

SUMMER TRAINING REPORT

Containments and Restrictions amidst COVID-19 Pandemic: Assessing Potential Impact on Mental Health

By:

Joshua Jacinth T. P.

0919

MBA-Hospital and Health Management-24



Introduction

- COVID-19: A cluster of 41 patients with mysterious pneumonia, with symptoms like SARS led to initial outbreak in China in late December 2019.
- Transmission: COVID-19 spread through Thailand, India, Korea, Japan Indonesia and to countries outside Asia.
- Scale of the outbreak: within a month confirmed cases of COVID-19 spread through USA, France, Australia, Canada, Germany, Middle-east countries, UK, etc.
- As more than 118,000 cases in 114 countries and 4,291 deaths were reported by 11th March, WHO declared COVID-19 as a Pandemic.

Introduction

- WHO advises countries to follow social distancing, hand sanitization and using face masks to avoid contacting the disease.
- National responses to control the spread of the disease have been varied – Lockdowns, quarantines and curfews.
- China – first country to enforce quarantine and lockdown
- Followed by countries like France, India, Italy, New Zealand, UK and some parts of US

Introduction

- Lockdown measures:
 - closing all non-essential businesses, schools universities, all public places and highly restricted public moments.
 - Border closures and travel restrictions
 - Self quarantine on international travels
 - Closure of domestic travel- public transport
 - Fines and penalties

1.7 billion people worldwide were under some form of lockdown on March 26th which quickly increased to 3.9 billion by April first week.

Introduction

- Lockdown consequences: unemployment, financial trouble to run daily chores, it hit some of the people's only source of income.
- Fear of contacting the disease, students, tourists and frequent travellers stranded outside their homeland.
- Damage to basic wellbeing of the people: fear of burn up of basic resources.
- People felt that their basic right to freedom was snatched from them
- Increasing complaints of negative mental effects from people under lockdown.

Introduction

- Social isolation is a state of being totally or completely out of reach between themselves and society.
- It is not the same as loneliness as people even living with their family have experienced negative psychological effects.
- Unexpected changes to the usual way of life. Feeling unsafe can be associated with the fear of contracting a disease. Social isolation during quarantine can be a catalyst.
- Negative mental effects: acute stress disorders, irritability, insomnia, emotional distress, and mood disorders, depressive symptoms, fear and panic, anxiety and stress because of financial concerns, frustration and boredom, loneliness, lack of supplies and poor communication.
- Growing Stigma and Discrimination.

Objectives and Methodology

1. To understand the association of lockdown on mental health and scale of its impact through existing literatures.
2. To understand administrative level policy response to the containment in different countries of interest.
 - Computerized literature searches were performed using the Google Scholar.
 - Keywords: COVID-19, corona virus, pandemic, lockdown, mental health, psychological evaluation, psychological effects.
 - In the same way articles from different countries were obtained by adding the country's name to the keywords.
 - Primary research studies were chosen and also review researchs.

Observations

- The present world scenario where everyone is at a constant fear of contracting a virus and obeying social distancing and social isolation orders there is a high possibility of its effect on mental health.
- It is the foremost public health concern not only in elder population and individuals with known history of mental illness but also normal healthy human beings with no known mental health disturbances.
- Giuseppe Lippi et.al. concluded that stay-at-home orders may be associated with side effects like anxiety, stress, depression, insomnia especially when lockdowns are extended to months. This disturbs the individual's social habits and personal health.
- Factors include longer quarantine time, fear of infection, frustration, boredom, depleting resource supplies, insufficient information, financial loss, and stigma.
- Brooks et.al., 2020 suggests that prolonged confinement to loneliness increases anxiety, anger, confusion, and PTSD

Observations

- Daniel Goldman et.al conducted a google trends data analysis and identified changing mental stress and patterns of behaviours as search of keywords such as anxiety, depression, therapy, suicide, and boredom increased
- Increased domestic violence, divorce, and suicide rates
- Older people were highly vulnerable to developing mental illness and presenting anxiety, agitation and even insomnia. Wang. H. et.al.
- In China, a survey of 1,210 people found that 53.8% assessed the psychological impact of the situation as moderate-severe, 16.5% reported moderate to severe depressive symptoms, 28.8% moderate to severe anxiety symptoms, and 8.1% moderate to severe stress levels. Most respondents (84.7%) spent between 20-24 hours a day confined at home and the main concern (75.2%) was that his/her relatives would become infected with COVID-19
- Indian survey showed that 40% of participants were paranoid about contracting the virus, 72% reported worried and 12% experiencing insomnia. 75% of the participants agreed that they needed some sort of mental health intervention for the people suffering from it and 80% people wanted professional help to deal with their psychological issues

Observations

- General public of Italy in lockdown presented nearly 1/4th of the sample under moderate to extreme severe symptoms of depression, moderate to extreme severe symptoms of anxiety among 32.6% and around 50.12% reporting moderate to extreme severe symptoms of stress.
- A cross-sectional study on a web based online survey on 18147 Italians showed that 37.14% showed PTS symptoms, 17.3% reported severe depressive symptoms, 7.3% with severe insomnia.
- Symptoms such as anxiety, stress and depression were analysed using 21-item version of the Depression Anxiety Stress Scale was analysed 3550 Spaniards and it was found that symptomatic scores of anxieties, depression, stress was observed in 32.4%, 44.1% and 37.0% of respondents, respectively.
- Example of lockdown induced psychological effect: Thomas Schaefer, Finance Minister to one of Germany's states, ended his life as he faced a lot of mental pressure over the present and future crisis of economy.
- Increasing instances of stigma and discrimination- WHO, 2020c stated that fear is the breeding ground for hatred and stigma and media reporting.

Discussion

- Except 9 countries, all countries have introduced some form of lockdown which promoted social isolation.
- Prolonged isolation has been found to induce certain negative mental health effects throughout the world.
- Growing stigma experienced by individuals who were diagnosed with the disease and who were quarantined reflects on global mental health illiteracy and how it is a need of the hour to be educated and understand about mental health as one of the primary health concerns.
- Public mental health should be considered as a primary healthcare need during such crisis as displayed by some countries like China, Italy, Spain, New Zealand and Germany.

Discussion

- Although efforts were being made to control the spread of the disease, not much importance was given to mental health.
- China: facilitated Psychological first aid as a minimum requirement. Included mental health practitioners in the first response team, also provided tele-consultations through online platforms
- Italy: use of tele-consultation as an OPD. Launched a dedicated website to address people's mental health issues.
- New Zealand: Tele-consultations, tele-health and e-prescribing

Discussion

- Indian Scenario:
 - Shortage of mental health professionals
 - Nearly 150 million Indian suffer from some form of mental illness
 - 0.7 per 100000
 - 0.06% of healthcare budget goes into mental healthcare
 - Psychiatric OPDs were closed following the lockdown only government OPDs were run with very less staff.
 - Dedicated mental health hotline service.

Discussion

- Lessons learned from previous outbreaks.
- Studies from people effected because of previous outbreaks could help design policies which address mental health in outbreaks and pandemics.
- Increased stigma and discrimination towards recovered patients and healthcare workers.
- Public mental health illiteracy.
- Domestic violence.
- Media reporting.

Conclusion

- Enforcing lockdowns known to be affecting mental health.
- Pay cuts, layoffs, unemployment, the low socioeconomic groups, and urban middle class are facing a problem to run their daily economic activities disturbing the stability of their mental health.
- Growing stigma and fear is a direct repercussion of public mental health illiteracy, therefore wide public information campaigns at the local level would educate people about the importance and maintenance of mental health during times of distress.
- Wider dissemination of psycho-social support is required as many of the people do not know about the psychological support helpline, these must be extensively advertised through caller tunes and televisions.
- The government need to invest more in healthcare and especially in mental healthcare as there is huge shortage of psychologists to psychological patient ratio.

Literature Review

S.no.	Author(s)	Country	Objective	Study Design	Sample	Conclusion/Result
1.	Cuiyan W. et.al (2020)	China	Assess psychological impact of Lockdown	Cross-sectional, online survey using snowball sampling	1210	More than half of the respondents rated their psychological impact as moderate-to-severe, and about one-third reported moderate-to-severe anxiety.
2.	Deblina Roy et.al., (2020)	India	Assess the knowledge, attitude, anxiety experience, and perceived mental healthcare need.	Cross-sectional, observational study using snowball sampling technique through online semi-structured questionnaire	662	Nearly half the participants felt panic by the reports of COVID-19 pandemic. 40 % of the participants were paranoid with the thought of contracting the Novel Coronavirus infection. 75 % agreed on the necessity of mental healthcare for individuals who panic amid the pandemic situation. More than 80 % of participants felt the need for the professional help from mental health experts
3.	Odriozola-González et.al. (2020)	Spain	Analyze the psychological symptoms on the confined persons in Spain during the outbreak of the COVID-19 crisis.	A web based 64 item questionnaires was circulated which was further evaluated using 21-item version of DASS-21	3550	Substantial proportion of the analysed sample shows symptoms of depression, anxiety, stress, and PTSD as measured by validate scales. Also, respondents showed high levels of concern about their own health and that of relatives such as their parents, as well as about the social and economic situation resulting from the COVID-19 crisis.

4.	Rodolfo Rossi, et. al. (2020) medRxiv 2020.04.09.20057802; doi: https://doi.org/10.1101/2020.04.09.20057802	Italy	To assess mental health outcomes in the Italian general population after 3 to 4 weeks from start of lockdown measures and to explore the impact of probable risk factors related to COVID-19	Cross-sectional study on data collected through web-based survey design advertised in social networks	18147	Showed high rates of PTSS, depression, anxiety, insomnia, Perceived stress, and ADS, with young women having higher odds of endorsing a mental health outcome. These outcomes were associated with several COVID-19-related risk factors, including being under quarantine, having a loved one deceased by COVID-19, working activity discontinued due to lockdown measures, or experiencing other stressful events (i.e. working, financial, relationship or housing problems) due to the pandemic or lockdown measures.
5.	Claire L Niedzwiedz. Et.al. (2020)	UK	COVID-19 lockdown's impact on mental health on the people and on alcohol, tobacco, and e-cigarettes consumers and whether the impacts observed differs by age, gender, ethnicity, and education level.	Cross-sectional analysis was done on Longitudinal Study data from UK households	48426	It was found that UK's women, younger people, and most educated people suffered from psychological distress after the pandemic hit. This was observed to be increased from the measurements taken after one month of lockdown due to the restrictions on day-to-day activities and most activities which most people enjoy. There were also increasing complaints of unhappiness and not able to sleep.
6.	Nilima et.al. (2020)	India	To investigate the association between Covid-19's nationwide lockdown and psychosocial factors	Cross-sectional study based on online survey was conducted using snowball sampling technique employing special analysis	1316	Growing concerns about losses, job, health, and family created psycho-social impact on the masses. Which have a long-term effect on the community's wellbeing. It was found out that following lockdown and stress have a significant association.

7.	Kaushal S. et.al. (2020)	India	Evaluate and study similar outbreaks from the past to understand its adverse impact on mental health, implement adequate steps to tackle and provide a background to physicians and healthcare workers at the time of such outbreaks to apply psychological first aid.	Review	-	Substantial evidence from the past studies of the impact of SARS, MERS, influenza, and Ebola epidemics on the at-risk population, the suffering individuals and healthcare providers showed neuropsychiatric linkage. Results are relative to the current COVID-19 pandemic; they infiltrate fear, anxiety, emotional distress, and post-trauma stress symptoms as the affected individuals are viewed as minority and secluded from the rest of the population.
8.	Gaur K. et.al. (2020)	India	Understand the mental health concerns of COVID-19 and India's preparedness to tackle it. It further proposes the measures to manage the psychological repercussions of this menace.	Review of existing literature on earlier epidemics as well as the ongoing COVID-19 pandemic and mental health	-	Suggestions on policy level decisions need to be taken and also possible future recommendations on addressing the healthcare spending on public mental health.

Online Course Report

Data Analytics for Lean Six Sigma



Hours: 16hrs



Website: Coursera



Organisation: University of
Amsterdam



Tutor: Dr. Inez M. Zwetsloot,
Amsterdam Business School,
Economics and Business

Course description



Deals with understanding Lean Six Sigma methodology to improve a process



Using data to identify an underperforming process and analyzing data using different tools within data analytics to rectify the problem causing the underperformance.



How to Increase productivity and efficiency with minimum waste?



Deals with approaching a problem using the DMAIC approach (Define- Measure-Analyze-Improve-Control)



How to analyse CTQs (Critical-to-quality) characteristics of a product or service in a world standard data analytics software 'Minitab'



Basically the data analysis knowledge required to improve a process using the tools of 'Minitab'

Learning methodology used in the course



- 48 interactive video lectures, exercises to be completed on Minitab software based on real time Lean Six Sigma project data, module wise readings from the resources provided and module wise graded quizzes. Finally, a graded quiz which covers all topics through the 5-week program.

Course Objectives



To understand data analytics techniques typically useful in a Lean Six Sigma improvement project.



To gather, analyse and interpret data of a process to improve it.



To understand how to use and when to use different data analysis tools within the world standard data analysis software 'Minitab'.



To be able to interpret the results of the data analysis process.

Course contents and learnings

- Data and Lean Six Sigma:
 - Introduction to Data Analysis and Lean Six Sigma
 - Data and DMAIC (Define-Measure-Analyse-Improve-Control)
 - Selecting CTQs (Critical-to-quality characteristics)
 - Units and Operational Definition
 - Sampling
 - Organize your data
 - Understanding the data analysis software Minitab
- Understood what Lean Six Sigma and its application in the DMAIC framework is.
- Quantify problems using CTQs
- How to choose representative samples and collect data?
- Organise data and differentiate units and variables and use Minitab

Course contents and learnings

- 2. Understanding and visualising data:
 - Numerical and Categorical Data
 - Descriptive statistics
 - Visualising numerical data
 - Visualising categorical data
 - Pareto Analysis
 - Visualising two variables
- Interpretation of descriptive statistics
- How to visualise data and interpret results through different charts, graphs and plots

Course contents and learnings

3. Using probability distributions:

- Population versus sampling
 - Estimation and Confidence intervals
 - Normal, Lognormal and Weibull distribution
 - Probability plot
 - Empirical CDF
 - Properties of the normal distribution
- Understood the concept and use of estimation
 - How to quantify precision of an estimate using confidence intervals
 - Understand different types of probability distributions – Normal, Lognormal and Weibull distributions
 - Determine probabilities and percentages using Empirical CDF
 - Understand probabilities of the normal distribution

Course contents and learnings

4. Introduction to testing:

- Introduction to data analysis
 - Hypothesis testing
 - Causality
-
- Identify the different dependent and independent variables and select the appropriate test
 - How to interpret results correctly by differentiating causality and relation

Course contents and learnings

5. Testing: Numerical Y and Categorical X

- Introduction to ANOVA
 - ANOVA analysis
 - ANOVA residual analysis
 - Kruskal-Wallis Test
 - Two sample t-test
 - Test for equality of variances
- Understood when to perform ANOVA and interpret the output
 - Validation of ANOVA using residual analysis
 - Understood when and how to perform and interpret Kruskal-Wallis test
 - Perform two sample t-test

Course contents and learnings

6. Testing: Numerical Y and Numerical X

- Correlation
 - Introduction to Regression
 - Regression analysis
 - Regression residual analysis
 - Regression prediction interval
 - Quadratic regression
- How to use and interpret correlation
 - When and how to use regression and validate it using residual analysis
 - How to interpret prediction interval and quadratic regression

Course contents and learnings

7. Testing: Categorical Y

- Chi-square analysis
- Logistic regression

- Understood how to perform and interpret Chi-square analysis
- How to perform and interpret logistic regression analysis



Thank you