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COVID 19 LOCKDOWN OBLIGATORY: AN EXPLORATION ON PUBLIC'S PERSPECTIVE IN A SUB-URBAN REGION OF NORTHERN TAMIL NADU, INDIA

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Abstract

Background: The COVID-19 pandemic has caused thousands of deaths daily, leading to socioeconomic crisis and mental stress. India's lockdown measures, including social distancing and isolation, have caused joblessness and anxiety. This study aims to assess human stress related to COVID-19 and its associations with other factors affecting standard life in Northern Tamil Nadu, India. **Methods:** This cross-sectional survey used an anonymous online google based questionnaire to collect data from respondents via social media platforms. The online survey was conducted among social media users from 1st to 30th April 2020. A snowball sampling technique was employed to recruit respondents for the survey. A total of 1,131 respondents responded across the country. **Results:** Final analysis includes 400 responses. Participants had a mean age of 34.59 ± 13.8 years, with 66.2 % males and 33.7% females. Statistically significant relationships between perception scores and male gender, unskilled/unemployed, and annual income less than 2.5 lakhs were found using multiple linear regression. **Conclusion:** The study highlights the significant psychosocial and socio-economic suffering experienced by the public during lockdown, particularly among low-income individuals, emphasizing the need for timely policy and action.

Keywords: COVID 19 Lockdown, Socioeconomic Crisis, Mental Stress.

INTRODUCTION

World is confronting the sought-after Corona virus disease (COVID 19) pandemic, causing thousands of deaths every day. The World Health Organization (WHO) has declared COVID-19 a pandemic on March 11, 2020 which originated from Wuhan in Hubei province back in late December 2019[1]. To confront the pandemic, India declared 'Nation-wide obligatory lockdown' from 24th March which led to socioeconomic crisis and mental stress among its people[2]. Some restrictive measures like social distancing and isolation, home and institution-based quarantine along with community containment actions were employed instantaneously without adjournment[3].

On the other hand, healthcare and political system faced a new kind of calamity with insufficient medical facilities and infrastructure to combat the burden. Lockdown hit hard for daily wagers and low and middle-income people who lost their jobs and their income source[2]. Among all the states in India, Maharashtra hit the worst followed by Gujarat, Delhi, Tamilnadu, Rajasthan, Madhya Pradesh and Uttar Pradesh[4]. Emergency stay at home caused distress among people due to numerous stressors like quarantine, isolation, joblessness, decreased salary, ambiguity, anxiety etc.

Nation-wide lockdown contributed to drastic downfall of economy in India, where more than 20 percent population lost jobs according to the survey by Centre for Monitoring Indian Economy[5]. According to WHO, Covid-19 diseases stirred-up confusion, anxiety and fear as it emerged new disease with no exact treatment protocol and guidelines for management giving rise to harmful stereotypes among medical and political entity[6].

As per the study conducted by Centre for Disease Dynamics, Economics and Policy (CDDEP) in 2020, estimated about 5% of 7 lakhs hospital bed count in public health facilities and 7% of 12 lakhs hospital bed count in private health facilities occupies ICU with only 50% of them are with ventilators[7]. Shortage of Intensive care units (ICUs) for critically ill patients and healthcare personnel in enormously populated country like India, lead to social unrest among general population.

Despite the public's mental anguish and socio-economic turmoil, probability of potential outbreaks of dengue, seasonal flu and other tropical infections will be flouted and possibility of natural calamities such as monsoon floods and cyclones to befall. In addition to this, environmental transmission of COVID-19 such as improper disposal of personal protective equipment (PPE) from hospitals without proper bio-medical waste treatment in landfill spots leads to further menace to the existing problem.

With this consequence, our study aimed to assess the COVID-19 related human stress and its' associations with other relevant factors affecting standard life in the country. With specific objectives as to explore people's perception on psychological issues, socio-economic impact, health system and political measures to combat COVID-19 and impending environmental crisis during obligatory lockdown period in Northern Tamilnadu and also to delineate the association of demographic variables with higher risk perception towards COVID-19.

METHODOLOGY

Study Method and Setting:

This is a community based cross-sectional study conducted over phone in the urban field practice area of a tertiary care medical college hospital in Thiruvallur district of northern Tamilnadu from 23rd April – 7th May 2020. This phone-based survey method was chosen as the result of nationwide lockdown, other conventional methods (personal interviews and home visits) of survey were restricted.

Even though online or web-based survey was possible due to the fact that vast literacy breach and internet coverage issues lead to withdrawal and it could be threat to current gap in the perceptions among residents in the study area.

Sample size and sampling method:

We targeted response from adults >18 years of age of all socio-economic backgrounds and education levels. The required sample size was calculated based on the hypothesis that 50% of the respondents would have better perception on COVID-19 with 95% confidence interval, using OpenEpi v.3.01 software sample size derived to be 399. We further included 20% contingency, thus least possible of 479 respondents were necessary. We used Multistage sampling method with two stages to achieve the target sample size.

First, Selection of wards: There are 15 wards listed under urban field practice area. Among these five wards were selected using simple random sampling method using lottery method with replacement.

Secondly, Selection of study participants - updated and comprehensive demographic details of the households residing in the study area are being maintained in the Family Survey Register by the selection using simple random sampling method by computer generated random numbers without replacement. To ensure equal representation of participants from each ward, probability proportional to size sampling was applied. Only one phone number per household was included to constitute a sampling frame 480 participants.

Measurement Tool:

To understand the possible psychological, socioeconomic and environmental impact of COVID-19 obligatory lockdown, we prepared a pre-tested, semi-structured questionnaire adopted from a study conducted in Bangladesh and modified according to our population, healthcare and political system. This perception-based questionnaire contained four sub-scales including socio-demographic details namely mental health Issues, Socioeconomic issues, Healthcare and political system issues and Impending Environmental Issues.

Total annual income of the household in Indian rupees was collected based on the government income tax categorization (below 2.5/2.5–5/5–10/above 10 lakhs). Number of factors in the questionnaire was reduced using 'principal component analysis' (PCA) after applying Kaiser-Maier-Olkin (KMO at >0.5) to endorse the obligation of this test. Only the factors with eigenvalues>1.0 by Kaiser's principle were chosen for final study. We did reduction of parameters asked in the questionnaire in view of response fatigue and dropping out.

Finally, a total of 50 items were included in the questionnaire after subjecting to three step validation process such as, face and content validity by individual experts and conceptual mistakes were revised consequently, internal consistency was checked by Cronbach's alpha (0.78) and lastly pilot testing was done using 10% of the total sample and results of these were not included in final analysis.

The validated questionnaire was translated into local language (Tamil) by language experts (bilingual) to check for native context and feasibility to comprehend easily. It had a 3-point Likert scale pattern with 'disagree, Neutral, Agree' as the options. We deployed a total score of 50 points with each correct answer being awarded '1' point. The higher score on each subscale indicates the higher level of better perception by the respondents.

Data Collection and Analysis:

After obtaining approval from the institutional ethics committee, data collection was carried out over phone by the investigators for a period of two weeks. Oral consent was obtained from the respondents before the survey. For the total 480 phone numbers (sampling frame), we deployed fifteen interviewers received training on phone survey methods, assessment guidelines and information as well as participants inquiries were clarified with standardized responses. Each phone number (participant) was called for at least three times in the working hours on weekdays before excluding from the study.

Each survey appropriated around 20 minutes to complete. Data were summarized in Microsoft Excel 2019 and analysis was done using Statistical Packages for the Social Sciences SPSS software version.22. Data normalization was checked using Kolmogorov-Smirnov test. Qualitative variables were described as frequencies and percentages, quantitative variables were summarized as mean and standard deviation. First order analyses (i.e. independent t test was performed to evaluate the association of dependent and independent variables. 'Multivariate linear regression' model was used to assess the determinants of COVID-19's lockdown related psychological, socio-economic, health system and political impact on general population.

RESULTS

With the total of 480 dialed numbers, only 420 responded to the survey with response rate at 87.5%. We included only 400 respondents that had valid responses in our final analysis to account for community- level fixed effect. Mean Age of the respondents were 34.59 ± 13.8 years. Males participated predominantly [265(66.2%)] than females [135(33.7%)].

As the education qualification, 33.5% of them received graduate level education or above. More than half of them, 53.3% had received formal education in either primary or high school. However, only 2.2% of them did not receive any formal education. According to occupational status, 36.9% were either unskilled workers or homemakers. Most of them, 44.6% were skilled workers. Conversely, 18.3% of them were professionals. Majority [157(39.2%)] of them were earning less than 2.5 lakhs, some (32.2%) were in income band of 2.5 – 5 lakhs and rest above it.

Table 1 depicts description of all the four subscales of perception including total attitude score of the respondents with respect to mean, standard deviation and range. Figure 1 illustrates the Impact of COVID 19 Obligatory Lockdown on People's Perception.

Table 2 expresses the relationship of socio demographic variables with perception scores among respondents. On performing 'Multiple linear regression analysis', determinants like male gender, unskilled/unemployed including housewives and respondents with 'Annual Income' less than 2.5 lakhs were having statistically significant relationship as revealed in Table 3.

Table 1: Descriptive Statistics of each subscale of perception scores among the Participants

Subscales	Total Score	Observed Mean Score	Standard Deviation	Minimum Score	Maximum Score
Mental Health Issues	16	3.57	1.791	1	10
Socio-economic Issues	11	2.87	1.060	0	6
Healthcare and Political System Issues	13	4.96	1.687	0	10
Impending Environmental Issues	10	3.80	1.898	1	10
Total Perception Score	50	17.22	5.819	2	33

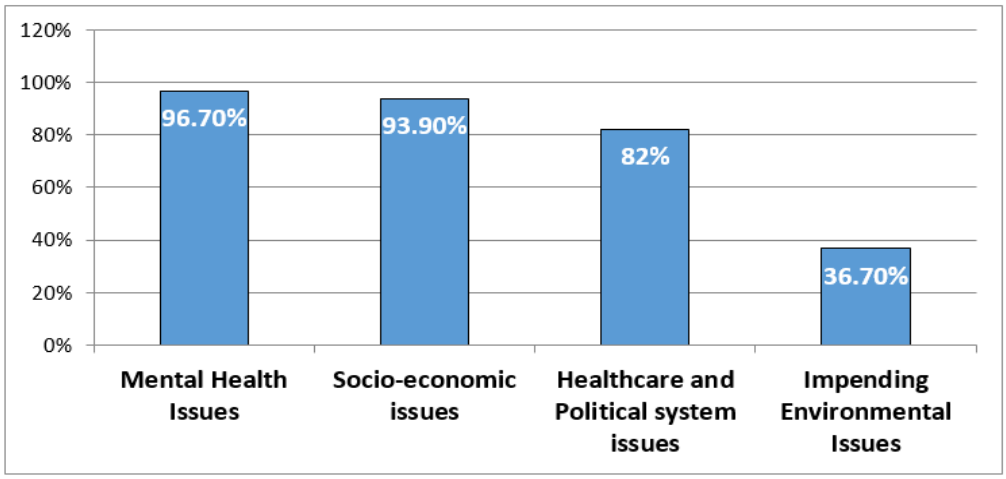

Figure 1: Impact of COVID 19 Obligatory Lockdown on People's Perception

Table 2: Relationship of Independent socio demographic variables with Perception Scores among respondents

Demographic Characteristic	Mental Health Issues	Socioeconomic Issues	Healthcare & Political System Issues	Impending Environmental Issues	Total Score
	Mean±SD	Mean±SD	Mean±SD	Mean±SD	Mean±SD
Age (>35yrs)	2.46±1.69	2.93±0.83	4.92±1.69	3.83±1.72	15.9±5.6
Gender (Male)	**2.36±1.82***	**2.78±1.13***	**4.76±1.65***	3.93±1.94	14.1±4.05
Education (> 7yrs of Schooling)	**2.69±1.82***	**2.9±0.56***	4.9±1.5	3.78±1.12	15.3±2.06
Occupation (Unskilled & Unemployed)	**2.1±1.4***	**2.4±1.0***	4.8±1.7	**2.3±1.1***	**16.6±3.34***
Annual Income <2.5 lakhs	**1.98±0.77***	**2.08±1.87***	**3.38±0.98***	2.45±1.23	**17.21±3.37***

** p value <0.05, Statistically significant using Independent 't' test, SD – Standard deviation

Table 3: Multiple linear Regression Analysis on determinants of better perception scores among respondents

Demographic Characteristic	Mental Health Issues	Socioeconomic Issues	Healthcare & Political System Issues	Impending Environment Issues	Total Score
	βCoefficient (95%CI)	βCoefficient (95%CI)	βCoefficient (95%CI)	βCoefficient (95%CI)	βCoefficient (95%CI)
Age (>35yrs)	-0.22** (-0.39 to -0.42)	0.03 (-0.21 to 0.34)	-0.84 (-0.49 to -0.032)	0.19 (-0.53 to 0.26)	-0.83 (-0.89 to 0.73)
Gender (Male)	-0.07 (-0.20 to 0.19)	0.76** (0.54 to 1.03)	0.92** (0.47 to 1.38)	1.06** (0.66 to 1.46)	2.75** (1.87 to 3.62)
Education (> 7yrs of Schooling)	0.23** (0.04 to 0.43)	0.19 (-0.07 to 0.45)	-0.086 (-0.54 to 0.36)	-0.13 (-0.53 to 0.26)	0.20 (-0.66 to 1.07)
Occupation (Unskilled & Unemployed)	0.58** (0.39 to 0.78)	1.01** (0.75 to 1.27)	0.62** (0.18 to 1.07)	2.91** (2.52 to 3.30)	5.14** (4.29 to 5.99)
Annual Income <2.5 lakhs	-0.14 (-0.53 to 1.42)	2.31** (1.78 to 2.84)	-0.083 (-0.53 to 0.37)	-0.22 (-0.73 to 0.10)	2.64** (1.54 to 2.97)

**p value <0.05, considered statistically significant; 95% CI – 95% Confidence Interval

DISCUSSION

With non-emergent of medicines and vaccines for this deadly disease, lockdown was utmost effective measure in decelerating the pandemic globally[8,9]. Considering, population density, educational status, social structure, healthcare capacity, and often flawed policies taken by the Government, it is hard to lock down a country of 1.21 billion people. This also imposed psychosocial and massive economic burden on its people. Initial impact of lockdown was interrelated to the fright of pandemic and infections itself lead to death anxiety among people's mind. During initial stages of the disease, deprived awareness, frequently varying Symptoms and its novelty further adds fuel to the distressed mental health of the commoners[10]. Shortfall of testing centers, testing kits and long-awaited test results attributed to current pitfall leading to mental instabilities[11].

In our study it stated that 96.7% of the population had mental health issues due to lockdown and fear of contracting the disease. Correspondingly, studies conducted in many developed and developing countries had such mental issues ranging from 86% to 98%.... India faces complex situation with mental issues as it holds high burden of socially and economically vulnerable population and large proportion of preexisting mental health issues[12].

Even though government of India declared many communal safety net programs and incentive packages, there prevailed collapse and sharp decline in the productivity, consumer demand relatively causing poorer and disadvantaged community to suffer due to unemployment, pay-cuts etc.[13]. Under the program, Pradhan Mantri Garib Kalyan Anna Yojna (PMGKAY) distribution of ration was allotted by Government of India as an initiative in its bout against COVID-19[14]. However, owing to the immense problem, especially food safety during lockdown, government schemes remain massively scanty[13]. Association of unskilled workers, unemployed with socio-economic issues assures the impact from the current study in Table 3.

The impact of COVID-19 Lockdown on health care sector is evident as it caused disruption in the health services delivery in multiple means. In a study by Ghoshal et al. projected that lockdown duration is proportional to the treatment outcomes in non-communicable diseases like Diabetes, Hypertension etc. using predictive models[15]. Other communicable diseases like, Human Immunodeficiency Virus (HIV) infection, Tuberculosis (TB), malaria and dengue related morbidity and mortality would be further increased unto 36% compared to present situation before pandemic[16]. Therefore, it is apparent that there would be amplified burden on an already overloaded healthcare system in India.

Natural disasters such as heavy floods, tropical cyclones, mosquito menace and tornados are not new entity to India; nevertheless, they would become more evident during this lockdown posing additional threat to the existing ailments. Therefore, anticipating hotspot and vulnerable areas should be given special emphasis to protect crops, reduce risk and prepare rehabilitation.

Additionally, personal protective measures (PPEs) and other healthcare hazards would be increased exponentially during this period pose a significant threat if treated improperly. Hence, treatment and transportation of bio medical waste hazards should be disposed following national and international guidelines[17].

This research was an ingenuity to swiftly discriminate the impact of COVID-19 on general people. Likewise, we used phone-based survey method to comprise all strata of people in spite of online surveys focusing only on few layers of population as an auxiliary advantage. As far as limitations concern, study interviewed only 400 respondents from a single part of the country. Hence, generalizing the results would not be reasonable. Therefore, conducting similar studies including multi-centers would be beneficial to make appropriate policies and decisions.

CONCLUSION

This study brought out the huge psychosocial, socio-economic sufferings of general public during uncertain lockdown period without ensuring the fundamental human needs, weak governance, and communication, infrastructure and healthcare facilities leads to anxiety and fear in the human minds. Lower income people are more vulnerable even though all groups of society are affected. Therefore, it is essential to introduce time-oriented policy and appropriate actions to be implemented to combat the long run pandemic and country needs to be prepared for impending mental and socio-economic health issues

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