Psycho-social Impact of COVID-19: Methodological challenges in Researching Virtually

Nisha Mani Pandey (✉ nisha15pandey@yahoo.co.in)

King George's Medical University UP <https://orcid.org/0000-0002-2198-7225>

Rakesh Kumar Tripathi

King George's Medical University UP

Deeksha Pandey

Tata Institute of Social Sciences (TISS), Mumbai

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Abstract

Background: Observing the possibility of various psycho-social and emotional issues stemming from the pandemic and lockdown, we have planned an online study with repeated measures. The study aimed to observe the changes and impact of the lockdown and unlock the community's lifestyle and psycho-social well-being. The present article discusses the results of the study and the methodological challenges.

Methods: This was an observational study. Information was collected on a semi-structured questionnaire using Google Forms. The study was done two different times; 1) during the lockdown; 2) after the unlock. After getting ethical clearance, the questionnaire (Google form) was distributed amongst people using social media platforms. The investigators also requested their contacts to further disseminate the forms in their circles. Data were analysed applying SPSS-24.

Results: A total of 324 responses were obtained during the lockdown. However, the follow-up questionnaire after the unlock had only 159 responses. An equal proportion of males and females took part in the study during the lockdown, but females outnumbered males after the unlock. Participants felt changes in their daily routine habits, physical and mental activities, household tensions and daily expenditures due to the lockdown.

Discussion and conclusion: The study reveals that individuals during the lockdown have struggled with various negative emotions. The excessive drop-out of the online study and the limited number of responses from participants were the major methodological challenge.

Background

The new coronavirus disease (COVID-19) is rapidly transmitting and has affected many. According to one of the recent reports from the World Health Organization (WHO), there are more than 31 million confirmed cases all across the world and 0.96 million confirmed deaths, wherein India has had more than 0.96 million cases and > 90 thousand confirmed deaths (1). COVID-19 presents with flu-like symptoms, i.e., fever, cough and difficulty in breathing. In people with existing medical problems, and immuno-compromised states, like old age, suffering from diabetes, cardiovascular diseases, cancer, and other morbid conditions, the virus poses a higher probability of infection (2–4). The present situation gives birth to numerous challenges that change the priorities of our life and forced to change and rethink lifestyles.

Individuals have also faced various known mental health stressors like a loss of livelihood, inability to maintain a healthy diet, constant confinement in a singular space, and inability to access proper health services. Everyone has had to put in extra efforts to remain safe and secure. Across the world, the psychological well-being of every individual now, more than ever, needs special attention. Populations require upgraded care facilities for maintaining and upkeeping their health and well-being, especially without the threat of contracting the virus. Authors have noticed that due to reduced physical activities, lack of social interactions and fear of the illness (COVID-19), anxiety and emotional distress have

increased, which have further adverse effects on psychological well-being. Further, to avoid the spread of the disease, the Government of India (GoI) declared a lockdown on 25th March 2020. This measure was employed to maintain social (physical) distancing and restrict public movement.

A sudden shift was experienced in the family and work environment, availability of resources etc. For maintaining one's health, directives were issued, recommending sanitisation protocols and social distancing (at least six feet of physical distancing from everyone). In this situation, it is imperative to explore the changes in lifestyle during and after the lockdown due to COVID-19 and to study the psycho-social well-being of individuals. Thus, we have planned and developed the present study. This was an online survey on the topic titled 'Psycho-social Well-being during and after state lockdown due to COVID-19'. The survey was prepared and submitted to the Institutional Ethical Committee. The aim of the study was to explore the changes in lifestyle during and after the lockdown during the COVID-19 and study psycho-social well-being during and after the lockdown to understand the changes. We hypothesised that there would be no changes in the psycho-social well-being of the individual during and after state lockdown due to COVID-19 and the objectives of the study were to:

- understand the changes in lifestyle during and after a state lockdown due to COVID-19.
- Draw a comparative between psycho-social well-being during and after lockdown due to COVID-19 and
- study the impact of the changes on an individual's psycho-social well-being and behaviour.

This manuscript discusses the results of the study as well as the methodological challenges faced during the study.

Material And Methods

Study design and the participants

It was an online survey with repeated measures. Study participants were internet users aged 18 years and above, with email ids, willing to take part in the study and able to fill and submit the Google form.

Data collection: Data of the study were collected two subsequent terms i) during the lockdown and ii) after the declaration of the 1st unlock.

Questionnaire design and validation

An online questionnaire on Google Forms in English and Hindi. A short description of the study attached to it, along with an informed consent clause assuring anonymity regarding the responses of the participants. Both versions of the items and accessory content were done on the agreement between three experts. The items in the questionnaire were having a mixed type response system (dichotomous, 5-point scale and with some open-ended questions). These items were related to changes in daily routine,

physical, psychological, emotional status, expenses on recreation etc. No validation was done as it was a time-bound specific study, not a KAP (knowledge, attitude, practice) study.

Inclusion and exclusion criteria

Participants aged 16 years and above using the internet were the respondents for the study. Participants who were willing to provide consent and given their agreement on the consent clause on the google form were considered as study participants.

The survey included two questions that ask the respondent to mark a random choice. It is to ensure that the respondent has read the questionnaire and has not filled the survey randomly. Failure to provide correct responses was considered an unreliable source; data from such forms were not retained during analysis. This ensured stringent practice in the collected data and lesser deviances and errors.

Outcome

The study provided a comparative status of psycho-social well-being during the state lockdown and after the first unlock due to a pandemic. The study recorded the changes in psycho-social emotional behaviour as they experienced due to COVID-19.

Sample size calculation: The survey was done online. Hence, no geographical boundaries were set for accessing the participants who were within the country. Participants were recruited through common contacts and various social media platforms, including Facebook, WhatsApp and Instagram. With the help of an online calculator @95% confidence level and 1.96 confidence interval, the minimum sample size was calculated at 384 (<https://www.calculator.net/sample-size-calculator>).

Ethical committee approval: Ethically approved by Institutional Ethics Committee, King George's Medical University UP, Lucknow in the meeting of ethics held on 9th May 2020 (Ref. code 101st ECM IB/P10). Information received vide letter no. 255/Ethics/2020 dated 13/05/2020.

Procedural details, data management and statistical analysis

Both investigators of the study and research scholars helped and supported during the preparation of the study and dissemination/ circulation of the study proforma. We had disseminated the link of the questionnaire to contacts within professional bodies, personal acquaintances with a request to fill the questionnaire. We also requested them to forward the link further and post it on their social media accounts to ensure maximum spread. The form was open for the duration of one month during and after (one month after the release of the lockdown) the state lockdown.

For obtaining the data, a link to the first phase of the form (during lockdown) was circulated online through social media by the investigators and students (who helped in the study) repeatedly till 31st May. After the declaration of the first unlock, the Google form was again circulated. Questions on both the proforma were similar, barring changes in structure that would capture the effects after lockdown. The

item regarding expenditure also captured changes before the lockdown, during the lockdown and after the lockdown. Similarly, all items on the proforma captured felt changes during the lockdown and after the first 'unlock' declaration.

Afterwards, the data was collected, collated, organised and analysed. Statistics like percentage, central tendency, a test of association and significance was done with the help of SPSS 24.

Results

Despite regular efforts for one month during the lockdown, i.e., in May 2020, only 324 responses were recorded. After declaration for the first unlock, an email was sent to all the participants for filling the 'after' form. Despite frequent reminders, only 159 participants submitted their responses after the declaration of the first unlock. Differences in estimated and actual sample size, as well as data obtained during and after lockdown, is shown in Fig. 1-

Figure 1 reveals that only 324 participants had taken part in the first phase (during lockdown) of the study, which was only 84.6% of the estimated sample size. Of these, only 159 (49.1%) had taken part in the 2nd stage of the study. The margin of error calculated for the study was $\pm 7.77\%$ with a 95% confidence level; further, the analysis was done only for 159 participants who had given their response in both phases of the study.

Almost all participants followed the lockdown strictly as the average score was found to be 4.65 (± 0.574) during lockdown and 4.64 (± 0.67) after the first unlock. Participants' responses on various items related to their daily routine, feeling and emotions, physical and mental health were obtained on a 5-point scale, and average scores related to the same at various stages of study (during the lockdown and after first unlock) was calculated applying SPSS 24. The summary of the calculated results is presented in Table 1 and 2.

Table 1
Changes in routine/ behavior during and after 1st unlock

Description	During lockdown				After 1st unlock			
	Sum	Mean	SD	Variance	Sum	Mean	SD	Variance
Brushing	227	1.43	0.9	1.82	274	1.72	1.2	2.48
Toilet habits	242	1.52	1.0	1.98	281	1.77	1.3	2.56
Bathing	299	1.88	1.3	2.50	336	2.11	1.4	2.90
Cleaning cloths	337	2.12	1.5	2.90	378	2.38	1.6	3.11
Cleaning hands	586	3.69	1.5	2.91	563	3.54	1.6	3.11
Using masks (any type)	612	3.85	1.4	2.83	594	3.74	1.6	3.26
Dietary practices	436	2.74	1.4	2.78	461	2.9	1.5	2.98
Reading/ writing	436	2.74	1.4	2.86	443	2.79	1.5	2.95
Sleep practices	438	2.75	1.5	3.06	414	2.6	1.4	2.83
Exercise	432	2.72	1.5	2.91	424	2.67	1.5	2.99
Spiritual activities (Jap/ prayer/ meditation/ yoga)	437	2.3	1.4	2.9	380	3.39	1.4	2.72
Watching TV	423	2.66	1.5	2.93	398	2.5	1.4	2.82
Social media related activities	458	2.88	1.5	2.99	456	2.87	1.4	2.87
Giving time to your hobby	441	2.77	1.5	3.00	456	2.87	1.4	2.77
Cooking	463	2.91	1.5	3.07	420	2.64	1.5	2.91
Cleaning house	453	2.85	1.5	2.94	444	2.79	1.5	2.95
Others (if any)	323	2.03	1.4	2.81	360	2.26	1.4	2.87

Table 1 reveals that the participants reported a significant number of changes in the habit of cleaning hands. However, variability was seen in reporting the change in various habits like cooking, sleeping practices, giving time to hobbies, social media-related activities, watching television, spiritual activities, and many more. Additionally, after the first unlock, variability was recorded in responses related to mask use, cleaning hands, cleaning clothes, devoting time for exercise and other activities, as these practices were done at a significantly higher rate than other practices.

Table 2
Changes in physical/ emotional activities during lockdown and after 1st unlock-

Description	During lockdown			After 1st unlock		
	Sum	Mean	SD	Sum	Mean	SD
Feeling of any kind of negativity/ negative emotion due to the pandemic and lockdown	418	2.63	1.246	414	2.6	1.32
Feeling/ emotions/ behaviours expressed on a 5-point scale on following items by the participants-						
Anxiousness	356	2.24	1.28	392	2.47	1.30
Tension	398	2.5	1.321	410	2.58	1.24
Sadness	333	2.09	1.321	366	2.3	1.33
Mood Fluctuation	402	2.53	1.409	394	2.48	1.30
Fearfulness	349	2.19	1.324	374	2.35	1.39
Loneliness	338	2.13	1.448	335	2.11	1.28
Irritability	363	2.28	1.346	361	2.27	1.25
Aggression	330	2.08	1.281	350	2.2	1.26
Suicidal ideation	198	1.25	0.663	230	1.45	0.98
Stress	382	2.4	1.313	356	2.24	1.24
Conflict with loved ones	328	2.06	1.276	321	2.02	1.26
Hopelessness	303	1.91	1.247	309	1.94	1.27
Insecurity	328	2.06	1.271	320	2.01	1.29
Appetite	343	2.16	1.353	294	1.85	1.18
Sleep	385	2.42	1.507	360	2.26	1.41
Sexual behaviour	281	1.77	1.192	272	1.71	1.21
Unwanted thoughts	367	2.31	1.396	349	2.19	1.38
Uncontrolled frequent behaviour (like cleaning, checking etc.)	334	2.1	1.402	347	2.18	1.31
Use of substances	249	1.57	1.065	243	1.53	1.05
Physical health	600	3.77	1.599	584	3.67	1.36
Mental health	569	3.58	1.407	590	3.71	1.43
Income	545	3.43	2.189	548	3.45	1.84
Interpersonal relationships (IPR)	602	3.79	1.54	600	3.77	1.34

Description	During lockdown			After 1st unlock		
	Sum	Mean	SD	Sum	Mean	SD
Family environment	622	3.91	1.087	624	3.92	1.13
Work environment	607	3.82	2.046	561	3.53	1.43
Social interaction	506	3.18	1.554	517	3.25	1.46
Dietary planning	557	3.5	1.391	577	3.63	1.25
Physical activities	531	3.34	1.521	578	3.64	1.35
Mental activities	565	3.55	1.404	580	3.65	1.45

Table 2 reveals the negative feeling of the participant on various items like- family environment, work environment, IPR and many more.

During lockdown number of hours in household work was significantly increased

Response on experienced household tension seems to be increased during the lockdown as 58.5% respondents revealed tension sometimes to mostly; which was reported comparatively less before lockdown 44.7% and after first unlock 43.4%.

Table 3
Overall Changes in personal monthly expenditure-

	Personal monthly expenditure (for refreshments/ recreation)		
	before the lockdown	during the lockdown	after unlock
Sum	530	353	376
Mean	3.33 ± 1.512	2.22 ± 1.525	2.36 ± 1.443

Figure 4, along with table3, reveals the average monthly expenditure, significantly reduced due to the pandemic during and after unlock.

Discussion And Conclusion

The study was for understanding the changes in psychological well-being during and after the lockdown due to COVID 19. Though we were unable to get the required number of responses, however, the results reveal significant lifestyle changes. Table 1 reveals changes in cooking, social media related activities, cleaning the house, dietary practice, hobbies, sleep practices and various other activities. In this pandemic, the general population needs to deal with various issues carefully, and daily routine is one of the crucial parts of the same. Advocacy is required to raise public awareness regarding general measures of countering stress like maintaining sleep hygiene, scheduling activities, exercising, relaxation techniques and avoiding social media forwards (5). It is reported that the current pandemic is a relatively new form of the stressor, and due to the unpredictable nature of the disease, healthy people also have an

increased level of fear and anxiety (6, 7). It is reported that negative societal behaviours are driven by fear, and distorted perceptions of risk and the pandemic have incited similar responses (8). A review reports that COVID-19 will cause tremendous stress to patients and health care systems alike across the globe (8). The present study report reveals that the population, in general, is experiencing emotional distress.

The study results suggest feelings of negativity related to various mental/ physical health, dietary activity, and working environment during both phases of the study (Table 2). The adverse effects of the psychological trauma could be far more reaching once the pandemic has passed. It is reported that presently, dietary modifications (9) is essentially required. A *Yoga*-based lifestyle appears to be one of the suitable avenues to destress and improve physical form in a confined space (10). Though we did not explore the impact of such lifestyle modifications on records that there are definite daily activities, they start devoting more time for such activities (Table 1). Such activities help in boosting immunity, lung capacity, positivity, and wellness.

The pandemic affects one's physical health and has a detrimental effect on one's psychological and emotional health and well-being (7, 11). Living through a pandemic is a traumatic experience. Studies suggest that consistent interventions with maintaining psycho-social well-being are vital, if not more (Aluh and Onu, 2020). The study participants, both male and female, have reported experiencing negative emotions with no available resources to deal with them. Many changes were reported in physical health, mental health, interpersonal relationships, family environment, work environment, dietary planning, mental activities (Table 2). It is reported that fear, paranoia, other mental health issues and physical distancing from loved ones, along with a scarcity of resources to fight the virus, has put communities in a more vulnerable state (Stankovska, Memedi and Dimitrovski, 2020).

There are minor variations during and after lockdown scores that are insignificant. The reason maybe because of the unpredictable and terrible status of the disease. It is necessary to remember that initially, the lockdown was treated like a holiday with essential services available to get by. However, as the duration of the lockdown increased, people started worrying. Many lost their sources of livelihood, could not be with their families because of complete transportation shut down or had to face other difficulties in accessing services that made their lives burdensome. In this unprecedented situation, people then started taking cognisance of their psychological well-being. The successive extensions of the lockdown and an increasing number of COVID-19 cases started causing fear, worry, tension and stress due to restricted movements, deterioration/ loss of income, increased fear of getting the infection, limited resources to manage basic needs and other illnesses.

The stigma attached to COVID-19 also plays a vital role in affecting the psycho-social well-being of an individual (Joseph *et al.*, 2020). Additionally, with a sustained lockdown and imposed restrictions, individuals may experience loss of mobility, making them more prone to indulge in high-risk behaviour (De Girolamo *et al.*, 2020). The inability to gauge precisely how or when one might get affected, or what the virus would react like in one's body, even with advanced medical science in the 21st century, reduces a person's capability to have sustained faith (Pfefferbaum and North, 2020).

The present study is only a start to understand the extent of mental health issues that have cropped up in the face of COVID-19. It is vital to study this further and come up with ways to be sustainable in taking care of not just the vulnerable populations but also the population in general. The need for a support system in place that looks after a person's mental well-being with their physical health is of paramount importance now more than ever. Effective and prolonged efforts must be integrated within our health system to prevent mental health issues. Moreover, the general populace should be made aware of how to take care of their physical health and be vigilant of the signs of mental health problems to avoid catastrophic outcomes.

It is essential to understand the drop-out rate in online research. The pandemic required people to maintain physical distance, contributing to one's mental health status. The lockdown had a significant psycho-social impact on every person. Instead of approaching in-person, the researchers had to stay behind screens, limiting rapport building, a cornerstone for research. The study attempted to explore the impact on psycho-social well-being during a pandemic. Non-responsive participants can also be seen as a part of the loss of interest and commitment as the pandemic continued to affect their everyday lives with time progression. In the beginning, the lockdown, being seen as a change of pace, was welcome.

Nevertheless, with the continued restrictions, even after the unlock, participants may not be inclined or focused on research endeavours to commit to the second stage. Even after multiple posts regarding the study and multiple emails for the second response, drop-out remained high. We need to assess and work out strategies for future virtual research to manage such drop-outs. It cannot be construed as a question on the validity of data collected; however, it does pose a question for future researchers who may have to continue using various forms of virtual research. Drop-out will continue to be a methodological challenge for researchers who would continue to study the impacts of COVID-19 as long as the pandemic continues.

Limitations

The study, done on a small scale online, also has its limitations. The sample size was smaller than first calculated, and the drop-out rate for the subsequent questionnaire was significant. As the study was done online, responses were only from literate individuals with internet access, fluent in either English or Hindi, which does not account for cultural and socio-economic variability in the data. The data also only records binary genders and does not account for the LGBTQIA+ population, which may be more significantly affected owing to their pre-existing vulnerable state. The same can be said about lower economic classes as the data largely comes from mid/high-income households that are faring better regarding their access to specific resources during this pandemic. However, this data only goes to suggest that if people with a comfortable lifestyle have undergone harrowing experiences and changes during the pandemic, there is an extreme need for further exploration on this issue for a broader, more vulnerable population as well. This would have to be undertaken keeping in view the methodological challenges online research poses, as it is currently one of the most viable forms to research a pandemic.

Declarations

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Conflicts of interest: None

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Figures

Figure 1

Participants details

Figure 2

Response of participants on hours devoted for household work

Figure 3

Response of participants on experience of house-hold tensions

Figure 4

Personal monthly expenditure (for refreshments/ recreation)