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Research Paper

# Impact of lockdown due to COVID-19 outbreak: lifestyle changes and public health concerns in India

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## ABSTRACT

The emergence of COVID -19 pandemic has severely impacted individuals from all walks of life. The rapid spread of the disease to nearly all parts of the country has posed enormous health, economic, environmental and social challenges to the entire human population. In the absence of any effective drugs and vaccines for treatment, social distancing and other preventive measures are the only alternatives. Lockdown is among one of the options suggested by World Health Organisation (WHO) to reduce spread of the virus. India was quick to close its international borders and enforce the world's largest COVID lockdown on March 22, 2020. The present study attempts to highlight the impact of imposed nationwide lockdown on society and environment alike along with analysis of lifestyle changes. The study was based on an online survey using a structured questionnaire with over 1000 responders across the country. The pandemic situation demands a certain way of shaping the society to reduce virus spread and safeguard oneself. In this study, we analysed the changes that the society has undergone during lockdown to mitigate the spreading of the infection. We also addressed the changes that have become part of our lives during lockdown – hygiene and health consciousness, work from home, online teaching, digital shopping, changing internet habits and societal changes.

***Keywords:*** *COVID-19, Pandemic, Lockdown, Lifestyle changes, Public Health, Society*

COVID-19 is an emerging infectious disease with its first outbreak in December 2019 in Wuhan city of central Hubei province of China (Wang, Horby, Hayden, & Gao, 2020). The WHO on 30th January 2020 declared the outbreak of novel coronavirus as a global health

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emergency (WHO, 2020c). As of 31st May 2020, a total of 5,939,234 confirmed cases globally with 367,255 deaths have been reported by WHO (https://www.Worldometers.Info/Coronavirus/, 2020). India has reported 190,622 confirmed cases and more than 5,408 deaths from COVID-19 since its first case on January 30, 2020 (MoHFW | Home, 2020).

To control the spread of this highly contagious disease, majority of countries worldwide including India imposed quarantine and social isolation. Quarantine and social isolation can be major stressors contributing to widespread changes in population lifestyle (Hossain, Sultana, & Purohit, 2020). Consequently, increased anxiety, frustration, panic attacks, loss or sudden increase in appetite, insomnia and depression have been reported during the coronavirus lockdown. Recent study showed that people under aggressive self-isolation were more vulnerable to mental health issues experiencing trauma triggers and anger (Brooks et al., 2020; Reynolds et al., 2008). Other factors such as indefinite isolation, social distancing, self-quarantine, capsized travel plans and panic over scarce resources and information overload are also likely to affect mental health adversely (Banerjee, 2020; Pfefferbaum & North, 2020). Since the pace of life slowed due to the pandemic, India's large and diverse population faces unique challenges in terms of safe access to nutritious food, money, basic supplies, social care and medicine to support their physical health. These unprecedented times are certainly tough and it is crucial to maintain a healthy lifestyle especially among people with predisposed health conditions and the elderly (Izquierdo et al., 2019).

Post the spread of coronavirus in India, the entire country has been divided into zones (Red zone, Orange zone and Green zone) based on the number of infected individuals residing in these regions. Red zones are areas with substantial numbers of positive cases and the highest caseload districts contribute to greater than 80% of cases for each state in the country or the doubling rate seen is less than four days (Business Standard Web Team, 2020). Almost all the metro cities such as Delhi, Mumbai, Kolkata, Hyderabad, Chennai, Bengaluru and Ahmedabad fall in this category (coronavirus hotspots). Areas with limited number of cases and no recent surge in positive cases are categorized as Orange zones. Number of districts designated as Orange zone include 16 in Maharashtra, 36 in Uttar Pradesh, 20 in Bihar, 19 in Rajasthan, 15 in Punjab, 24 in Tamil Nadu and 19 in Madhya Pradesh. Districts are classified as Green zone if there is no COVID-19 positive case in the last 21 days. The maximum number of districts under Green zone fall in Assam (30 districts) while there are 20 in Uttar Pradesh, 25 in Chhattisgarh, 24 in Madhya Pradesh, 25 in Arunachal Pradesh, 21 in Odisha and 10 in Uttarakhand. Containment areas in these zones are the ones where individuals are found positive for COVID-19. Uttar Pradesh has 1094 containment zones (Gupta, 2020). The number of containment zones in the national capital has soared to 122 (India.com, 2020; Times Now Digital, 2020). Mumbai that accounts for 76% of COVID-19 cases of Maharashtra has over 717 containment zones in over 24 wards (Yadav, 2020).

In an attempt to safeguard country's citizens, Government of India officially launched a COVID -19 tracking application "*Aarogya Setu*" (Bharati, 2020) on 2nd April 2020. The app aims to get people involved proactively in best relevant practices and follow advisories to cope well with ongoing virus outbreak. It uses bluetooth-based proximity tracking and location data for information. While GPS tracks location, bluetooth tracks if and when anybody comes in close proximity with an infected individual within a distance of 6 feet. The most important aspect of *Aarogya Setu* is that it has access to the Government of India's database of known cases. Apart from information packed PDF, this app also features self-

assessment to help the users identify COVID-19 symptoms and their risk profile. The mobile app is mandatory for air travel and advisable to all individuals.

The focus of the present study is to explore lifestyle changes in times of restricted mobility due to COVID-19 in India. It provides insight into the effect of home confinement on physical activity, depression, social participation, dietary behaviour, various government plans, sleep quality and technology use among others.

## METHODOLOGY

The study was based on an online survey using a structured questionnaire with over 1000 responders across the country. This study is an observational and statistical approach to study discrete and qualitative factors like: awareness among people, practices and prevention methods adopted, lifestyle changes associated with lockdown, patterns and changes in social media usage, anxiety and concerns related to COVID-19 spread in India.

The study is based on snowball sampling. A cross-sectional survey developed using Google forms was circulated using various social media platforms for a period of one week. The participants were requested to participate in the study wilfully and were required to fill responses upon receiving the link of the form. The form consisted of a total 31 questions, consisting of three answer type questions, three questions in 5-point Likert scale format, twelve in multiple choice format and thirteen questions in check-box format. Different socio-demographic variables like age, gender, occupation, district and state of residence were included in the questionnaire.

The outreach of the survey was limited to people understanding English and having an internet connection. Sampling errors arising due to limited and unequal coverage among people from different age groups, occupation or state of residence were marginally removed by considering only those variables for analysis which had a considerably large sample size. Random selection and testing were not performed due to limited responses for many categorical variables. Response bias was reduced while framing the questionnaire by diversifying the questions and processing errors were minimized by cleaning the data. Although, further bias in sampling may be prevalent due to respondent effect, fatigue effect and neutral responding.

Descriptive statistics like measures of central tendencies, frequencies and proportions have been used to evaluate the responses. Data wrangling, cleaning and visualization was done using R version 4.0.0, Microsoft Excel 2016 and Datawrapper.

## RESULTS

### *Socio-Demographic Variables*

A total of 1011 responses were recorded. Out of all the individuals who participated in the study, 462 were male while 549 were female, accounting for 46% and 54% of total responses, respectively **(Fig 1.1- A).** Of all participants, 25% resided in green zone, 28% in orange zone and 47% in red zone **(Fig 1.1- B)**. Maximum number of participants were aged between 19 to 25 years **(Fig 1.1- C).** Students accounted for the majority of sample distribution, making up 72% of responses followed by individuals working in private organizations (7%) and teaching sector (2.5%) **(Fig 1.1- D).** The responses were distributed across 26 different states and Union Territories of India with 26% participants from Delhi, 11 % from Jharkhand, 10% from Uttar Pradesh, 9% from West Bengal and other states **(Fig 1.1-E).**

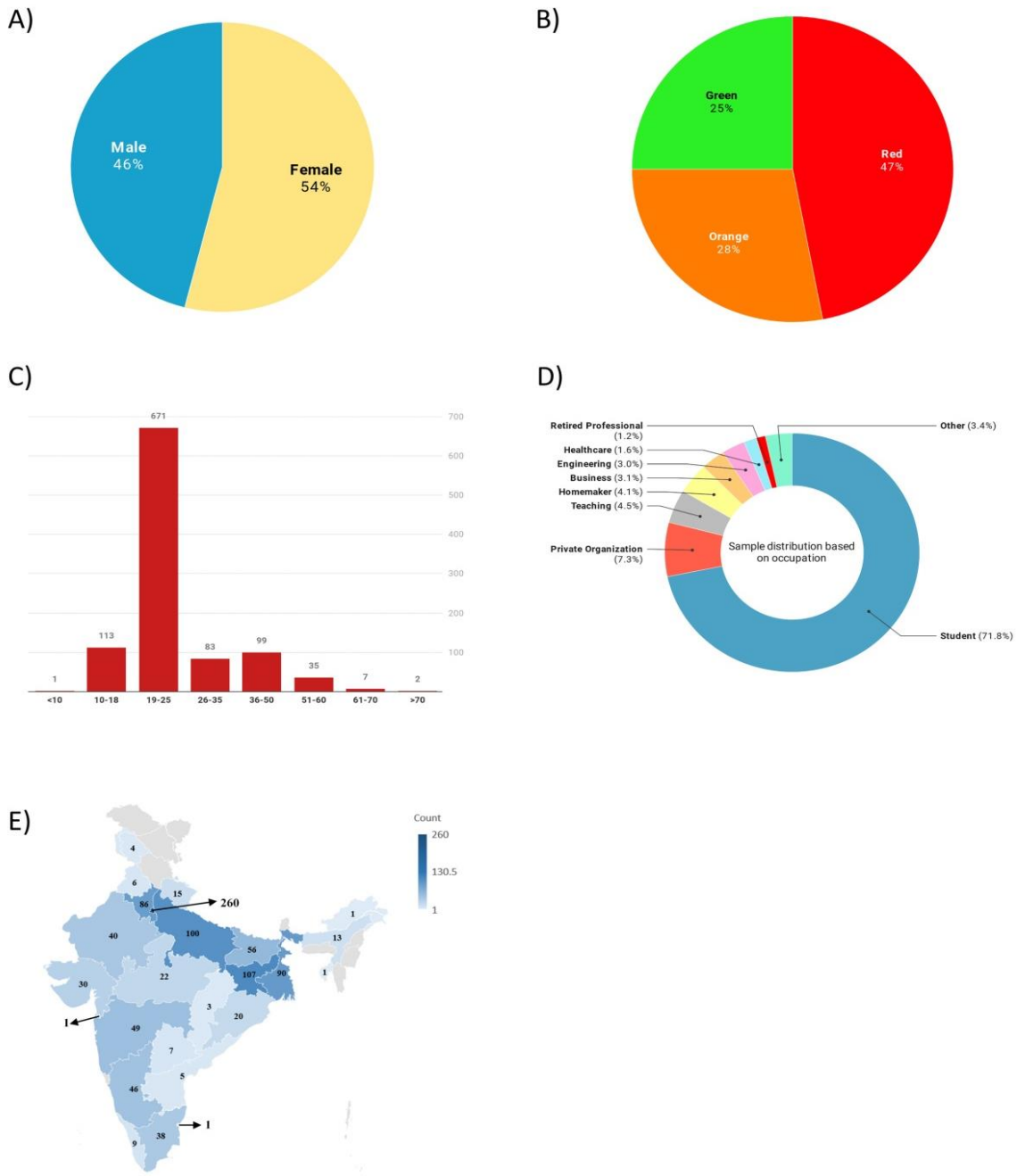


***Fig 1: Figure depicts the distribution of participants based on A) Gender B) Hot-spot zone C) Age D) Occupation and E) State of residence***

***Awareness and practices against spread of COVID-19 infection***

People with COVID-19 infection have reported symptoms ranging from mild infection to severe illness. Symptoms may appear 2-14 days after exposure to the virus. Of the total survey population, fever, breathlessness, dry cough, sore throat and body ache were perceived as symptoms by 80%, 70%, 72%, 39% and 26% of the participants, respectively. Fever was perceived as major symptom by participants accounting for 24% of all responses followed by breathlessness and dry cough making up 21.2% and 20.6% of total responses, respectively **(Fig 2.1).** Only 5.7% participants did not know the symptoms of COVID-19.

Hand hygiene plays an important role in the spread of virus to protect oneself and prevent transmission of virus. While washing hands, 70% of respondents preferred using liquid

handwash, soaps were used by 55%, sanitizers by 57% and alcohol-based spirit by 14% of respondents. Liquid handwash made for 31% of all responses followed by sanitizers and soaps **(Fig 2.2).**

Limiting face to face interaction is the best way to reduce spread of COVID-19 infection. Measures like social distancing, public awareness programs, extension of lockdown and random testing were thought as effective ways of controlling spread of COVID-19 by 87%, 59%, 57%, and 53% of respondents, respectively. Our data analysis revealed that social distancing is considered as the best measure of controlling the spread as it accounted for 30% of total responses listed. Around 33% respondents felt that mobile applications like Aarogya Setu can contribute in controlling spread of virus accounting for 11% of all responses **(Fig 2.3).**

While considering the various modes of gathering information regarding COVID-19 through media and news, we analysed that 63% participants frequently watched online news related to novel coronavirus whereas 33% watched it sometimes and 4% of them never watched online news. News on television was watched frequently by 51% participants, watched sometimes by 36% participants and never watched by 13% participants. Newspapers too were frequently read to check updates on COVID-19 by 24% participants and sometimes read by 36% participants. 40% of the survey population never referred to newspapers for updates related to COVID-19 **(Fig 2.4).**

As a preventive measure, 99.3% respondents wore masks while going out, whereas 0.7% did not **(Fig 2.5- A).** We analysed the responses for main options provided in the survey and found that 40% participants used normal masks, 27% used N-95 masks, 16% used surgical masks, 10% used homemade masks while 7% used scarfs or towels to cover their face **(Fig 2.5- B).**

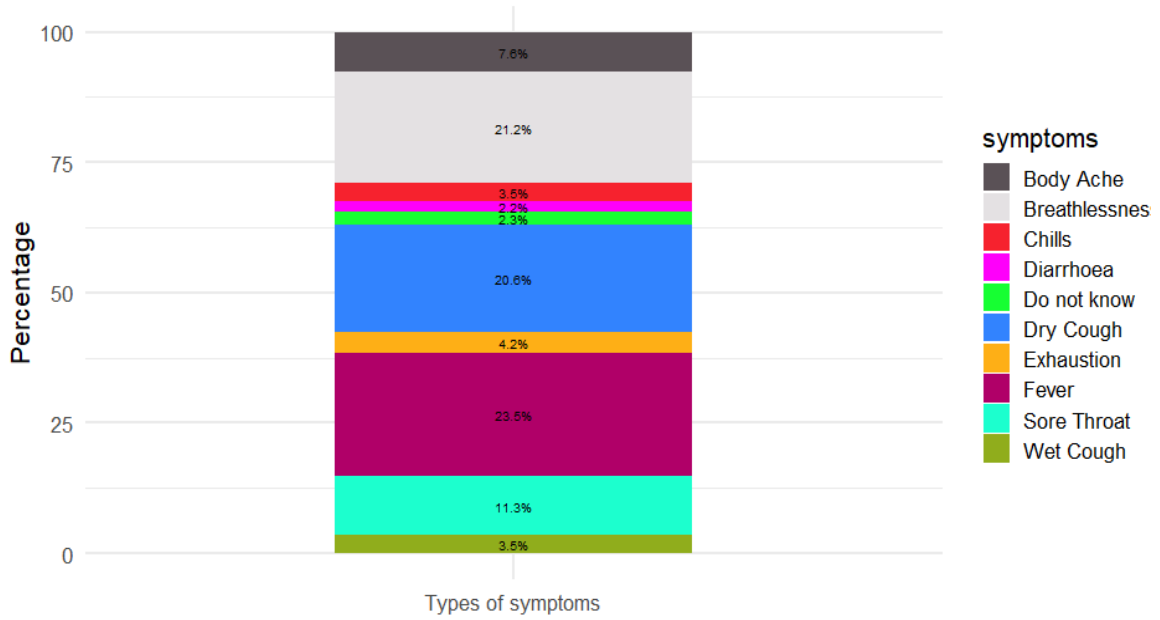


***Fig 2.1: The stacked bar chart shows symptoms of coronavirus perceived by participants***


*Fig 2.2: Treemap depicts methods of washing hands used by participants*

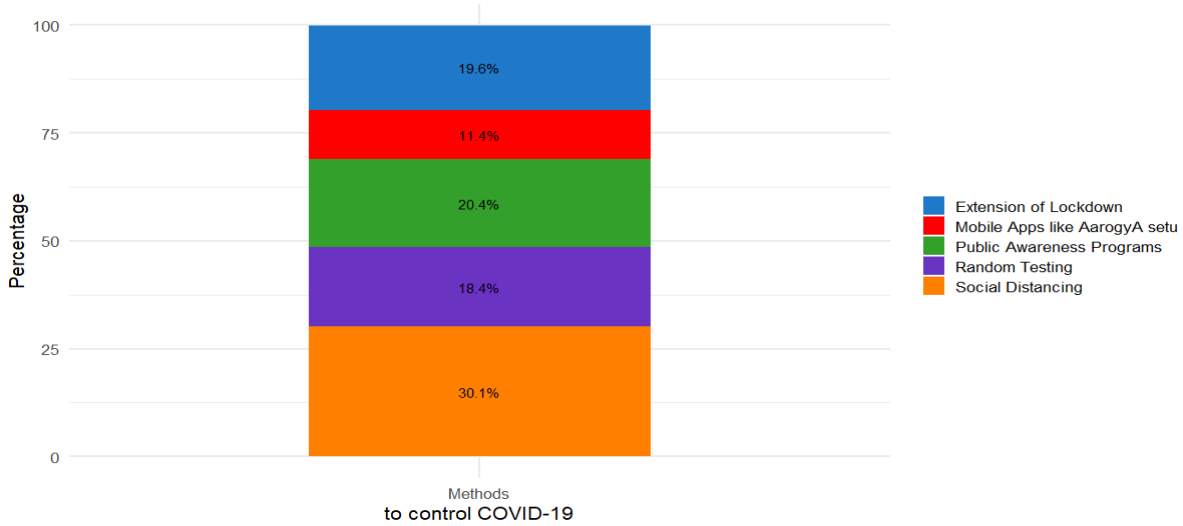


*Fig 2.3: Stacked bar plot represents the methods of controlling spread of COVID-19 as perceived by participants*

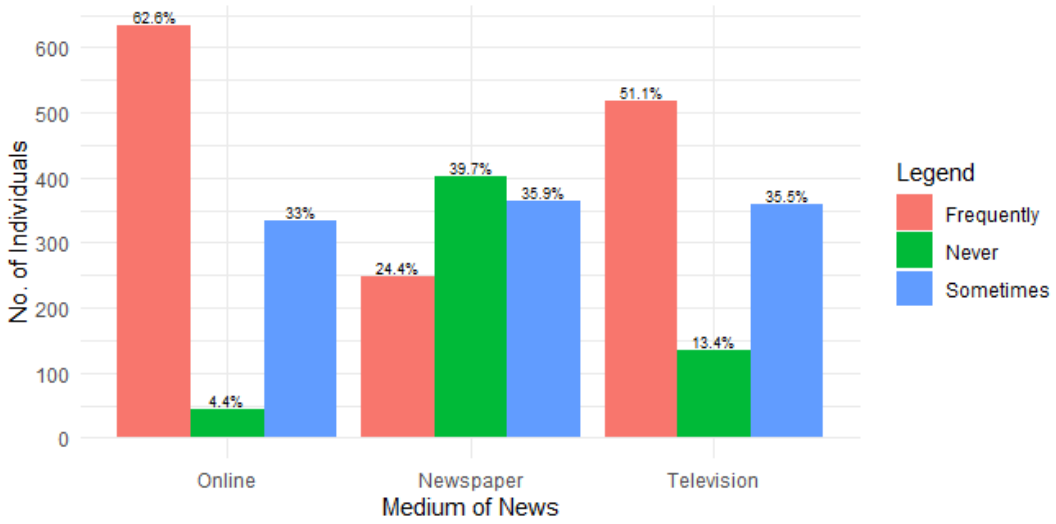


*Fig 2.4: Bar chart shows the mode and frequency of watching/reading news related to COVID-19*

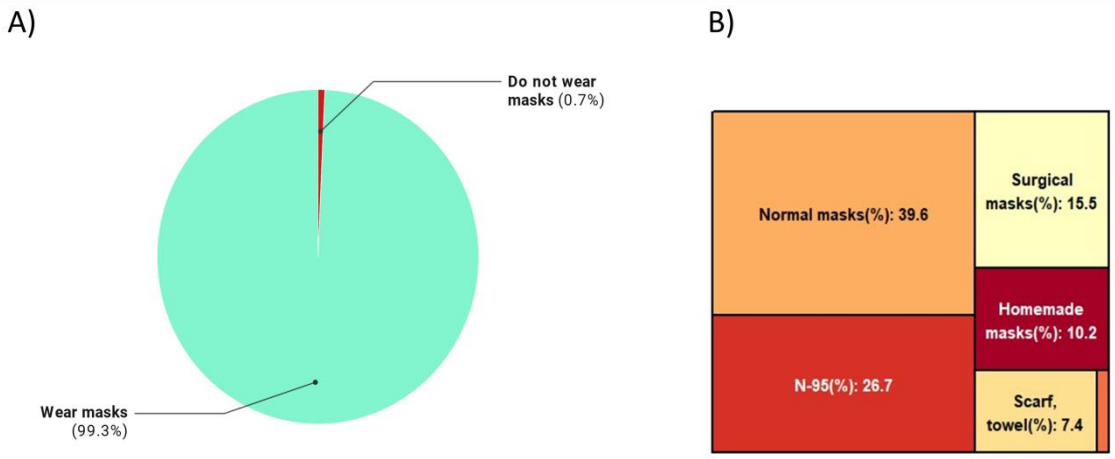


***Fig 2.5: Figure represents A) proportion of participants who wore masks B) Type of masks used by the participants***

***Changes in lifestyle and daily habits due to lockdown***

Extensive lockdown imposed by Government of India has led to lifestyle and daily habit changes in the population and this study aims to represent them.

We analysed the change in eating habits of participants and observed that for majority of survey population there is a significant drop in intake of fast food and meat products with 60% and 34% of participants, respectively, having lesser amounts than before. The consumption of fresh produce and dairy products majorly remained same for 44% and 51% participants and increased for 36% and 27% participants, respectively. The number of meals one has in a day remained same for 60% participants but increased for 24% of them. 13% participants reported that number of meals they had in a day decreased after lockdown **(Fig 3.1).**

44% participants reported that their sleeping time before lockdown was majorly concentrated between 11pm-1am but this proportion decreased to 37% after lockdown. A decrease from 32% to 20% was observed for those who slept between 9pm- 11pm whereas an increase from 21% to 25% was observed for those who slept between 1am- 3am. A drastic increase from 3% to 17% was observed for those sleeping after 3 am **(Fig 3.2).**

We analysed that 83% respondents go out to buy utilities while 17% do not prefer to do so **(Fig 3.3-A)**. 59% of respondents went out just 1-2 times per week to buy utilities. Buying utilities online was preferred by approximately half of the survey population, i.e. 49% respondents availed online mode while 51% did not buy utilities online **(Figure 3.3-B).** Comparing the two modes 63% participants preferred going out for buying utilities over 37% who preferred buying utilities through online mode **(Fig 3.3-C).**

We observed that activities like reading, doing household chores, listening to music, cooking, exercising, art, dancing were performed by 81%, 79%, 77%, 72%, 65%, 41% and 36% of respondents, respectively. Majority of them indulged in these activities for 1-2 hours with exercising being the most performed activity for this duration. Reading had the highest frequency among all activities performed for at least 2 hours **(Fig 3.4).**

74% respondents reported that their relationship with their family members improved during lockdown period while 20% did not experience any change in family relations **(Fig 3.5).**

Both diseased individuals and total participants majorly opted for contacting doctor over phone as their mode of consultation for health-related issues with proportions equaling to 44% and 40% of total responses, respectively. Many participants preferred to visit the nearby doctor accounting for approximately 27% of all responses **(Fig 3.6).**

We observed that 43% of population surveyed did not consume any immunity booster, contributing 37% of total responses. Ginger and garlic were used as major immunity boosters accounting for 35% of all responses followed by multivitamins (15%) **(Fig 3.7- A).** Out of the 44 people aged above 50 years, ginger and garlic were majorly consumed accounting for 46% of responses. The proportion of people aged above 50 who did not consume immunity boosters contributed to 23% of the responses **(Fig 3.7- B)**. Out of the 196 diseased individuals, 42% of them did not consume immunity boosters, accounting for 34% of responses. 41% diseased participants took ginger and garlic and 21% took multivitamins regularly. Thus, ginger and garlic accounted for 33% and multivitamins for 17% of all immunity boosters used by diseased individuals **(Fig 3.7- C).**

78% of total survey population felt that physical distancing and wearing masks would be the new norm after lockdown ends and 65% participants believed that there would be more respect for health professionals and police forces. Approximately 45% respondents felt that there would not be any vacation in near future and that there would be change in eating habits of people and in the way we greet people. 40% of them also felt that work protocols would undergo changes and that there would be an emergence of a better society. 38% participants felt that work from home would be more prevalent. Physical distancing and wearing masks was the most popular choice, receiving 17% of all responses, while more respect for health professionals and police forces accounted for 15% of total responses **(Fig 3.8).**

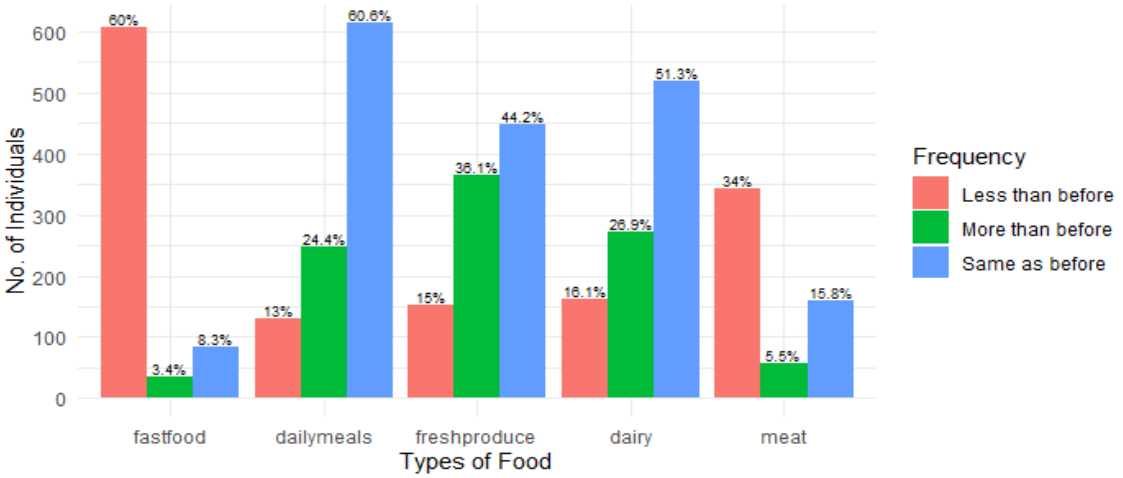


***Fig 3.1: Bar plot depicts the change in eating habits post lockdown***

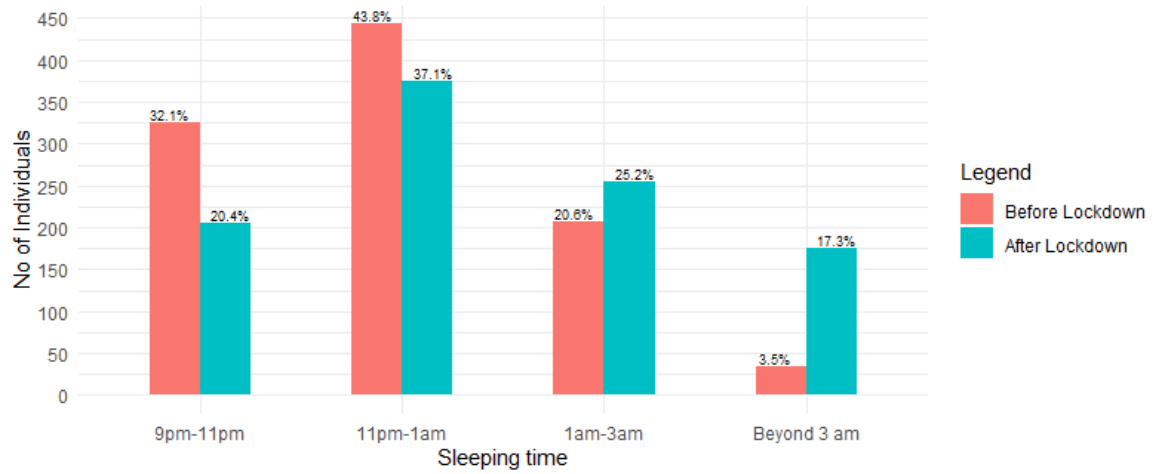


*Fig 3.2: Bar graph shows the change in sleeping schedule of participants*

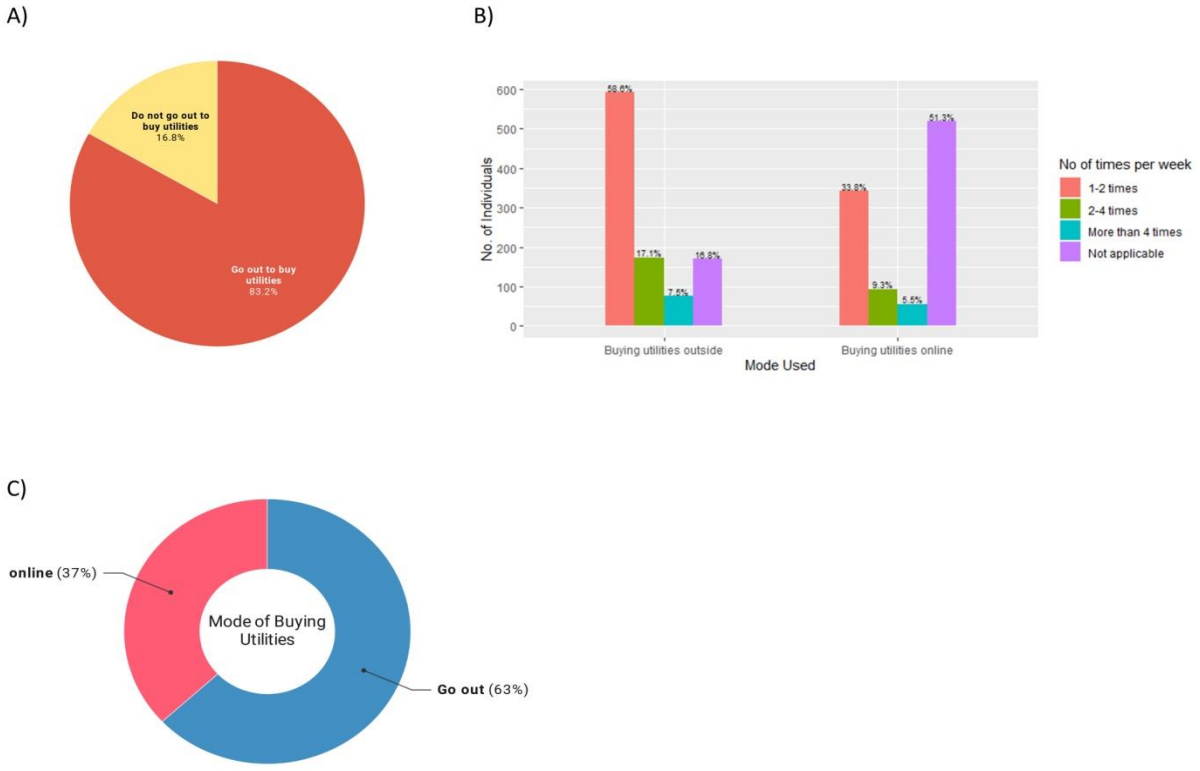


***Fig 3.3: Figure shows A) proportion of participants who do not go out to buy utilities B) mode and frequency of buying utilities C) proportion of mode of buying utilities***

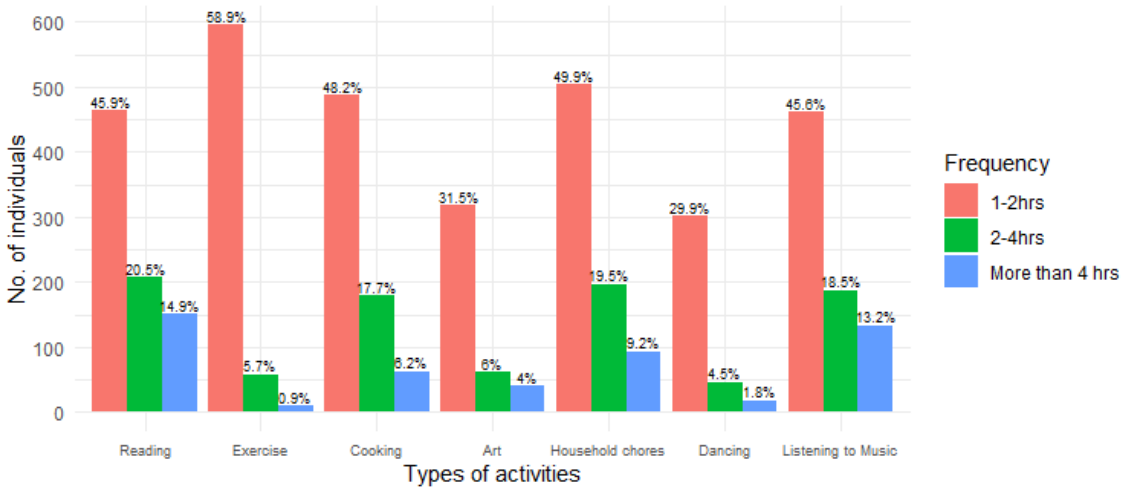


***Fig 3.4: Bar graph represents the time devoted by participants to various activities during lockdown***

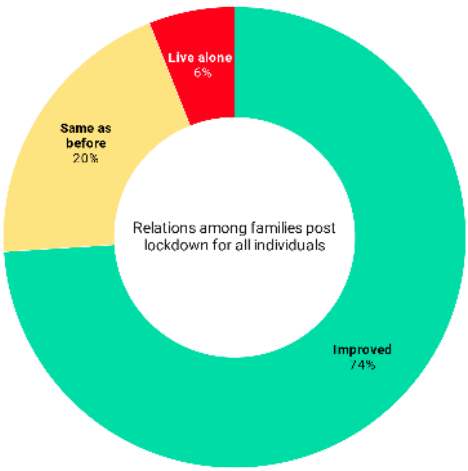


***Fig 3.5: Donut chart depicts the relationship status among families post lockdown***

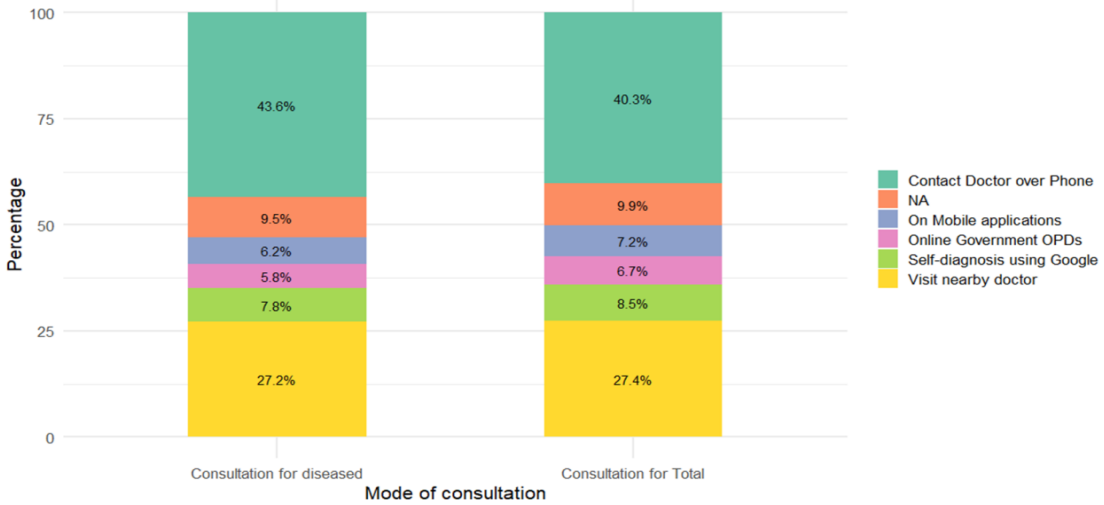


***Fig 3.6: Stacked bar plot shows mode of consultation for health-related issues by A) diseased individuals and B) total participants***

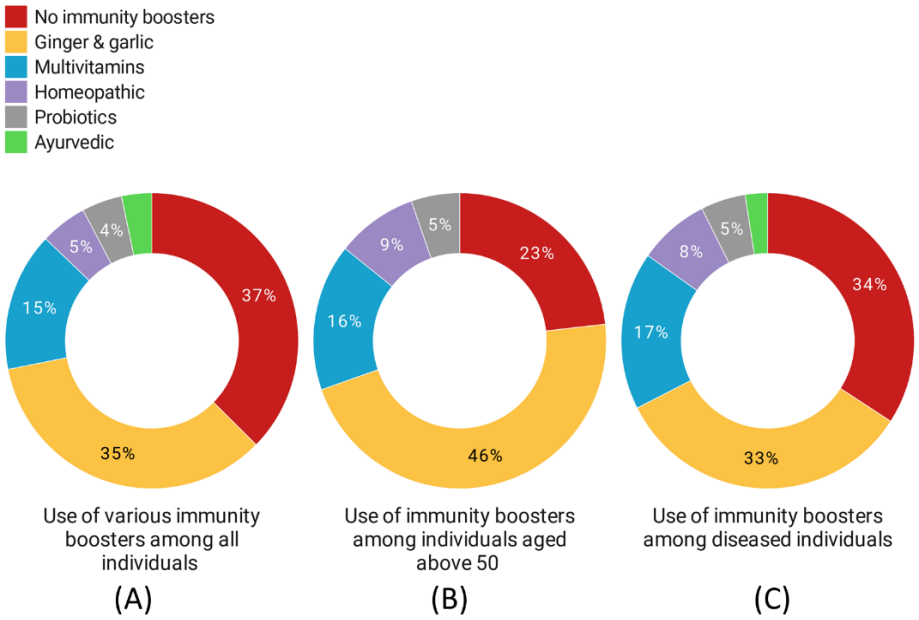


***Fig 3.7: Donut plots shows the type of immunity boosters consumed by A) total participants B) participants above 50 years of age and C) diseased participants***

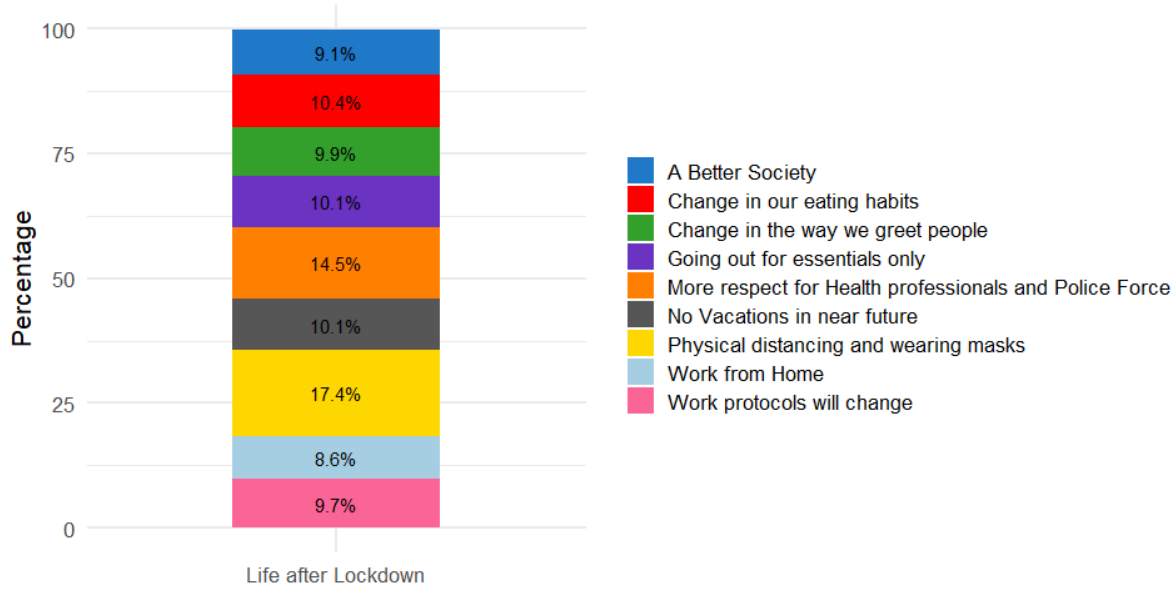


***Fig 3.8: Stacked bar plot depicts the changes in lifestyle that might be felt by participants after lockdown gets over***

***Public Health Concerns related to COVID-19***

Participants were surveyed to rate their anxiety levels on a scale of 1 to 5 (1 being least anxious to 5 being overly anxious) of which 34% participants reported intermediate anxiety levels. Individuals who opted for 4 and 5 on the scale, formed 31% and 19% of the survey population, respectively. Individuals having lower levels of anxiety were less in number as only 7% and 9% participants opted for 1 and 2 on the scale **(Fig 4.1-A).**

As per our collated data for anxiety levels in both genders, females showed higher levels of anxiety than males as 89% females had intermediate or higher anxiety levels when

compared to males (77%). Males formed a greater percentage for lower anxiety levels, i.e., 1 and 2 on the scale as 23% males and 11% females opted for these options **(Fig 4.1-B).**

Among participants who came in contact with a COVID-19 patient or had family members diagnosed with it, around 62% showed higher levels of anxiety **(Fig 4.2- A).** Among participants who took immunity boosters, almost half (49.4%) were highly anxious regarding the outbreak of COVID-19 **(Fig 4.2- B)**. Similar trend was observed for individuals who watched or read news related to coronavirus on a regular basis, as 54% reported higher levels, 32% reported intermediate levels and only 14% reported lower levels of anxiety **(Fig 4.2- C)**. All respondents in the study were not equally distributed across different hotspot zones. Of the 47% survey population residing in the red zone, 50.6% reported higher levels of anxiety (4 and 5 on the scale), 32.4% reported intermediate anxiety levels and only 17.1% reported lower anxiety levels (1 and 2 on the scale). Of the 28% survey population residing in the orange zone, 47.5% reported higher anxiety levels, 37.4% reported intermediate anxiety levels and only 15.1% reported lower anxiety levels. While of the 25% survey population residing in green zone, 48.6% reported higher anxiety levels, 34.8% reported intermediate anxiety levels and only 16.6% reported lower anxiety levels. This showed that higher anxiety levels were most prominent in the red zone. The intermediate levels of anxiety were highest for orange zone and lower anxiety levels were more pronounced in red zone followed by a marginal difference in green zone **(Fig 4.2- D).**

Participants were asked to rate their satisfaction level regarding the schemes and plans of government to combat COVID-19 on a 5-Likert scale with 1 being highly disappointed to 5 being highly satisfied. One-third of survey population (33%) reported intermediate satisfaction levels, whereas 47% respondents reported above intermediate satisfaction levels. 20% respondents showed higher levels of disappointment as they opted for 1 and 2 on the scale **(Fig 4.3).** Participants were asked about their concerns post-lockdown and almost a fifth of the survey responses (21%) were reported for the country's economy. 16% and 15% of responses were related to unemployment and career, respectively. Food shortage also seemed to be a major concern as 12% responses accounted for it. Resurgence of COVID-19 and political stability comprised 10% and 3.7% of the responses. Almost 1% of responses constituted for having no concerns (**Fig 4.4).**

Considering whether the government should increase funding for basic sciences, research, and healthcare sector, almost nine-tenth of the survey population (89%) supported this, while 11% thought the current funding is good enough **(Fig 4.5).**

When inspecting the organizations to which donations were made, 37.7% participants donated to PM relief fund, 13.4% donated to NGOs, 2.5% to I for India and 1.4% to WHO. However, 45% of the respondents did not donate **(Fig 4.6-A).** Among participants who reported that they were concerned about the country's crashing economy, 40% of them made donations to the PM relief fund while 60% did not donate **(Fig 4.6-B).**

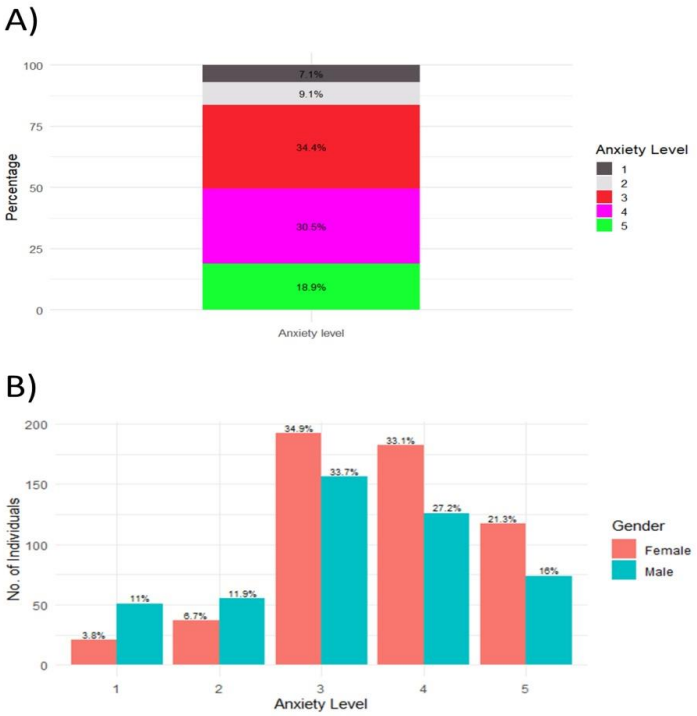


***Fig 4.1: Figure shows A) Anxiety levels among all participants B) Anxiety levels based on gender***

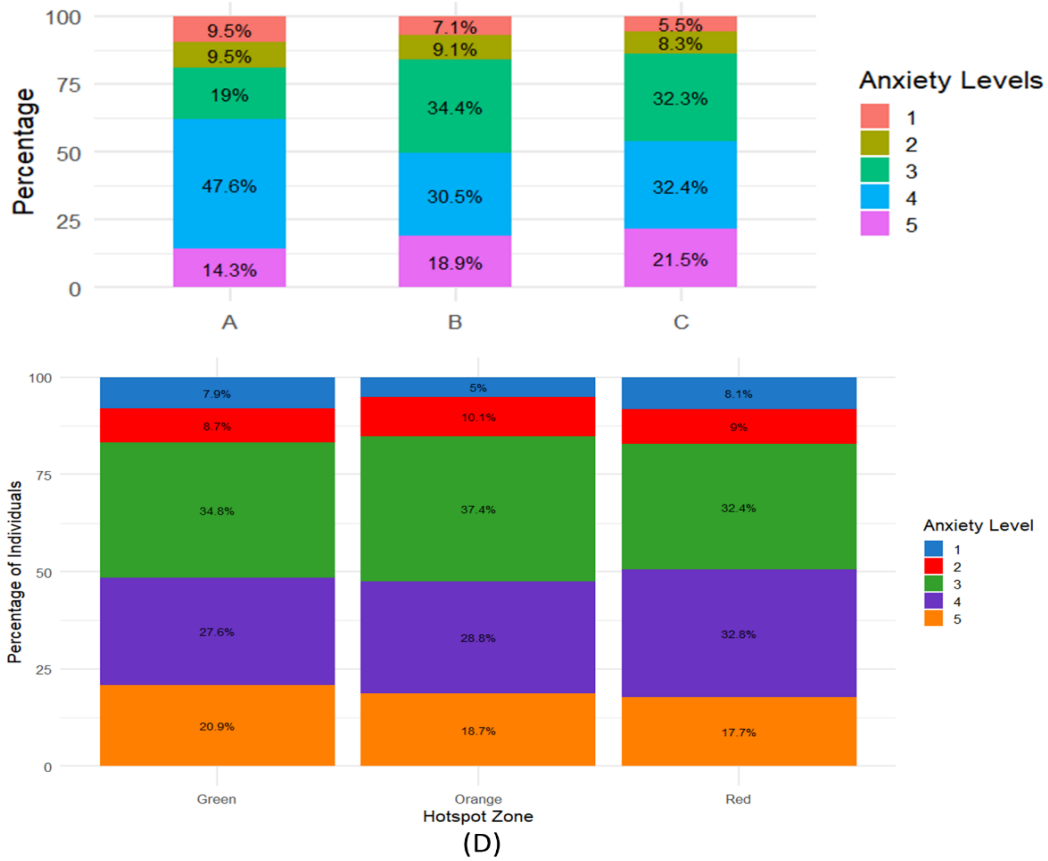


***Fig 4.2: Figure represents anxiety levels among participants who A) themselves met a COVID-19 patient or had family members diagnosed with COVID-19 B) take immunity boosters C) watch/read news related to coronavirus frequently D) reside in different hot-spot zones***

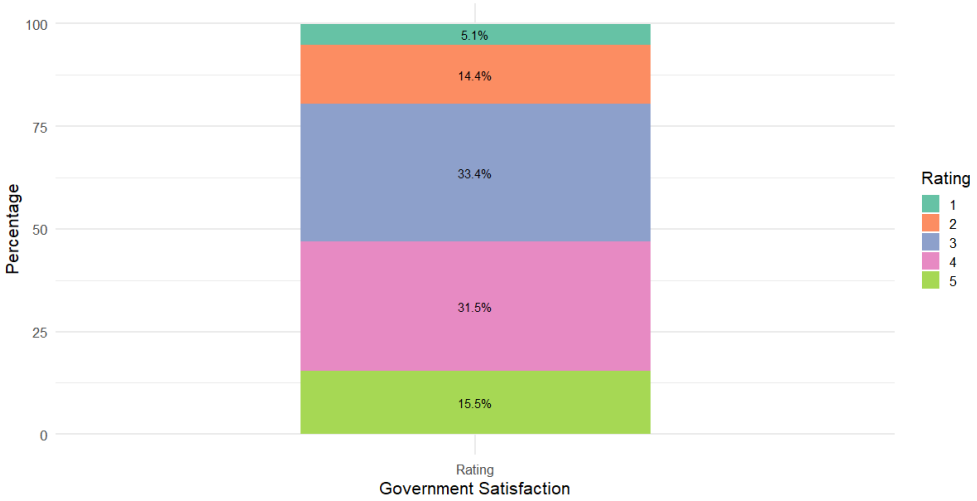


*Fig 4.3: Stacked bar plot depicts the satisfaction level among participants regarding the current government plans and measures to combat COVID-19*

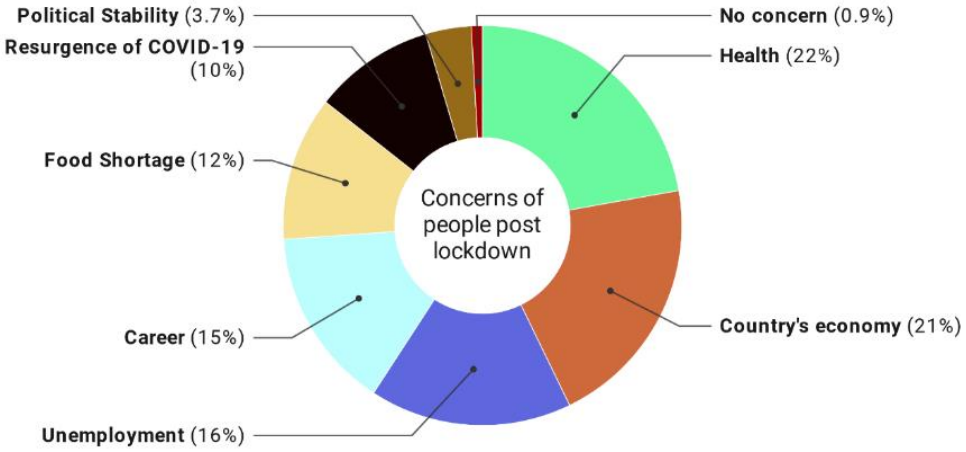


*Fig 4.4: Donut plot shows the major concerns among participants regarding the global pandemic*

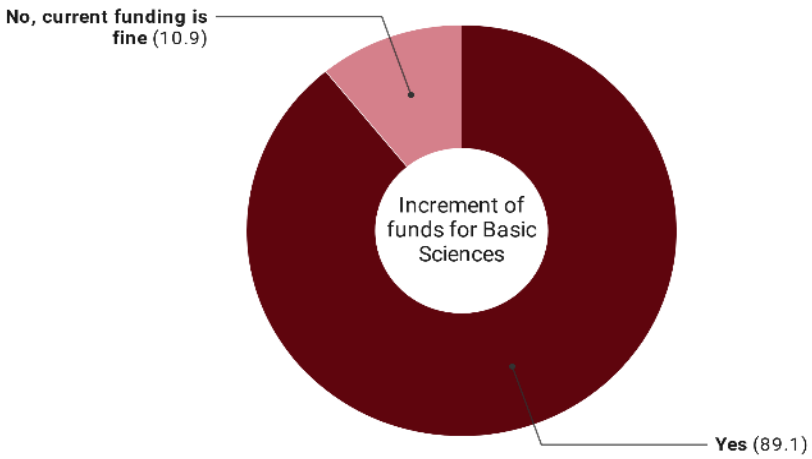


*Fig 4.5: Donut plot shows the proportion of survey population who think that the government should increase the funding in basic sciences and healthcare sector*

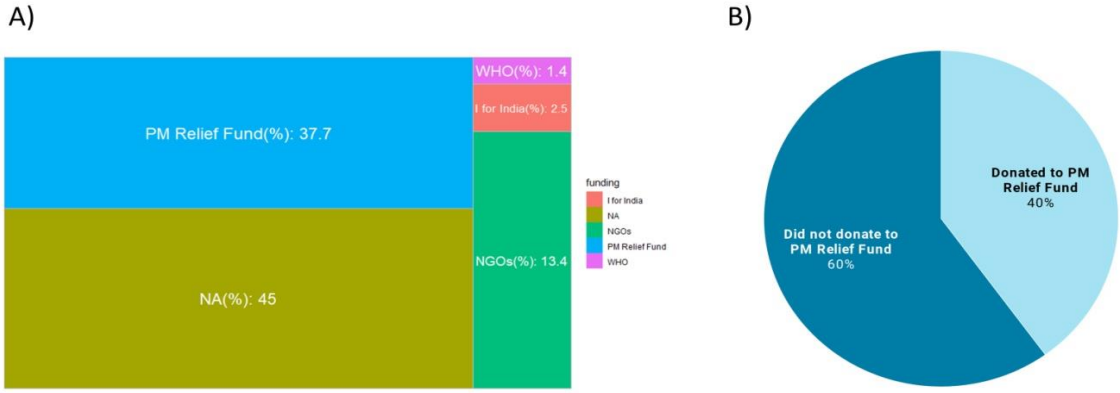


***Fig 4.6: Figure represents A) Mode of funding/donations adopted by participants B) Proportion of participants who donated to PM Relief fund due to their concern about country's economy***

***Social Media Usage***

While analysing social media app usage, the number of individuals using different applications for at least two hours increased for all listed applications post lockdown. Netflix/amazon prime video had highest shift in its users by an increase of 27.5% participants followed by 27% increase in YouTube users, 19% increase in Instagram users, 17% increase in WhatsApp users, 7% increase in Facebook users, 3.5% increase in TikTok users, 3% increase in Snapchat users and 1.5% increase in Twitter users **(Fig 5.1).**

A comparative analysis of the usage of various apps/softwares by survey population for formal and informal purposes is presented as a dot plot. We observed that for all formal purposes, Zoom constituted the highest proportion, i.e., 35% of all applications used, followed by WhatsApp video calling contributing 11%, GoogleDuo contributing 9%, Google Classroom contributing 8.2%, Skype contributing 7.6% and Cisco Webex contributing 3% to total proportion. For informal purposes, WhatsApp video calling constituted the highest proportion, i.e., 37% of all applications used followed by GoogleDuo contributing 20%, Zoom contributing 12%, Houseparty contributing 7%, Skype contributing 6% and FaceTime contributing 3% to total proportion. This showed that Zoom was preferred more for formal meetings when compared to informal meetings. Houseparty and FaceTime were mainly used for informal purposes while Google Classroom and Skype were preferred for formal purposes **(Fig 5.2).**

In the period of extended lockdown, students used apps like Zoom, Google Classroom, Skype, Google Duo, etc. for scholastic purposes. We analyzed that 43% students used Zoom, 17% students relied on Google Classroom, while 5% found Google Duo fit for virtual classes. Only 4.4% students took classes on Skype and WhatsApp video calls. Whereas, 21% students did not use any of the listed applications **(Fig 5.3- A).**

As online classes continued, it posed several challenges to the students. 26% of students struggled for proper internet connectivity. Long-time exposure to the screen caused strain/discomfort in eyes of 18.5% students. 16% students believed 'No face to face Interaction' to be one of the limitations. Approximately, 9% students felt that excess material was being provided by teachers and found online resources not so useful. Online classes were not considered mobile friendly by 8% students. 5.2% students faced problems in

software downloading while 3.3% had hardware issues. Only 5.5% students found online classes advantageous without any limitation **(Fig 5.3-B).** The Government of India launched a portable mobile application called 'Aarogya Setu' to proactively inform users of potential risk of infection due to coronavirus and connect health workers with infected population. The participants were asked to rate the application on a 5-Likert scale considering 5 as highly useful. 19% respondents found the app to be highly useful in fighting COVID-19 giving a 5-point rating. 28% of population surveyed provided 4-point rating and 36% gave a 3-point rating to the app. Whereas, the rating was downgraded by 8% and 9% respondents who rated 2 and 1 point, respectively **(Fig 5.4).**

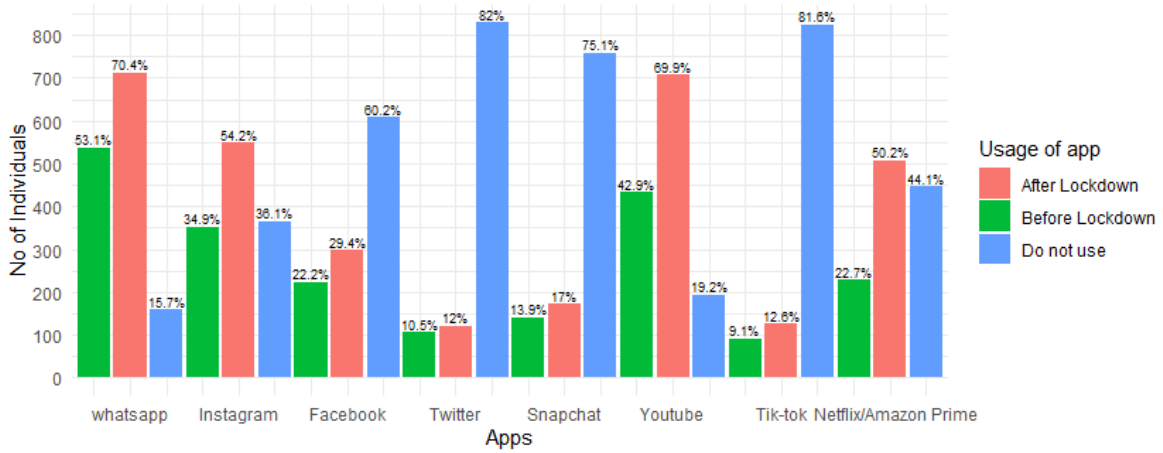


***Fig 5.1: Bar graph shows the social media apps used by participants for at least 2 hours, before and after lockdown***

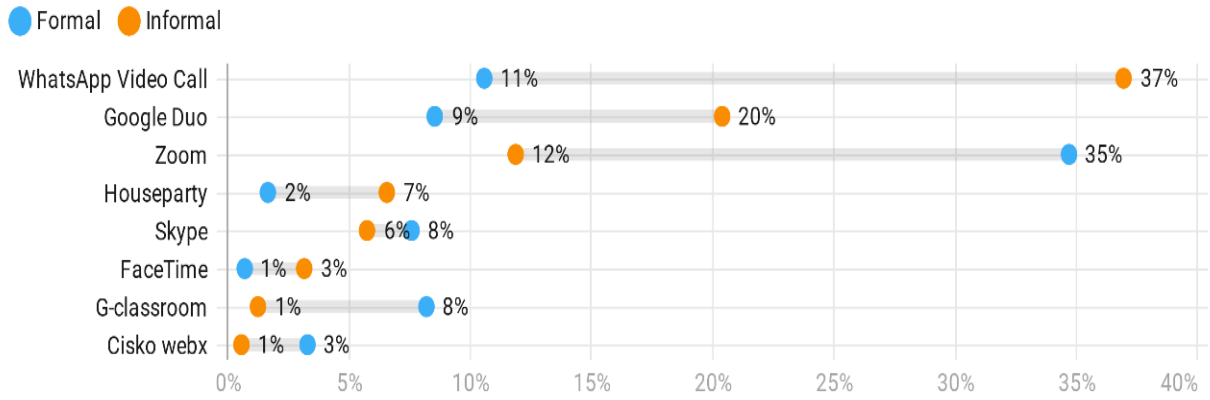


***Fig 5.2: Dot plot depicts the proportion of participants using various social media apps for formal (blue dots) and informal purposes (orange dots)***

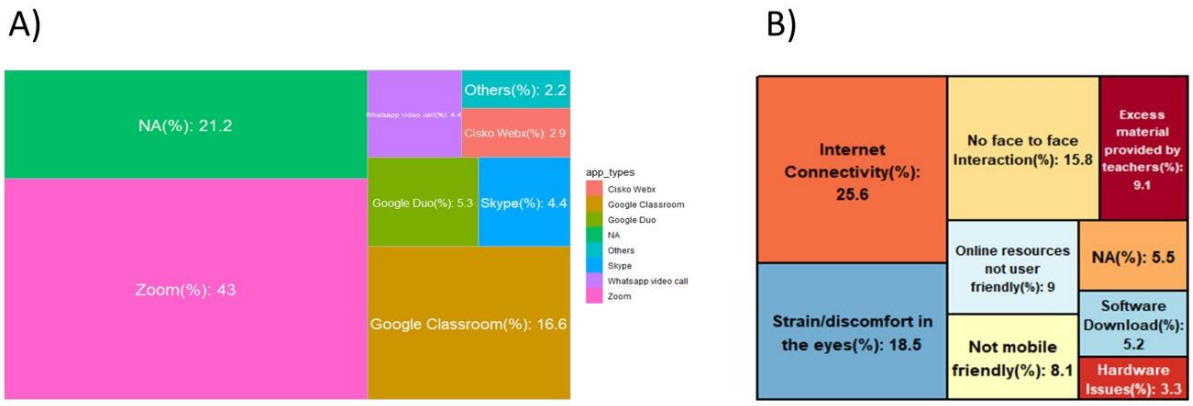


***Fig 5.3: Treemaps represent A) social media apps used by students for online classes B) limitations of online teaching felt by students***

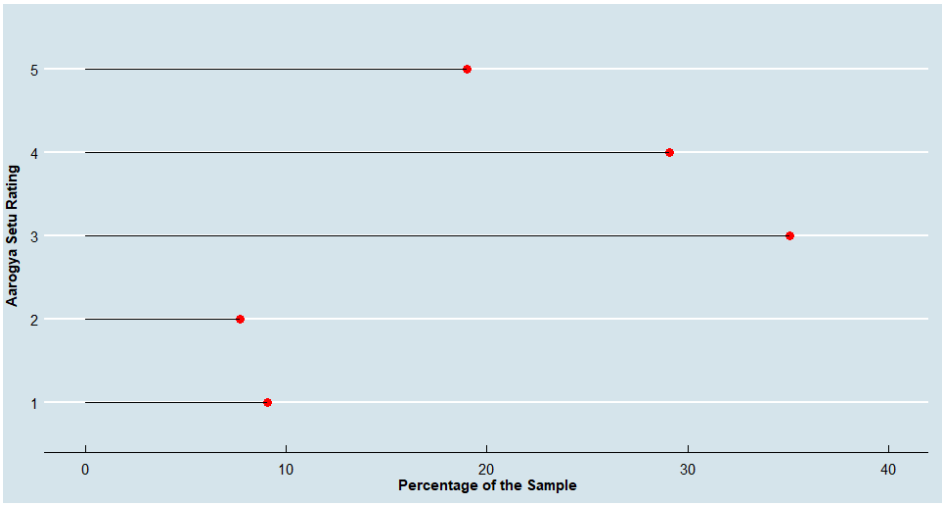


***Fig 5.4: Rating of Aarogya Setu app provided by the participants***

## DISCUSSION

### *Awareness and practices in prevention of infection*

The most common symptoms of COVID-19 as reported by WHO include fever, dry cough and tiredness and more than 70% participants in this study were aware of these common symptoms. The most effective method of reducing risk of infection is by regularly washing hands. WHO recommends washing of hands regularly with soap and water for 20 seconds at least (WHO, 2020a). Other alternatives include alcohol-based hand rubs. Most of the participants in our survey used liquid handwash owing to good hygiene measures. Sanitizers and soap bars were also used in conjugation with liquid handwash by most of the participants. Rubbing a sanitizer, gel or wipe does not guarantee that the entire area of the hand is covered effectively. Washing hands with water alone is not enough too as it does not break interactions between skin and virus (Jabr, 2020).

According to modelling studies based on Influenza model (Koo et al., 2020) and SIR model for Indian subcontinent (Simha, Prasad, & Narayana,2020.; Singh & Adhikari,2020), quarantining the infected individuals, distancing in workplaces and public places can substantially reduce the rate of spread of SARS-CoV-2. In this study, participants revealed that social distancing is the best measure to control spread of COVID-19. Random testing and extension of lockdown were other popular votes in the survey. More than half of survey

population was aware of all the methods that can be employed to control the spread of COVID-19. Only a third of survey population reported that mobile applications including Aarogya Setu can contribute in controlling the spread of virus. This may be because a part of the survey population could be unaware of the features of such tracking applications or because they do not consider the use of IT important for handling grave situations like these. Since people started staying indoors during lockdown, a lot of participants in our survey frequently watched or read news via online modes or television. Just one-fourth of survey population read newspapers frequently. Mode of gathering news is a personal choice but one of the factors accounting for a lower percentage of population reading newspaper can be rationalized as people become aware of transmission of coronavirus not just by droplets in the air but also through spread by sticking on surface of materials like wood, paper, metal (Kampf, Todt, Pfaender, & Steinmann, 2020). Owing to the rising global concerns related to COVID-19 outbreak and need for cure and vaccine against SARS-CoV-2, the population is inquisitive and curious to know what the novel virus reveals which is evident as more people keep themselves updated on this topic.

Almost all respondents in the survey reported wearing masks when going outdoors. A surgical mask may protect others by reducing the respiratory secretions of the mask wearer, but it cannot filter very small virus particles entering through the mask (Leung et al., 2020) N-95 masks are better at protecting both the mask wearer and other surrounding individuals as it is designed to block 95% of the very small particles. Some N-95 masks have a valve to make it easier for the wearer to breathe, however, this releases unfiltered air when the wearer breathes out and may still cause coronavirus transmission (Wilson, 2020). 40% of the participants wore normal masks because of unavailability of N-95 masks for the large population. As the number of infected patients continue to surge, availability of masks goes down as pharmacy and chemist shops sell them 2-3 times their original price to the panicky buyers (Mukherjee, Bhushan, & Thacker, 2020; Sahnewal, 2020). A large section of the society cannot afford to buy such expensive masks and the rates of manufacturing have still not satisfied the demand in India. Lack of PPE (personal protective equipment) and N-95 masks have made the front-line bearers pay a heavy price. In such situations, individuals use whatever masks are available to them, homemade masks, towels, scarfs, etc. Masks of any kind reduce droplet transmission either through a diseased individual or against protection of potential infectious droplets in the air for a healthy individual. If worn by everyone, including those who are asymptomatic for COVID-19 it can help reduce the transmission of SARS-CoV-2.

***Lifestyle changes***

We hypothesize that the dip in the amount of fast food intake can be attributed to strict containment plans and lockdowns imposed by the government which has limited people from moving out of their houses. The participants might also be afraid of ordering food through online delivery apps due to spread of the disease. A survey by the Economic Times (Shrivastava, 2020) had shown that the frequency of food delivery orders made through applications like Swiggy and Zomato had dipped by 70% post lockdown due to fear of spread of the COVID-19. Since people are quarantined and they stay indoors most of the time, decrease in fast food intake may also be a result of health consciousness since their physical activities have decreased which are attributed to increased incidences of various cardiovascular disorders and other diseases (Booth, Roberts, & Laye, 2012).

Decrease in food intake could be due to lower variability in food being eaten due to limited raw products (Marriott & Rolls, 1995). The decrease in consumption of meat products could

be due to misconception leading to fear among individuals that consuming meat products might cause spread of the virus. According to an article by the Times of India, it is perfectly safe to have meat and poultry products but extra care should be taken to ensure that the meat is cooked and washed properly and these kind of hygienic conditions should also be followed while eating vegetable products as well (Times of India, 2020). The decrease could also be because the lockdown has enforced many butcher shops to remain closed and the ban of the inter-state transport of livestock could have further added to this.

Post lockdown an increase in sleeping time of people after 1am could be due to multiple factors like oversleeping, reduced physical activity, stress and anxiety which could be due to an unprecedented unemployment like situation which the lockdown has created. Lack of an appropriate schedule of work has also contributed to change in sleeping patterns. The anxiety of the pandemic situation and its after effects are also contributing factors to the increased sleeping hours (Smith, 2020).

The present survey has shown that more than 80% participants still avail the offline mode of buying utilities which may be because online delivery of utilities is time consuming and limited to specific regions only. Very often, online deliveries are delayed because of sealing of inter-state borders and it has many times also shown to have no serviceable delivery slots when people have tried to avail this mode (Indo Asian News Service, 2020). Almost 60% participants go out to buy utilities 1-2 times a week while very few people go out more than 4 times a week, which is mainly due to the prevailing fear of the spread of COVID-19 which has made people get their weekly requirements by going to the markets only once or twice.

Most respondents participated in some activity or the other during lockdown. Since the majority of our respondents were students, reading was the most popular activity performed among all. Reading has shown to be a stress reliever as it can relieve stress up to 68% (Lewis.D, 2009). Since the spread of novel coronavirus and imposition of lockdown people have tried to maintain or improve their physical well-being which shows why exercise has the highest frequency in activities being performed for 1-2 hours. Exercise has been shown to reduce the risk of many diseases such as diabetes mellitus (Helmrich, Ragland, Leung, & Paffenbarger, 1991) while many studies have also shown that people who exercise have lesser incidences of depression and anxiety (Rethorst, Wipfli, & Landers, 2009; Wipfli, Rethorst, & Landers, 2008).

We also observed an improvement in the family relations of many participants since the lockdown has brought families to spend more time together under the same roof. This could be due to the proximity effect (Gruman, Schneider, & Coutts, 2020) according to which there tends to be an increase in interpersonal liking with more physical and psychological closeness with other people.

For getting consultation regarding health related problems, majority of the individuals preferred contacting doctors over phone calls or reaching out to the doctor in person over online modes of consultation, which may be because patient-doctor relationship (Goold & Lipkin, 1999) holds a far higher value in India than any online mode. Most people contacted the doctor over the phone since people are afraid to go to a doctor's clinic as they might get infected. Very few participants indulged in self-diagnosis through internet and online applications as that might not hold true or useful.

Ginger and garlic were the most popular choices as immunity boosters among all participants. Ginger has many immunological effects in our body. 6-shogaol, a component of ginger is a potent antioxidant (Dugasani et al., 2010). Gingerol, shogaol and other related substances in ginger inhibit prostaglandins and leukotrienes synthesis and they also tend to inhibit synthesis of pro-inflammatory cytokines (Tjendraputra, Tran, Liu-Brennan, Roufogalis, & Duke, 2001; Verma, Singh, Jain, & Bordia, 2004) thus inhibiting the hyper-active immune response to any disease and hence not allowing any threatening response to be developed in the body. Derivatives of garlic have shown to increase the IgA levels in mice (Washiya, Nishikawa, & Fujino, 2013). Also, an enhanced T- cell proliferation with intake of dietary garlic occurs which is suggestive of the fact that it may be directly/indirectly involved in B-cell proliferation and differentiation (Hanieh et al., 2010) which facilitates and helps the immune system to make more and faster antibodies to fight against any disease. Elderly people were seen to take more amounts of immunity boosters which could be due to the fact that with age a person's immunity gradually decreases (Weyand & Goronzy, 2016).

A large proportion of the survey population felt that they will be required to continue social distancing even when lockdown gets over. The work that is being put up by people in front line particularly by doctors and police forces to maintain the lockdown and stop the spread of infection is commendable and hence it is well supported by the fact that 65% of the respondents felt that the respect for these people would increase post lockdown. The tourism industry has certainly been one of the most affected one with the spread of the novel coronavirus as almost half of the survey population feels that there would not be any vacation in near future. The International Air Transport Association (IATA) estimates that global air transport revenues will be reduced by 5% this year which shows the impact the virus has already had on the tourism industry (Traveldailynews, 2020).

***Public Health Concerns***

Approximately half of the participants experienced severe anxiety. WHO also acknowledges that novel coronavirus is generating stress among the public and self-isolation causes a negative impact on the mind and has released guidelines for mental health and psychosocial considerations (WHO, 2020b). According to a review of the psychological impact of quarantine, separation from loved ones, loss of freedom, boredom and uncertainty can have dramatic effects and can lead to Post Traumatic Stress Disorder (PTSD), confusion and anger (Brooks et al., 2020).

Health, economy, unemployment and career aspects were among the major concerns of people post lockdown. Few were also worried about food shortage. At the moment, there is no shortage of food globally but it is feared that the continuing lockdown across the country, affecting labour and input availability for agricultural operations coupled with stoppage of transport networks will disrupt food supplies. The consequent fall in rural incomes is expected to impact food demand and overall economic growth adversely (The Economic Times, 2020). These factors may have contributed to the heightened anxiety levels among participants. The wave of anxiety from the pandemic in addition to social distancing has proven to be a difficult combination for many individuals. Our study showed that women suffered more from psychological stress and anxiety. This can be due to factors such as biological influences, temperamental factors, increased stress and trauma, cognitive factors, metacognitive factors, and environmental factors (Bahrami & Yousefi, 2011; McLean & Anderson, 2009). We hypothesized that the rate of anxiety levels should be higher among the participants who came in contact with already infected patients or had family members

diagnosed with COVID-19. This held true for more than half of the survey population as they feared contracting the disease and also due to the uncertainty of whether people close to them would survive or not. We also found higher anxiety levels among half of the participants who consumed immunity boosters. Anxiety levels were reported to be higher among participants who frequently watched news related to COVID-19 as most of the news broadcast tends to elevate anxiety and stress among individuals due to its disturbing nature. A similar study conducted for Israeli population revealed that the secondary exposure to events via the mass media has led to an increase in the anxiety levels and also caused posttraumatic stress like syndrome in people (Bodas, Siman-Tov, Peleg, & Solomon, 2015). People living in the red containment zones showed higher anxiety levels which is probably because of the closer proximity to coronavirus positive individuals and their families. Strict measures imposed in their location like restrictions on vehicle movements and time bound allowance for going out could have also added to their anxiety (India Today Web Desk, 2020).

Majority of the respondents were satisfied with the measures taken by the government of India to combat COVID-19, particularly including the imposition of lockdown, planning and implementation of containment zones, improvisation within the healthcare sector, etc. Nearly one-fifth of the participants were not satisfied as they found these measures insufficient in helping the poorer sections of the society hit by the lockdown, with no work and place to live (Sharma, 2020). Participants believed that the government should increase funding in basic sciences and healthcare sectors, which is mainly because a sudden outbreak of any disease imposes an urgent need of drug or vaccine discovery. Not just that, situations like these make the government reflect on prevailing healthcare facilities for the masses. The immediate response taken by the government depends on the country's ability to economically combat these issues. More funding in these sectors will be helpful in improving the probability of drug discovery in such situations and will also improve the overall healthcare facilities.

40% of the people concerned with the country's economy in our data donated to the PM relief's fund which received donations from almost 38% of the participants. The NGOs, I for India and WHO received funds from 13.4%, 2.5% and 1.4% respectively.

***Social media usage***

With the advent of the pandemic crisis, a higher percentage of people have turned to social media platforms to utilize their time as these platforms offer an opportunity to nullify the effect of social isolation. The online streaming apps like Netflix/Amazon prime video experienced an increase in the number of their users as watching series/movies have become an escape mechanism for people. Netflix gained an overwhelming 15.8 million subscribers in March 2020 (The Verge, n.d.).

Due to the lockdown conditions, the work dependency for the majority of participants had shifted to online sources which is well supported by the increase in usage of various applications and softwares for formal purposes. Amidst all this, people who are away from their families and friends used apps like WhatsApp, Google Duo, Zoom, Houseparty etc to remain in contact. One of the apps that tripled their market digits in the pandemic was Zoom (New York Times, 2020) being popularly used for formal meetings and online classes. The main reasons for its win in the cloud video conferencing are free service to host and join meetings, easy accessibility on all platforms, good bandwidth and easy to use interface.

As the schools, institutes and universities are closed the concept of online learning and education has come into play which explains the increased use of apps like zoom, Google classroom, Skype, Google Duo etc. by the students. But online learning has its own limitations like issues with internet connectivity, hardware, no personal interaction, etc. The major problem with the advent of online classes was observed to be poor internet connectivity which is a major issue in a third world country like India. In addition to it, a sudden increase in internet users post lockdown (Sengupta, 2020) has also led to the decrease in the internet speed by 20%. Strain and discomfort in the eye also seems to be a prevalent problem among students due to online learning. Termed as Computer Vision Syndrome (CVS), a range of symptoms including headache and discomfort in the eye are caused among users who use computer devices excessively (Rosenfield & Mcoptom, 2016). The lack of face to face communication while teaching has also been an issue with online classes and a survey conducted among a population of students in Hong-Kong also showed that students generally preferred face-to-face learning rather than the online mode of interaction (Miliszewska, 2007).

Tracking people's whereabouts through the location information provided by their phones has possibly been the most commonly used technology by governments which is crucial in identifying infected individuals and the people in proximity to them (Github,2020). The government of India launched 'Aarogya Setu,' an open-source Indian COVID-19 "Contact tracing, Syndromic mapping and Self-assessment" digital service (Bharati, 2020), a mobile app, which may become a key player in the following period after the lockdown is over. Most participants voted for a lower rating of this application, owing to its privacy concerns arising due to tracking and limited use by smartphone users only (Bharati, 2020). Fewer participants gave ratings above average, as the app has proven to be helpful, informative and has shunned down the spread of rumours to a good extent.

## REFERENCES

1. Bahrami, F., & Yousefi, N. (2011). Females are more anxious than males: A metacognitive perspective. Iranian Journal of Psychiatry and Behavioral Sciences, 5(2).
2. Banerjee, D. (2020). The COVID-19 outbreak: Crucial role the psychiatrists can play. Asian Journal of Psychiatry, Vol. 50. https://doi.org/10.1016/j.ajp.2020.102014
3. Bharati, Y. (2020). Aarogya Setu App: Here's everything you need to know | GQ India. Retrieved June 13, 2020, from https://www.gqindia.com/get-smart/content/aaroyga-setu-app-heres-everything-you-need-to-know
4. Bodas, M., Siman-Tov, M., Peleg, K., & Solomon, Z. (2015). Anxiety-inducing media: The effect of constant news broadcasting on the well-being of Israeli television viewers. Psychiatry (New York), 78(3). https://doi.org/10.1080/00332747.2015.1069658
5. Booth, F. W., Roberts, C. K., & Laye, M. J. (2012). Lack of exercise is a major cause of chronic diseases. Comprehensive Physiology, 2(2). https://doi.org/10.1002/cphy.c110025
6. Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G. J. (2020). The psychological impact of quarantine and how to reduce it: rapid review of the evidence. The Lancet, Vol. 395. https://doi.org/10.1016/S0140-6736(20)30460-8
7. Buisness Standard Web Team. (2020). lockdown-3-0-what-are-red-orange-and-green-zones-and-containment-areas. Retrieved June 13, 2020, from https://www.business-

standard.com/article/current-affairs/lockdown-3-0-what-are-red-orange-and-green-zones-and-containment-areas-120050200305_1.html

8. Dugasani, S., Pichika, M. R., Nadarajah, V. D., Balijepalli, M. K., Tandra, S., & Korlakunta, J. N. (2010). Comparative antioxidant and anti-inflammatory effects of [6]-gingerol, [8]-gingerol, [10]-gingerol and [6]-shogaol. Journal of Ethnopharmacology, 127(2). https://doi.org/10.1016/j.jep.2009.10.004
9. Github. (n.d.). Aarogya Setu Android app native code. Retrieved June 13, 2020, from https://github.com/nic-delhi/AarogyaSetu_Android
10. Goold, S. D., & Lipkin, M. (1999). The doctor-patient relationship: Challenges, opportunities, and strategies. Journal of General Internal Medicine, 14(1 SUPPL.). https://doi.org/10.1046/j.1525-1497.1999.00267.x
11. Gruman, J. A., Schneider, F. W., & Coutts, L. M. (2020). Applied Social Psychology: Understanding and Addressing Social and Practical Problems. In Applied Social Psychology: Understanding and Addressing Social and Practical Problems. https://doi.org/10.4135/9781071800591
12. Gupta, A. (2020). unlock-1-containment-zones-in-up-where-lockdown-5-can-remain-till-30-june-2020-mha-new-guidelines. Retrieved June 13, 2020, from https://www.livehindustan.com/uttar-pradesh/story-unlock-1-containment-zones-in-up-where-lockdown-5-can-remain-till-30-june-2020-mha-new-guidelines-3248609.html
13. Hanieh, H., Narabara, K., Piao, M., Gerile, C., Abe, A., & Kondo, Y. (2010). Modulatory effects of two levels of dietary Alliums on immune response and certain immunological variables, following immunization, in White Leghorn chickens. Animal Science Journal, 81(6). https://doi.org/10.1111/j.1740-0929.2010.00798.x
14. Helmrich, S. P., Ragland, D. R., Leung, R. W., & Paffenbarger, R. S. (1991). Physical Activity and Reduced Occurrence of Non-Insulin-Dependent Diabetes Mellitus. New England Journal of Medicine, 325(3). https://doi.org/10.1056/NEJM199107183250302
15. Hossain, M. M., Sultana, A., & Purohit, N. (2020). Mental Health Outcomes of Quarantine and Isolation for Infection Prevention: A Systematic Umbrella Review of the Global Evidence. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.3561265
16. https://www.worldometers.info/coronavirus/. (n.d.). Retrieved June 13, 2020, from https://www.worldometers.info/coronavirus/
17. India Today Web Desk. (2020). Coronavirus: What's allowed in red zones in Lockdown 3.0. Retrieved June 13, 2020, from https://www.indiatoday.in/india/story/coronavirus-what-s-allowed-in-red-zone-in-lockdown-3-0-1673434-2020-05-01
18. India.com. (2020). Fresh 20 Containment Zones Formed in Delhi in Last 24 Hours, Total Count Rises to 122 – Full List Here | India.com. Retrieved June 13, 2020, from https://www.india.com/news/india/fresh-20-containment-zones-formed-in-delhi-in-last-24-hours-total-count-rises-to-122-full-list-of-containment-zones-here-4044459/
19. Indo Asian News Service. (2020). No slots available: BigBasket, Grofers struggle to deliver essential items in Delhi-NCR. Retrieved June 13, 2020, from https://tech.hindustantimes.com/tech/news/no-slots-available-bigbasket-grofers-

struggle-to-deliver-essential-items-in-delhi-ncr-story-mBNIYWeF0kGaRBfLptluPL.html

20. Izquierdo, M., Martínez-Velilla, N., Casas-Herrero, A., Zambom-Ferraresi, F., Sáez De Asteasu, M. L., Lucia, A., … Rodríguez-Mañas, L. (2019). Effect of Exercise Intervention on Functional Decline in Very Elderly Patients During Acute Hospitalization: A Randomized Clinical Trial. JAMA Internal Medicine, 179(1). https://doi.org/10.1001/jamainternmed.2018.4869
21. Jabr, F. (2020). How Washing Hands with Soap Destroys the Coronavirus | The Global Handwashing Partnership. Retrieved June 13, 2020, from https://globalhandwashing.org/how-washing-hands-with-soap-destroys-the-coronavirus/
22. Kampf, G., Todt, D., Pfaender, S., & Steinmann, E. (2020). Persistence of coronaviruses on inanimate surfaces and their inactivation with biocidal agents. Journal of Hospital Infection, Vol. 104. https://doi.org/10.1016/j.jhin.2020.01.022
23. Koo, J. R., Cook, A. R., Park, M., Sun, Y., Sun, H., Lim, J. T., … Dickens, B. L. (2020). Interventions to mitigate early spread of SARS-CoV-2 in Singapore: a modelling study. The Lancet Infectious Diseases. https://doi.org/10.1016/S1473-3099(20)30162-6
24. Leung, N. H. L., Chu, D. K. W., Shiu, E. Y. C., Chan, K. H., McDevitt, J. J., Hau, B. J. P., … Cowling, B. J. (2020). Respiratory virus shedding in exhaled breath and efficacy of face masks. Nature Medicine. https://doi.org/10.1038/s41591-020-0843-2
25. Lewis.D. (2009). Galaxy Stress Research. Mindlab International,Sussex University,UK.
26. Marriott, B. M., & Rolls, B. J. (1995). Effects of Food Quality, Quantity, and Variety on Intake. Retrieved from https://www.ncbi.nlm.nih.gov/books/NBK232454/
27. McLean, C. P., & Anderson, E. R. (2009, August). Brave men and timid women? A review of the gender differences in fear and anxiety. Clinical Psychology Review, Vol. 29, pp. 496–505. https://doi.org/10.1016/j.cpr.2009.05.003
28. Miliszewska, I. (2007). Is It Fully 'On' or Partly 'Off'? The Case of Fully-Online Provision of Transnational Education. Journal of Information Technology Education: Research, 6, 499–514. https://doi.org/10.28945/229
29. MoHFW Home. (n.d.). Retrieved June 13, 2020, from https://www.mohfw.gov.in/index.html
30. Mukherjee, W., Bhushan, R., & Thacker, T. (2020). Coronavirus mask shortage | Coronavirus terror in India: Sanitisers, masks sold out, prices peak. Retrieved June 13, 2020, from https://economictimes.indiatimes.com/industry/cons-products/fmcg/coronavirus-terror-in-india-sanitisers-masks-sold-out-prices-peak/articleshow/74487298.cms?from=mdr
31. New York Times. (2020). Zoom | Covid 19: As cities go for lockdown, out of nowhere Zoom has become the video calling app of choice. Retrieved June 13, 2020, from https://economictimes.indiatimes.com/small-biz/startups/features/covid-19-cities-lockdown-zoom-video-calling-app-videoconferencing-google-hangout-skype/articleshow/74767206.cms?from=mdr

32. Pfefferbaum, B., & North, C. S. (2020). Mental Health and the Covid-19 Pandemic. New England Journal of Medicine. https://doi.org/10.1056/nejmp2008017
33. Rethorst, C. D., Wipfli, B. M., & Landers, D. M. (2009). The antidepressive effects of exercise: A meta-analysis of randomized trials. Sports Medicine, Vol. 39. https://doi.org/10.2165/00007256-200939060-00004
34. Reynolds, D. L., Garay, J. R., Deamond, S. L., Moran, M. K., Gold, W., & Styra, R. (2008). Understanding, compliance and psychological impact of the SARS quarantine experience. Epidemiology and Infection, 136(7). https://doi.org/10.1017/S0950268807009156
35. Rosenfield, M., & Mcoptom, M. R. (2016). Computer vision syndrome (a.k.a. digital eye strain). Optometry in Practice, 17(February).
36. Sahnewal, D. (2020). Unavailability of sanitisers, masks at Jan Aushadhi stores irks residents : The Tribune India. Retrieved June 13, 2020, from https://www.tribuneindia.com/news/ludhiana/unavailability-of-sanitisers-masks-at-jan-aushadhi-stores-irks-residents-61725
37. Sengupta, D. (2020). lockdown: As India connects to stay connected, net loses its zip - The Economic Times. Retrieved June 13, 2020, from https://economictimes.indiatimes.com/industry/telecom/telecom-news/as-india-connects-to-stay-connected-net-loses-its-zip/articleshow/74878463.cms?from=mdr
38. Sharma, S. (2020). Jobs crisis: Unemployment soars; no work for migrant workers coming back to job market - The Financial Express. Retrieved June 13, 2020, from https://www.financialexpress.com/economy/jobs-crisis-unemployment-soars-no-work-for-migrant-workers-coming-back-to-job-market/1949619/
39. Shrivastava, A. (2020). food delivery: Zomato, Swiggy see 70% drop in orders amid lockdown, Technology News, ETtech. Retrieved June 16, 2020, from https://tech.economictimes.indiatimes.com/news/internet/zomato-swiggy-see-70-drop-in-orders-amid-lockdown/74969842
40. Simha, A., Prasad, R. V., & Narayana, S. (n.d.). A simple Stochastic SIR model for COVID-19 Infection Dynamics for Karnataka after interventions-Learning from European Trends.
41. Singh, R., & Adhikari, R. (n.d.). Age-structured impact of social distancing on the COVID-19 epidemic in India. Retrieved from https://github.com/rajeshrinet/pyross
42. Smith, L. (2020). COVID-19: how does the coronavirus pandemic affect your sleep? | Patient. Retrieved June 13, 2020, from https://patient.info/news-and-features/covid-19-how-does-the-coronavirus-pandemic-affect-your-sleep
43. The Economic Times. (2020). coronavirus pandemic: View: Ensuring food security during the pandemic. Retrieved June 13, 2020, from https://economictimes.indiatimes.com/news/economy/agriculture/view-ensuring-food-security-during-the-pandemic/articleshow/75668505.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst
44. The Verge. (n.d.). Netflix. Retrieved June 13, 2020, from https://www.theverge.com/netflix

45. Times Now Digital. (2020). Delhi containment zones list| Number of containment zones in Delhi now 122 as lockdown extended till June 30: See List | India News. Retrieved June 13, 2020, from https://www.timesnownews.com/india/article/number-of-containment-zones-in-delhi-now-122-as-lockdown-extended-till-june-30-see-list/599291
46. Times of India. (2020). Coronavirus Disease: Is it safe to eat meat and poultry? Retrieved June 13, 2020, from https://timesofindia.indiatimes.com/life-style/health-fitness/diet/coronavirus-is-it-safe-to-eat-meat-and-poultry/articleshow/74653514.cms
47. Tjendraputra, E., Tran, V. H., Liu-Brennan, D., Roufogalis, B. D., & Duke, C. C. (2001). Effect of ginger constituents and synthetic analogues on cyclooxygenase-2 enzyme in intact cells. Bioorganic Chemistry, 29(3). https://doi.org/10.1006/bioo.2001.1208
48. Traveldailynews. (2020). Corona virus affecting the tourism industry worldwide. Retrieved June 13, 2020, from https://www.traveldailynews.com/post/corona-virus-affecting-the-tourism-industry-worldwide
49. Verma, S. K., Singh, M., Jain, P., & Bordia, A. (2004). Protective effect of ginger, Zingiber officinale Rosc on experimental atherosclerosis in rabbits. Indian Journal of Experimental Biology, 42(7).
50. Wang, C., Horby, P. W., Hayden, F. G., & Gao, G. F. (2020). A novel coronavirus outbreak of global health concern. The Lancet, Vol. 395. https://doi.org/10.1016/S0140-6736(20)30185-9
51. Washiya, Y., Nishikawa, T., & Fujino, T. (2013). Enhancement of intestinal IgA production by ajoene in mice. Bioscience, Biotechnology and Biochemistry, 77(11). https://doi.org/10.1271/bbb.130408
52. Weyand, C. M., & Goronzy, J. J. (2016). Aging of the immune system: Mechanisms and therapeutic targets. Annals of the American Thoracic Society, 13. https://doi.org/10.1513/AnnalsATS.201602-095AW
53. WHO. (2020a). Coronavirus. Retrieved June 13, 2020, from https://www.who.int/health-topics/coronavirus#tab=tab_1
54. WHO. (2020b). Mental health and psychosocial considerations during the COVID-19 outbreak. Retrieved June 13, 2020, from https://www.who.int/docs/default-source/coronaviruse/mental-health-considerations.pdf?sfvrsn=6d3578af_2
55. WHO. (2020c). Situation Report-46. Retrieved from https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200306-sitrep-46-covid-19.pdf?sfvrsn=96b04adf_4
56. Wilson, M. (2020). Why you shouldn't wear a COVID-19 mask that has a valve. Retrieved June 13, 2020, from https://www.fastcompany.com/90496717/what-is-a-mask-valve-and-why-are-cities-banning-them
57. Wipfli, B. M., Rethorst, C. D., & Landers, D. M. (2008). The anxiolytic effects of exercise: A meta-analysis of randomized trials and dose-response analysis. Journal of Sport and Exercise Psychology, 30(4). https://doi.org/10.1123/jsep.30.4.392
58. Yadav, N. (2020). Mumbai coronavirus micro containment-zone has 717 areas in 24 wards — here's the entire list | Business Insider India. Retrieved June 13, 2020, from

https://www.businessinsider.in/india/news/checkout-the-list-of-red-zones-and-containment-areas-in-mumbai-maharashtra/articleshow/76120761.cms

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