ncbi.nlm.nih.gov/32574982
18. Ingram J, Maciejewski G, Hand CJ. Changes in Diet, Sleep, and Physical Activity Are Associated With Differences in Negative Mood During COVID-19 Lockdown. Front Psychol, 2020; 11: 588604.
19. Robins LM, Hill KD, Finch CF, Clemson L, Haines T. The association between physical activity and social isolation in community-dwelling older adults. Aging Ment Health, 2018; 22(2): 175–82.
20. R Nair D, Rajmohan V, TM R. Impact of COVID-19 Lockdown on Lifestyle and Psychosocial Stress - An Online Survey. Kerala J Psychiatry, 2020; 33(1): 5–15.
21. Dey S, Dey I. Health concerns during lockdown: an observational study among adults of West Bengal. Int J Community Med Public Heal, 2020; 7(9): 3674.
22. Chakraborty K, Chatterjee M. Psychological impact of COVID-19 pandemic on general population in West Bengal: A cross-sectional study. Indian J Psychiatry [Internet]. 2020/05/15, 2020; 62(3): 266–72. Available from: https://pubmed.ncbi.nlm.nih.gov/32773869
23. Kalpana S, Bhuminathan S, Prasanth BK. Reality of Life and Environmental Changes after COVID-19 Pandemic in India. iMedPub Journals, 2021; 15(1): 1–5.
24. Roy D, Tripathy S, Kar SK, Sharma N, Verma SK, Kaushal V. Study of knowledge, attitude, anxiety & perceived mental healthcare need in Indian population during COVID-19 pandemic. Asian J Psychiatr [Internet]. 2020/04/08, 2020; 51: 102083. Available from: https://pubmed.ncbi.nlm.nih.gov/32283510
25. Killgore WDS, Taylor EC, Cloonan SA, Dailey NS. Psychological resilience during the COVID-19 lockdown. Psychiatry Res [Internet]. 2020/06/09, 2020; 291: 113216. Available from: https://pubmed.ncbi.nlm.nih.gov/32544705
26. Rahman MA, Hoque N, Alif SM, Salehin M, Islam SMS, Banik B, et al. Factors associated with

psychological distress, fear and coping strategies during the COVID-19 pandemic in Australia. Global Health, 2020; 16(1): 95.