

A Lockdown: Study on Human Behavior

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ABSTRACT

Current research shows human behavior due to lockdown situation. A nationwide lockdown is initially enforced for three weeks in India between 24 March and 14 April 2020 in the midst of the COVID-19 pandemic, and is extended to 31 May 2020. One area of interest among the different experts is the study of human behavior. Identifying these trends provides adequate information about positive effect, reduction in pollution, Atmanirbhar Bharat Abhiyan and focusing on essential products may provide useful information about the target community. Hence, this research aims to identify factors that have an impact on human behavior especially in the lockdown situation. Research have been conducted using the survey method. The statistical population includes the respondents in Ahmedabad and Gandhinagar district, 170 of whom were selected at random. The research instruments include a questionnaire whose validity has been checked according to the opinions of the people of Ahmedabad and Gandhinagar. Thereafter, 20 copies were distributed as pre-tests to the customers to assess the reliability of the questionnaire. The Cronbach's alpha ($\alpha = 0.783$) showed that the methods of data collection are highly competent for the analysis. Research results revealed that human behavior in Ahmedabad and Gandhinagar could be summarized in four factors that completely explain 61.76 per cent of human behavior in a factor pattern.

Keywords: Lockdown, Human behavior, Explorative Factor Analysis.

1. INTRODUCTION

The spread of Coronavirus disease 2019 (COVID 19), which was initially detected in Wuhan of China, resulted in more than one million cases worldwide within the first four months. This has resulted in lockdown in many nations worldwide. While India's first confirmed case was on 30 January 2020, the first international travel advisory posing travel restrictions to China, the Republic of Korea, Iran, Italy and Japan was issued on 11 March after the country saw a sudden jump in COVID-19 cases on 4 March [1] Southern India, Kerala, which was initially the most affected state imposed mass gatherings curtails on march 10th. All places of mass meetings such as banks, shopping centers, and theaters were closed throughout the country beginning on March 16th. The Indian Center for Medical Research (ICMR) argued that the virus is

still in transmission phase 2, which means that there is no local transmission evidence yet. The first fourteen hour national lockdown was on 22 March.

As the cases go up, Prime Minister Shri Narendra Modi announced a complete 21-day lockdown in the country and the Health Ministry said states would need to allocate hospitals solely to treat patients with coronavirus. This lockdown enforces restrictions and self-quarantine measures to reduce transport and industry emissions. The changes in air pollution during this lockdown period can provide insight into the achievability of improving air quality when there are significant emission restrictions from many sources, and provide better plans for regulators to control air pollution.

A lockdown is a protocol of emergency that prevents people from leaving a particular area. A full lockdown means you have to sit where you are and not leave or enter a building or a specified area.

This situation usually allows the citizens to continue to provide essential supplies, grocery stores, hospitals, and banks. For the entire period all non-essential activities remain closed. India isn't currently under full lockdown. However, some states were subject to extreme transport limits, and public facilities were shut down. Train, bus services lines across the world is suspended. Important tasks include picking up food and medical supplies, going to the doctor and walking if you follow social distance. If you are working for an essential service, these restrictions won't need to be adhered to. Anyone who violates the laws may be disciplined with simple incarceration for a period of up to one month, or with a fine of up to Rs 200, or both. Most of the country's biggest cities have ordered private firms to let employees work from home. All offices will remain shut down or will work with minimal personnel until the end of the lockdown period. The central and several state governments have announced daily wage earners and other temporary workers relief packages. The emergency services will continue to operate as usual, such as hospitals and pharmacies. Grocery stores, as well as shopping malls that have such stores inside, will remain open. Stocks can be small, because transportation networks would be heavily limited.[2]

Due to the forced restrictions, the level of pollution in cities across the country slowed dramatically in just a few days, magnetizing lockdown discussions as the effective alternative measures to be implemented to control air, noise and water pollution. The persons' hobby came out due to lockdown. Rivers have become cleaner due to the lockdown, as industries are closed. [3][4][5][6][7] During the lockdown, the air quality improved significantly [8].

On 12th May, 2020 Tuesday Prime Minister Shri Narendra Modi announced a financial package of Rs 20 lakh crore to revive the Indian economy. "I am announcing today a special economic package, which will play an important role in the 'Atmanirbhar Bharat Abhiyan.' Government announcements on Covid-19, RBI decisions and today's package total Rs 20 lakh crores. That's 10 percent of India's GDP, "said PM Narendra Modi in his address to the nation. Speaking to the nation for

the fifth time since March, the prime minister said Indian economic revival path is self-reliance. PM Modi said the financial package will help to revive every branch of the economy-from demand, supply chain to manufacturing. "The economic package focuses on land , labour, liquidity and laws to attain self-reliance," the PM said. "The economic bundle would benefit the cottage industry, home factories, small-scale industries, micro-sized businesses, which are the livelihood means for crores of people.

This package also applies to farmers who work under different weather conditions and to the middle class who pay their taxes on time, "said PM Modi. The prime minister also urged the people to buy and promote local products and brands. He urged the people to be" vocal for the local. "Time has taught us that we have to make the mantra of our lives 'local.' Global brands that are there today were once local too, but when people there started supporting them, they became global. That's why every Indian has to become vocal for our local people from today," PM Modi said. [9]

2. RESEARCH METHODOLOGY

The objective of the research is to study factors that have impact on human behavior in the lockdown situation due to COVID-19. For this, Survey method was used for primary data collection, and sample questionnaire was used for analysis. The questionnaire was constructed with Likert Size. 170 respondents are used for research purposes from two cities of Gujarat State Ahmedabad and Gandhinagar. The analysis was performed randomly from 24th March to 3rd May, 2020 on respondents of Ahmedabad and Gandhinagar.

Primary data obtained from the respondents via the execution of a formal questionnaire dealing with various research aspects. This research was performed using a survey approach, using questionnaires as the key instrument.

3. RESULTS AND DISCUSSION

General Information of the research:

Gender: 71% of the respondents are male and 29% of them are female. The ratio of male to female respondents is 7: 3.

Age: 66% of the respondents were 21-35 years old, 16% of them were below 20 years old, 15% of them were 36-50 years old and 3% of them were above 50 years old.

Marital status: 67% of the respondents were unmarried and 33% of the respondents were married.

Level of Education: 48% of the respondents were post-graduates, 27% of the respondents were graduates and 16% of them completed their schooling and 9% of the respondents were professional / doctoral qualified.

Occupation: 75% of the respondents were salaried persons, 16% of the respondents were students, 4% of them businessman, 4% of them housewives and 1% of the respondents were retired persons.

Monthly Income of the family: 32% of the respondents' monthly income of the family were above 60,000, 24% of the respondents' were between 40,001 to 60,000 and 22% of the respondents' were between 20,001 to 40,000 and 22% of the respondents' were between were between below 20,000.

Data Examination

Table 1: Reliability and Validity of Questionnaire

Item	N of Items	Mean	Variance	Std. Deviation	Cronbach's Alpha
A Lockdown	14	56.400	45.875	6.7731	.783

Source: Primary Data

Reliability:

Cronbach alpha is the most widely used method of scale reliability screening, and for validity testing, item analysis was carried out. It may be mentioned that its value varies from 0 to 1 but for the scale to be reliable [10][11], a satisfactory value is required to be greater than 0.6. Reliability statistics for 14 lockdown products in this sample were 0.782, as shown in Table 1. High reliability shows these items are mostly suitable for analysis.

Table 2: Factorial Validity by KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.782
Bartlett's Test of Sphericity	Approx. Chi-Square	678.022
	df	91
	Sig.	.000

Source: Primary Data

KMO and Bartlett's Test of Sphericity:

Kaiser-Meyer-Oklin test (KMO) is another tool for assessing data suitability for factor analysis. KMO Statistics range from 0 to 1. Kaiser (1974) [12] suggested values greater than 0.5 are acceptable; between 0.5 to 0.7 are moderate; between 0.7 to 0.8 are good and between 0.8 to 0.9 are superior (Field, 2000) [13]. Bartlett's sphericity test is the final statistical test applied to verify its suitability in this study (Bartlett, 1950)[14]. In this study, KMO was 0.782 in value for 14 lockdown items. This value was statistically significant given the sample taken to process factor analysis.

Factor Analysis

Table 3: Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.882	27.729	27.729	3.882	27.729	27.729	3.036	21.688	21.688
2	2.115	15.107	42.836	2.115	15.107	42.836	2.243	16.024	37.712
3	1.479	10.568	53.403	1.479	10.568	53.403	1.715	12.253	49.965
4	1.170	8.356	61.759	1.170	8.356	61.759	1.651	11.794	61.759

5	.832	5.945	67.704						
6	.744	5.313	73.017						
7	.660	4.711	77.728						
8	.634	4.532	82.260						
9	.559	3.995	86.255						
10	.507	3.619	89.874						
11	.432	3.085	92.959						
12	.365	2.604	95.563						
13	.324	2.316	97.880						
14	.297	2.120	100.000						

Extraction Method: Principal Component Analysis.

Source: Primary Data

Factor Extraction:

1) According to the factor extraction, the communality of each factor was 1, which meant that all factors could explain the variance in all common factors, and the correlation of each factor was greater than 0.5, which meant that there were good relations among the factors.

2) Principal component analysis was used to establish the components of the 14 variables by analyzing each standardized factor in order to make the average value of each factor equal to 0 and the variance equal to 1. As a result, the total variance of all the variables:

(1) Using the values of total variance explained in the initial eigenvalues, the variances of Component 1, Component 2, Component 3 and Component 4 were greater than 1, which was greater than the variance of standardized factors.

(2) Using the values of total variance explained in the extraction sums of squared loadings, the 14 variables were grouped into 4 components. The percentage of variance of Component 1 was 27.729, the percentage of variance of Component 2 was 15.104, the percentage of variance of Component 3 was 10.568 and the percentage of variance of Component 4 was 8.356. The total variance of all 4 components was 61.759% of all the variance.

Table 4: Loading of scale items on factors by Rotated Factor Matrix

Rotated Component Matrix ^a				
	Component			
	1	2	3	4
Factor: 1 Positive Effect				
You are enjoying more compared to other days with your family	.807			
You are spending your time in your hobby like reading books, music, singing, writing poems-story, painting, cooking etc	.773			
You are coming more closer with your family	.754			
You are enjoying by doing some help to your mother / wife / sister in routine work	.638			
Person's creativity in cooking came out due to lock down	.619			

You become more health conscious compared to earlier	.530			
Factor: 2 Reduction in Pollution				
Air pollution go down due to lock down		.875		
Water pollution go down due to lock down		.856		
Noise pollution go down due to lock down		.726		
Factor: 3 Atmanirbhar Bharat				
We should use our Indian products to strong our economy after lock down is over			.858	
We should produce products in India and promote our "Make in India"			.835	
Factor: 4 Focus on essential products				
Expenses are spent on unnecessary things like restaurant, gym, travelling, cold drinks, Ice creams, snakes, street foods etc				.781
You should focus more on saving compared to wasting money on unhygienic foods or unnecessary things				.747
Expenses have come down due to Lock down				.516
Extraction Method: Principal Component Analysis.				
Rotation Method: Varimax with Kaiser Normalization. ^a				
a. Rotation converged in 5 iterations.				

Source: Primary Data

After examining the reliability of the scale and the appropriateness of data, the lockdown questionnaire was subjected to Principal Component Factor Analysis followed by Varimax Rotated Factor Analysis, which yielded four factors. The solution was obtained by using fixed number of factors. Accordingly 6 items were selected for factor 1- Positive Effect, 3 items were selected for factor 2- Reduction in Pollution, 2 items were selected for factor 3 – Atmanirbhar Bharat and 3 items for factor 4- Focus on essential products.

4. CONCLUSION

Results showed that reliability statistics for 14 lockdown items at 0.782 indicates high reliability. Of these 14 items KMO value of this study at 0.806, indicates sample taken to process factor analysis to be statistically significant. In addition to KMO Bartlett's test of Sphericity chi-square value was 678.022. This value also confirmed that it was statistically significant. This value indicates that data were statistically significant for the factor analysis. In this study, 14 lockdown items were taken for factor analysis. By using fixed number of factors, items were subjected to Principal Components Factor Analysis, which yield Positive Effect, Pollution, Atmanirbhar Bharat and Focus on essential products. First component is positive effect of due to lockdown. Respondents believe that people are enjoying more compared to other days with your family, spending your time in your hobby like reading books, music, singing, writing poems-story, painting, cooking etc, coming more closer with your family, enjoying by doing some help to your mother / wife / sister in routine work, their creativity in cooking came out due to lock down and become more health conscious compared to earlier. Second component is reduction in pollution of due to lockdown. Respondents believe that Air pollution, water and noise go down due to

lock down. Third component is atmanirbhar bharat of due to lockdown. Respondents believe that we should use our Indian products to strong our economy after lock down is over and we should produce products in India and promote our "Make in India". .Fourth component is Focus on essential products of due to lockdown. Respondents believe that expenses are spent on unnecessary things like restaurant, gym, travelling, cold drinks, ice creams, snakes, street foods etc, they should focus more on saving compared to wasting money on unhygienic foods or unnecessary things and expenses have come down due to lock down.

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