

SUMMER TRAINING

A Report

by

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Part 1. Work From Home Report

Part2. Online Course Report

**MBA HOSPITAL AND HEALTH
MANAGEMENT**

2019-2021



ACKNOWLEDGEMENT

This report has been prepared for the internship that has been done in order to study the practical aspects of the course and implementation of the theory.

The aim of this internship is to be familiar with the practical aspect and uses of theoretical knowledge and clarifying career goals. I have learned a lot of valuable things while working & I realized that learning is never the same when it comes to practice.

I would like to express our sincere gratitude to my Mentor **Dr. Sheenu Jain, Associate professor Institute of Health Management Research** who has given her valuable time and given me a chance to learn despite a busy schedule and for her great guidelines for the internship. I am also thankful to the library & other staff for their co-operative support.

Lastly, I would like to thank my friends who helped me to clutch the rear opportunities in learning.

With regards

Vinit Yadav

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ACRONYMS/ ABBREVIATIONS

S.No.	Acronyms	Full Form
1	SARS	Severe Acute Respiratory Syndrome
2	MERS	Middle East Respiratory Syndrome
3	SARS-Cov	Severe Acute Respiratory Syndrome coronavirus
4	WHO	World Health Organization
5	PSU	Perceived Susceptibility
6	PSE	Perceived Severity
7	PBA	Perceived Barrier
8	PBE	Perceived Benefit
9	PM	Pre-Health Motivation

A Comprehensive Survey Based Covid-19 Perception Study For Post Lockdown Period In India: A Health Belief Model

Abstract:

Background: Amidst corona pandemic Government and health authorities have introduced some interventions like social distancing, face mask and good hygienic practice to prevent the transmissions among people. To understand people behaviour and perception towards these interventions are to be observed so that any factor concern should be addressed to health authorities.

Objective: This study focuses over evaluating and developing a strategy to identify the health belief of people during post lockdown. An attempt is made to measure the five dimensions of health belief (perceived susceptibility, perceived severity, perceived barrier, perceived benefit, and pre-health motivation) and to estimate the measure of association between them. Along with that an influence of education on health belief dimension was aimed.

Methodology: A composed electronic survey based 17 questionnaire which disseminated post lockdown by social networks. Answers were quantitative values of subjective representations, obtained by a psychophysically constructed scale with a Likert scale, Mean time for filling the survey was 10 minutes. SPSS Statistical version 26 was used for pre-processing and analysing the results.

Results: Around 353 responses were recorded between age group 18-60. Descriptive statistics were calculated and the mean age 25.45 ($\sigma= 5.8$), both demographic as well as quantitative variable were represented by frequency distribution table. A significant positive correlation between the five dimension of health belief, also a significant influence of education person's perception and behaviour (health belief). The value of Cronbach's alpha is a measure of internal consistency for scale and other factors was also observed as significant around 0.764 and for five-dimension scale is 0.632 which is considerable.

Conclusion: The study gives an understanding of public perception and belief towards these interventions, serving as a great ally for communication processes and public health education.

Keywords: Post lockdown, health belief, Covid-19, perception, social intervention, behaviour

Introduction:

An ongoing scenario of human infection by a novel coronavirus (Covid-19 or 2019-nCoV, also named SARS-CoV-2) was encountered for the first time in Wuhan City, Hubei Province, China. On February 11, 2020, WHO named it as 2019 novel coronavirus for Covid-19 that infect the lower part of respiratory tract. WHO announced Covid-19 as pandemic on March 11, 2020 as it was spread to 46 nations [1]. Total 41 detailed cases of Covid-19 infection were recorded between the span of December 8, 2019 to January 3, 2020. At that point the WHO called the 2019-nCoV epidemic coronavirus infection 2019 (covid-19). On July 8, 2020 total cases worldwide is 11.9 million confirmed cases and in India total confirmed cases reached to 7,44,328 with total decreased of 20,671 with the recovery of 4,57,133 [2]. One of the main reasons of spreading of infection could be because of easy movement across all nations, due to which cases of Covid-19 increases very quickly. This was managed by public health specialists from few nations to apply non-medical controlling method to avoid transmission, for example, social isolation, social distancing, face mask etc. In the beginning few nations, for example, Italy and Spain, have confronted challenges in population stick to these methods. India has embraced same method to manage infection spreading.

Such huge population create trouble in conducting these methods as everyone has different believes in regards with corona virus. Currently these conditions creating havoc leading to a perceived perception or a behaviour to preventing from spread of infection. In this way, understanding the determinants responses of people, protection against the infection spread by different methods is important to understand the effectiveness of social isolation and social distancing public policies, avoiding or reduce the social control. We expect the model for health believes in India to determinant for such behaviour of people with so many different cultures.

From various sources the people get the information regarding COVID-19 infected cases, and spread rate which can be perceived in a different manner leading to severity and causing barrier for cues to action, forming a health belief among people These could

connect with the emotions of public, social responses of their behaviour towards the COVID-19. The population behaviour are basic thing for managing of this outbreak, especially during the initial stage when no treatment or immunization is available, and the main option is the commitment in alternative methods, for example, wearing mask, hygiene practice hand sanitizer and social distancing and isolation [3]. Relying on various perceived belief's impairment cause a fear for the infection.

The development of health belief model takes place for understanding the lack or failure of people to adapt several methods to prevent themselves from the disease or early detection of infection by screening test. Later this model is used for patient to check responses and compliance with medication. The health belief model made from mental and social theories with the establishment of two segments of health-related perception are desired to avoid getting infected and the behaviour of person towards preventive measures to cure or prevent themselves. Ultimately also depends upon individual action towards benefit and barrier perception for their health.

In India lockdown due to covid-19 took place in four phases i.e. first phase of 21 days from march 25, 2020 & rest three phases was of 14 days each to control the spread of corona virus, during this time-period only essential services were active like pharmacy, hospital, grocery etc Our study starts from the next phase i.e. unlock 1.0 which started from June 1,2020 .

Here in the concept of observing people behaviour and perception come into existence, our study justifies these behaviour post lockdowns. This study helps in understanding perception and belief of people after the first unlock in current situations. The study objectifies to estimate and measure health belief's five dimensions i.e. perceived susceptibility, perceived severity, perceived barrier, perceived benefit, and pre-health motivation and to observe the measure of association between them. For these a survey-based seventeen questionnaires was developed to understand the behaviour and perception for cues to action.

Review of literature:

In the context with the ongoing outbreak of covid-19, the work of HBM will be affected by the interaction with the sources like news and media reports, government strategy

actions and input from the people responses over the span of the out-break. These contents will change people behaviour if it points out perceived barrier, benefits and self-efficacy. One such model is the social distancing measures advanced by the public health authorities (PHAs) over the world. Social distancing measures comprise a blend of measures that aims to build the physical distance among people and minimise the frequency of close contact, which brings the lower network transmission of the infection. We note the differentiation between social distancing with self-isolation measures and quarantine orders. Quarantine and isolation measures are for people who show COVID-19 related respiratory indications as well as had close contact with positive or suspected cases [4]. With the social distancing measure, the people response can be either desired or undesired. The view of people in general towards physical distancing can be determined by mining the significant content from online social media platform. PHAs have been utilizing Facebook and Twitter to post ordinary updates about COVID-19 through their official pages or records [5]. People react to these updates through comments or tweets. Their response could be unbiased, supportive, or critical. It is for all intents and purposes hard for PHA authorities to physically analyse the content from social media. Automatic analysis of text content can be encouraged through AI and ML methods, for example, text characterization or classification. Such techniques can be utilized to powerfully arrange huge social media content for continuous investigation so that PHA authorities can measure people responses to their health messages. In a related report, profound learning-based text classification model was utilized to order tweets about human papillomavirus vaccine with HBM constructs [6]. Through this study, it was conceivable to distinguish the timeframes during which the distinctive HBM constructs were prevalent.

The deep learning-based on text classification method this study help in getting a comprehension of the people perception towards social distancing, utilizing the four key constructs of HBM. Health authorities can utilize the classification model to describe health behaviour of people through the viewpoint of social media.

Dr. Elwalid F. Nasir et. al stated that HBM is the important and first theory of the health behaviour which was developed in 1950s. Health behaviour modification 's assessments depends on the two factors i.e. between the benefit of action and the barriers [7]. HBM is a health behaviour or perception change model (social and psychological) it was made to predict, explain and identify the health-related behaviours of population, specifically with regard to enhance the health services [8]. The conceptual erect that comprise the HBM

are widely defined; in addition, the HBM does not defined how erects of the model interrelated with one another. The HBM which is health behaviour concentrated, there is proof, that the efficacy of mediation to encourage the health behaviour modification and upgrade health results could depend on the model's utilities like the HBM [7].

Perception regarding an epidemic may be required for regulating obedience with health guidance [9] common people might be bound to agree with health advices in the event that they belief that they are efficacious [10]. Likewise, the perceived susceptibility, severity, and high probability that they might be overblown by the outbreak [11]. The social consistence, perception of risk and severity are not predictable across demographic variation, social status and over time. Without a doubt, past study had indicated that perception of people and behaviour regularly change after some time [12]. Application of people health measures ought to be founded on the understanding of the people perception, belief, and behaviour; along these lines, this study planned to investigate the perceived threats, benefit, and barrier on the preventive measures towards COVID-19.

Marcelo Fernandes Costa et. al Suggested that the health belief model is a tool created to explain patient's conduct notwithstanding a disease or the insecurity of becoming sick [13]. It was built during the 1950s and thinks about that useful elements increment master wellbeing use while negative variables decline or restrain them. [14] Thus, to receive a social insurance conduct as well as stay away from insecurity for illnesses, the patient must: (1) accept to be vulnerable to the sickness; (2) accept that the malady will adversely affect, in any event tolerably, their life; (3) accept that embracing certain application is without a uncertainty gainful to lessen their helplessness or, on the off chance that they as of now have it, its soberness; (4) cover significant mental bounds, key for an effective anticipation or treatment [15,16] Among different utilizations, this model has been effectively applied to evaluate diabetes seriousness [17], break down defensive variables for bulimia, discover determinants for oral medicinal services [13] study various societies observation on dementias.

In this way, this examination means to utilize the extended health belief model to outline profile of our populace considering the social controls forced by covid-19 in our nation. To expand the capacity to investigate the reactions, they have utilized a psychophysical scaling strategy by proportion estimation, by a Borg CR ® proportion scale with verbal Harbor (centiMax ®) [18]. This strategy demonstrated to be profoundly proficient seeing

proportion estimations securing as it encourages quantitative reactions for tying down the comparing verbal descriptors. their trials indicated that the utilization of proportion scales with verbal stays improves fundamentally the affectability and quantitative estimation of significant sadness scores [19]. Studies inside the writing generally base the conviction model on ordinal estimations, acquired through a Likert-type scale [20]. An extensive imaginative development in our investigation is the utilization of a quantitative proportion scale [21]. In this way, there is a higher measure of data acquired, empowering the utilization of quantitative and factual instruments of high prescient force, in contrast to ordinal scales, which confine data to recurrence levels with mode and affiliation non-parametric investigations.

Methodology:

Study Population & Sample:

Cross-sectional study design was adopted as per this research and the target population are people from various sectors between 18-60 age group, focusing on students(unemployed) and working population. The time frame of questionnaire was 10 days post lockdown (i.e. from 6 June 2020 to 15 June 2020) and Covid-19 infection spreading exponentially during the study. The participant was sampled from cluster sampling and 353 participants responded to questionnaire & were included in analysis part.

Data Collection:

Data collection process was conducted through online platform by google forms and a composed electronic questionnaire which disseminated post lockdown by social networks. The questionnaire was distributed to students and working population of both government and private sector. Research survey assured authenticity and confidentiality with the questionnaire.

Survey Developments & Rating Instruments:

Preceding studies focused over measuring the health beliefs in India due to Covid-19 post lockdown (6 June 2020). As studies is concerned with health belief among people perception so questionnaire was framed with Covid-19 related health belief. A structured

packet of questionnaire was framed based on demographic information in age, gender, education, monthly income, preferred healthcare delivery system, any prior chronic disease and preferred mode of transport. Other than that, the main focus was on measuring the health belief model to explore the 5 dimension i.e. perceived susceptibility, perceived severity, perceived barrier, perceived benefit, and pre-health motivation based on psychological or personality characteristics (Table 1)

Table 1: Health belief model

CONSTRUCT	DEFINITION
PERCEIVED SUSCEPTIBILITY	Comments indicating an assessment of the increased likelihood of getting COVID-19 infection, highlighting increasing local prevalence and high importation of cases
PERCEIVED SEVERITY	Comments indicating an assessment of increase in the perceived seriousness and the consequences of getting infected by COVID-19 (e.g. hospitalization, pneumonia, death, highlighting mortality risk)
PERCEIVED BENEFITS	Comments supporting, in favor of physical distancing measures (e.g. school closure, working from home, cancellation of events, mass gathering) to reduce transmission of COVID-19
PERCEIVED BARRIERS	Comments mentioning the difficulties, challenges, and negative effects of physical distancing (e.g. loss of freedom, violation of individual rights, inconvenience, loss of income, etc.) as well as perceived ineffectiveness of physical distancing
PRE-HEALTH MOTIVATION	Comments indicating building blocks which ultimately motivate or demotivate a person to take necessary healthcare seeking action, are primarily determined and control the peer psychological characteristics.

Reference [22]

To understand the theory, which is basically an additive one, so thinking of these element as a component where adding the degree of susceptibility, severity and pre-health motivation subtracting the difference between benefit and barrier should be equal to the likelihood of health behaviour or health belief.

Psychological characteristics includes perceived susceptibility like Routine Risk, Place or group exposure, Prior health condition(diabetes) ; perceived severity like Impairment of daily living activities, Population symptoms, Covid symptoms (shortness of breath); perceived benefit like Social distancing, Prevention by antiviral drug, Prevention by good hygiene practice; perceived barrier like Ability to work from home, Risk of losing job, Use of alternative transport and Pre-Health motivation like Using vitamin C tablet, Handwashing minimise infection, Using sanitizer, mask, gloves and Staying home.

To assess health belief status generalized psychological behaviour scale for measuring the health belief dimension include 17 characteristics questionnaire perceived to people in contrast estimating the peer health belief model. The scale was based on Likert scale ranging from strongly agree (1), agree (2), neutral (3) disagree (4) strongly disagree (5). This scale is one of the best measuring instrument for diagnosing and screening in clinical practice one of the valid instrument to assess its consistency and based on this Likert scale the separate value of each of the 5 dimension was estimated for every individual.

Inclusion and Exclusion Criteria:

People of age between 18 to 60 were included. Hence forth individual age less than 18 and greater than 60 were excluded. The major focus was on working population as they have influential health behaviour which can be studied as significant post lockdown. The study basically focuses over health belief post lockdown (June) of an individual to perceive preventive as well as good hygiene measures.

Data Analysis:

At the time of collection of data, there were no missing values found but duplicate values were part of it which were removed simultaneously while some of the columns were deleted. Estimation of data analysis were done by IBM SPSS version 26.0. A descriptive study approach was applied to assess demographic data through frequency distribution & percentage. Cross tabulation tab to assess impact of education on health belief. Measure of association as parametric test (correlation r) was applied to test the association between susceptibility, severity, barrier benefit and pre-health motivation.

Ethical Consideration:

All respondent was informed about research study, work purpose and were assured with the reliability and confidentiality of their data.

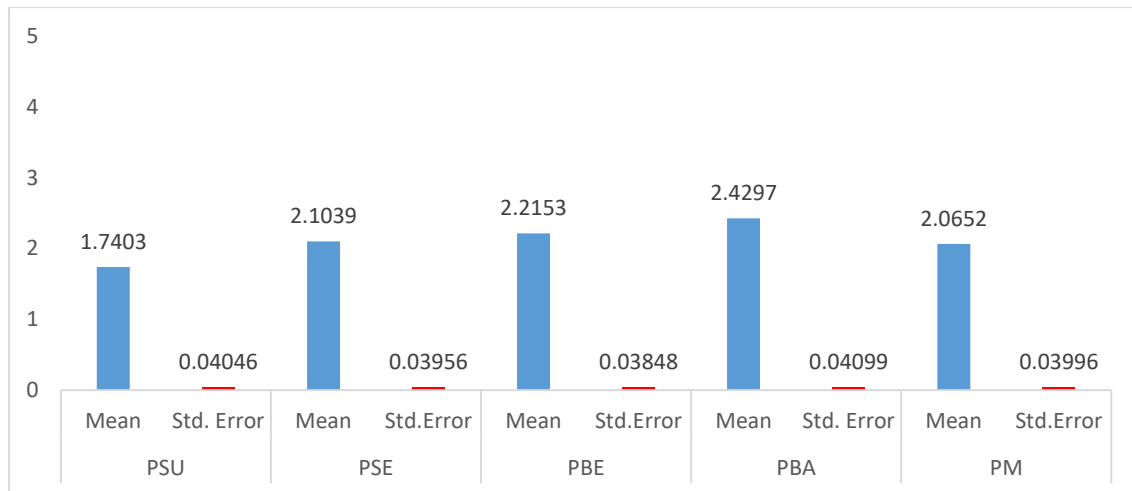
Results:

The result suggested that the study has encounter the various belief and pre motivation has positive impact on individual after lockdown and will definitely influence the daily activity and leads to perceived cues to action. Around 353 responses were recorded indicating the descriptive mean age of sample (μ) is 25.45 and standard deviation (σ) is 5.8 indicating that the age majorly distributed among 19-31. The overall descriptive of dimensions gives the understanding of key influencing factor (table2).

Table 2: Descriptive statistics for perceived susceptibility, perceived severity, perceived barrier, perceived benefit, and pre-health motivation.

	Mean		Std. Deviation	Variance
	Statistic	Std. Error	Statistic	Statistic
PSU	1.7403	.04046	.76014	.578
PSE	2.1039	.03956	.74318	.552
PBE	2.2153	.03848	.72302	.523
PBA	2.4297	.04099	.77005	.593
PM	2.0652	.03996	.75071	.564

Figure 1: Graphical representation of perceived susceptibility, perceived severity, perceived barrier, perceived benefit and pre-health motivation , here y axis represent the level of health belief leading to cues to action (1 = Excellent; 2 = good; 3 = average; 4 = poor)



The demographic variable of the sample characteristics can be shown by a frequency distribution table, it can be observed that among sample around 51.5% respondent are male and 48.5% are female, 47.3% are graduate & 37.3% are post graduate and zero respondent with no formal education. Taking prior chronic disease into account 2 respondent with hypertension and cardiac disorder and 8 respondents with each Diabetes and Respiratory disorder. Out of 353 respondent's government health care delivery system was preferred by 26% only and 74% prefers private hospital or clinic. Out of 353 respondent 5.6% earning in rupees is less than 10,000 ,18.1% earns between 10,000 to 25,000, 12.4% earns between 25,000- 50,000 ,9% respondent earns more than 50,000 & rest 54.6% are unemployed. Preferred mode of transportation was personal vehicle i.e. 63.7% followed by public transport i.e. 18.1% and 14.2% use private vehicle (Ola, Uber, Taxi). (Table 3)

Table 3: Demographic Variable of respondent sample (N= 353).

VARIABLE	CHARACTERISTICS	FREQUENCY
GENDER	Male	182 (51.5)
	Female	171 (48.5)
EDUCATION	Primary Education	6 (1.7)
	Secondary Education	26(7.3)
	Diploma	10 (2.8)
	Graduate	167 (47.3)
	Post-Graduate	132 (37.3)

	Doctorate	12(3.4)
	No Education	0
MONTHLY INCOME		
	Less than 10,000	20 (5.6)
	10,000 to 25,000	64 (18.1)
	25,000 to 50,000	44(12.4)
	More than 50,000	32 (9)
	Unemployed	193(54.6)
CHRONIC DISEASE		
	Hypertension or cardiac disorder	2 (.6)
	Diabetes	8 (2.2)
	Respiratory disorder	8 (2.2)
	Other	8 (2.2)
	None	327 (92.6)
HEALTHCARE SYSTEM		
	Government (PHC, CHC)	92 (26)
	Private	261 (74)
TRANSPORTATION		
	Public	64 (18.1)
	Personal	225 (63.7)
	Walking	14 (4)
	Private (Ola, Uber, Taxi)	50 (14.2)

Looking at Self-efficacy individual statements, almost all the participants agreed/strongly agreed to the seventeen statements. Regarding susceptibility statements, most of the participants either strongly agreed or were agree to three statements. Majority of the participants agreed/strongly agreed to the three statements of the severity construct, as well. About statements of the barriers, participants varied with almost half strongly agreed to neutral the first and third while equally distributed to the second statement. About pre health motivation in last three statement individual were responded from

strongly agree to agree while in first statement most of the responses are neutral. (Table 4).

Table 4: Frequencies (n) and percentages (%) distribution of Health belief model constructs

	Questions	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Perceived Susceptibility	Routine Risk	190(53.8)	70(19.8)	63(17.8)	8(2.3)	22(6.2)
	Place or group exposure	239(67.7)	64(18.1)	20(5.7)	8(2.3)	22(6.2)
	Prior health condition(diabetes)	182(51.6)	77(21.8)	50(14.2)	18(5.1)	26(7.4)
	Impairment of daily living activities	171(48.4)	82(23.2)	64(18.1)	18(5.1)	18(5.1)
Perceived Severity	Population symptoms	106(30)	99(28)	98(27.8)	22(6.2)	28(7.9)
	Covid symptoms (shortness of breath)	46(13)	28(7.9)	32(9.1)	28(8)	219(62)
Perceived Benefit	Social distancing	186(52.7)	87(24.6)	46(13)	16(4.5)	18(5.1)
	Prevention by antiviral drug	50(14.2)	59(16.7)	126(35.7)	68(19.3)	50(14.2)
	Using mask	115(32.6)	106(30)	86(24.4)	30(8.5)	16(4.9)

Perceived Barrier	Prevention by good hygiene practice	189(53.5)	102(28.9)	36(10.2)	8(2.3)	18(5.1)
	Ability to work from home	129(36.5)	74(21)	76(21.5)	26(7.4)	48(13.6)
	Risk of losing job	92(26.1)	62(17.6)	87(24.6)	38(10.8)	74(21)
	Use of alternative transport	197(55.8)	82(23.2)	46(13)	16(4.5)	12(3.4)
Pre-health Motivation	Using vitamin C tablet	54(15.3)	80(22.7)	150(42.5)	37(10.5)	32(9.1)
	Handwashing minimize infection	147(41.6)	124(35.1)	50(14.2)	20(5.7)	12(3.4)
	Using sanitizer, mask, gloves	205(58.1)	78(22.1)	38(10.8)	24(6.8)	8(2.3)
	Staying home	188(53.3)	80(22.7)	50(14.2)	17(4.8)	18(5.1)

A correlation study has been observed between all the five dimension of health belief i.e. perceived susceptibility, perceived severity, perceived barrier, perceived benefit and pre-health motivation influenced post lockdown. It was found that a positive correlation between all the variables was observed at 0.01 level of significance (2-tailed).

Table 5: Correlation between perceived susceptibility, perceived severity, perceived barrier, perceived benefit and pre-health motivation influenced post lockdown

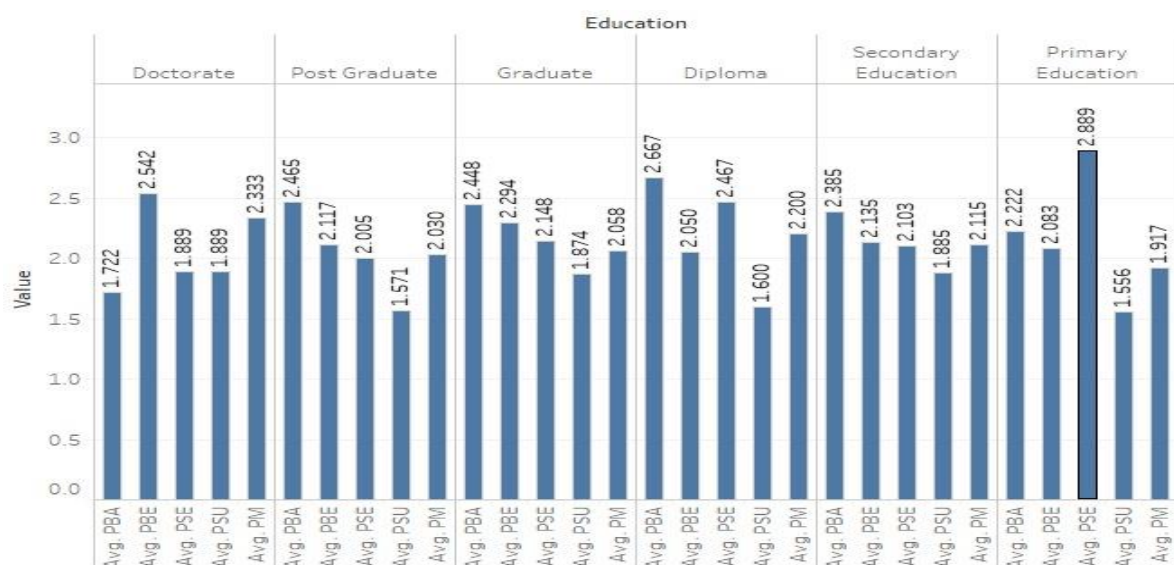
		PSU	PSE	PBE	PBA	PM
PSU	Pearson					
	Correlation	1	.322**	.283**	.177**	.372**
	Sig. (2-tailed)		.000	.000	.001	.000

PSE	Pearson					
	Correlation	.322**	1	.050	.077	.215**
	Sig. (2-tailed)	.000		.350	.147	.000
PBE	Pearson					
	Correlation	.283**	.050	1	.172**	.638**
	Sig. (2-tailed)	.000	.350		.001	.000
PBA	Pearson					
	Correlation	.177**	.077	.172**	1	.258**
	Sig. (2-tailed)	.001	.147	.001		.000
PM	Pearson					
	Correlation	.372**	.215**	.638**	.258**	1
	Sig. (2-tailed)	.000	.000	.000	.000	

****.** Correlation is significant at the 0.01 level (2-tailed).

From the above result it can be interpreted that a strong correlation between pre health motivation and perceived benefit which depicts that benefits like prevention from good hygiene practices, using mask and social distancing promotes pre health motivation of an individual. Also, it was found a positive correlation between perceived susceptibility & perceived severity; perceived susceptibility & pre health motivation; perceived benefit & perceived susceptibility; perceived barrier & pre health motivation; perceived severity & pre health motivation and so on.

Figure 2. Descriptive statistics of five dimension based on level of education.



A descriptive cross tabulation was performed to check measure of association between education with health belief dimensions that how education can influence person behaviour, perception and belief about health and preventing from infection. As education plays a significant role in developing persons belief about cues to action post lockdown, the result is pretty much significant showing the drift towards better understanding behavioural aspects and belief combating the current outbreak. The result for different dimension of health belief shows education imparts better severity & susceptibility and low perceived barrier leading to better pre health motivation (cues to action) results in better psychological and behavioural belief model. (Table 6)

Table 6: Cross tabulation of education with health belief variables

		Primary Education	Secondary Education	Diploma	Graduation	Post- Graduation	Doctorate
Perceived susceptibility	Excellent	4	16	8	94	98	8
	Good	2	6	2	49	24	0
	Average	0	4	0	16	8	2
	Poor	0	0	0	8	2	2
Perceived Severity	Excellent	0	8	2	63	68	6
	Good	4	16	6	76	40	4
	Average	2	2	2	28	24	2
	Poor	0	0	0	0	0	0
Perceived Benefit	Excellent	2	10	6	51	46	0
	Good	2	12	2	82	70	10
	Average	2	4	2	28	16	0
	Poor	0	0	0	6	0	2
Perceived Barrier	Excellent	2	8	0	41	32	6
	Good	2	8	6	76	56	6
	Average	2	8	4	44	42	0
	Poor	0	2	0	6	2	0

Pre-health motivation	Excellent	2	8	6	74	54	6
	Good	4	16	0	65	60	2
	Average	0	2	4	22	18	2
	Poor	0	0	0	6	0	2

The non- parametric test result indicates a significant chi- square values for perceived severity and pre-health motivation i.e. the values better fitted the model. Chi -square test model signify the arithmetic health belief equation, the better fitted values for perceived severity promotes health motivation and return cues to action. (Table 7)

Table 7: Chi-Square (χ) statistics for education and five dimension of health belief

	Education	PSU	PBE	PSE	PBA	PM
Chi-Square	433.442 ^a	492.884 ^b	221.547 ^c	75.558^d	248.057 ^b	182.292^e
df	5	12	14	8	12	13
Asymp. Sig.	.000	.000	.000	.000	.000	.000
a. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 58.8.						
b. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 27.2.						
c. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 23.5.						
d. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 39.2.						
e. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 25.2.						

The efficacy and reliability of this Likert seventeen statement scale was found high, as the value of Cronbach alpha is 0.764 and the self -developed scale for five-dimension average value gives a reliability of 0.632. this indicates that a reliability of our study is excellent, and our scale can be preferred for estimating health belief perception or behaviour of an individual.

Conclusion:

An attempt is made to estimate the health belief faced by people (18-60) amidst of Covid-19 post lockdown. All the 5 dimensions of health belief (perceived susceptibility, perceived severity, perceived barrier, perceived benefit, and pre-health motivation) was given equal weightage and it was found that people are having upright psychological behaviour for cues to action. About 69.8% of individuals have a right health belief

experienced post lockdown. It had been observed that among genders based no significant difference in health behaviour was being observed that is both male and females have almost same kind of belief. The seventeen statement Likert scale gives a wide idea in estimating the health belief, descriptive gives an idea about average values which were mean and standard deviation for perceived susceptibility 1.74; 0.04, perceived severity 3.10; 0.39, perceived benefit 2.21; 0.038, perceived barrier 2.42; 0.04 and pre-health motivation 2.06; 0.39 respectively. A positive correlation has been observed within the 5 dimensions scale & education. The value of Cronbach's alpha is a measure of internal consistency for scale and other factors was also observed as significant around 0.764 and for five-dimension scale is 0.632 which is considerable.

The health belief model-based on e-questionnaire related with the ratio scale is a significant tool to comprehend the public behaviour and perception on Covid-19 infection risks in both qualitative and quantitative manner, considerably more informative than the commonly used questionnaires construct and psychological metrics, such as Likert-type ordinal scales. Our health belief model enabled the confirmation of mainstream perception about covid-19 infection risks. The advantage in our approach lays in the possibility of quickly, directly, and quantitatively identifying individual perception profiles for all dimension in the e-questionnaire, serving as a great ally for communication processes and public health education.

Reference:

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PART 2: Online course report

THE DATA SCIENCE COURSE 2020: COMPLETE DATA SCIENCE BOOTCAMP

1. Why This Course:

As a candidate of MBA in health, one must understand the ins and outs of each of these areas and recognize the appropriate approach to solving a problem. Data science will give a comprehensive knowledge for the realm of data science. Mathematics operations like calculus and linear algebra are essential for programming in data science. To understand advanced machine learning algorithms, then these skills are needed. This course doesn't give the tools that are needed but also teaches how to use them. When it comes to developing, implementing, and deploying machine learning models through powerful frameworks such as scikit-learn, TensorFlow, etc, Python is a must have programming language. A data scientist relies on business intelligence tools like Tableau to communicate complex results to non-technical decision makers.

Data science is all about predictive modelling and advance statistics. Machine learning is everywhere. Companies like Facebook, Google, and Amazon have been using machines that can learn on their own for years. Now is the time to control the machines in healthcare sector as well.

2. Course Description:

Data scientist is one of the best suited professions to thrive this century. It is digital, programming-oriented, and analytical. Therefore, it comes as no surprise that the demand for data scientists has been surging in the job marketplace. However, supply has been very limited. It is difficult to acquire the skills necessary to be hired as a data scientist. This course includes complete data science training.

Data science is a multidisciplinary field. It encompasses a wide range of topics.

- Understanding of the data science field and the type of analysis carried out

- Mathematics
- Statistics
- Python
- Applying advanced statistical techniques in Python
- Data Visualization
- Machine Learning
- Deep Learning

Each of these topics builds on the previous ones. And you risk getting lost along the way if you don't acquire these skills in the right order. For example, one would struggle in the application of Machine Learning techniques before understanding the underlying Mathematics. Or, it can be overwhelming to study regression analysis in Python before knowing what a regression is.

3. Key Highlights:

a. Intro to Data and Data Science

Big data, business intelligence, business analytics, machine learning and artificial intelligence. We know these buzzwords belong to the field of data science but what do they all mean?

b. Mathematics

Learning the tools is the first step to doing data science. You must first see the big picture to then examine the parts in detail. We take a detailed look specifically at calculus and linear algebra as they are the subfields data science relies on.

c. Statistics

You need to think like a scientist before you can become a scientist. Statistics trains your mind to frame problems as hypotheses and gives you techniques to test these hypotheses, just like a scientist.

d. Python

Python is a relatively new programming language, and, unlike R, it is a general-purpose programming language. You can do anything with it! Web applications, computer games and data science are among many of its capabilities. That's why, in a short space of time, it has managed to disrupt many disciplines. Extremely powerful libraries have been developed to enable data manipulation, transformation, and visualization. Where Python really shines however, is when it deals with machine and deep learning.

e. Tableau

Data scientists don't just need to deal with data and solve data driven problems. They also need to convince company executives of the right decisions to make. These executives may not be well versed in data science, so the data scientist must but be able to present and visualize the data's story in a way they will understand. That's where Tableau comes in – and we will help you become an expert storyteller using the leading visualization software in business intelligence and data science.

f. Advanced Statistics

Regressions, clustering, and factor analysis are all disciplines that were invented before machine learning. However, now these statistical methods are all performed through machine learning to provide predictions with unparalleled accuracy. This section will look at these techniques in detail.

g. Machine Learning

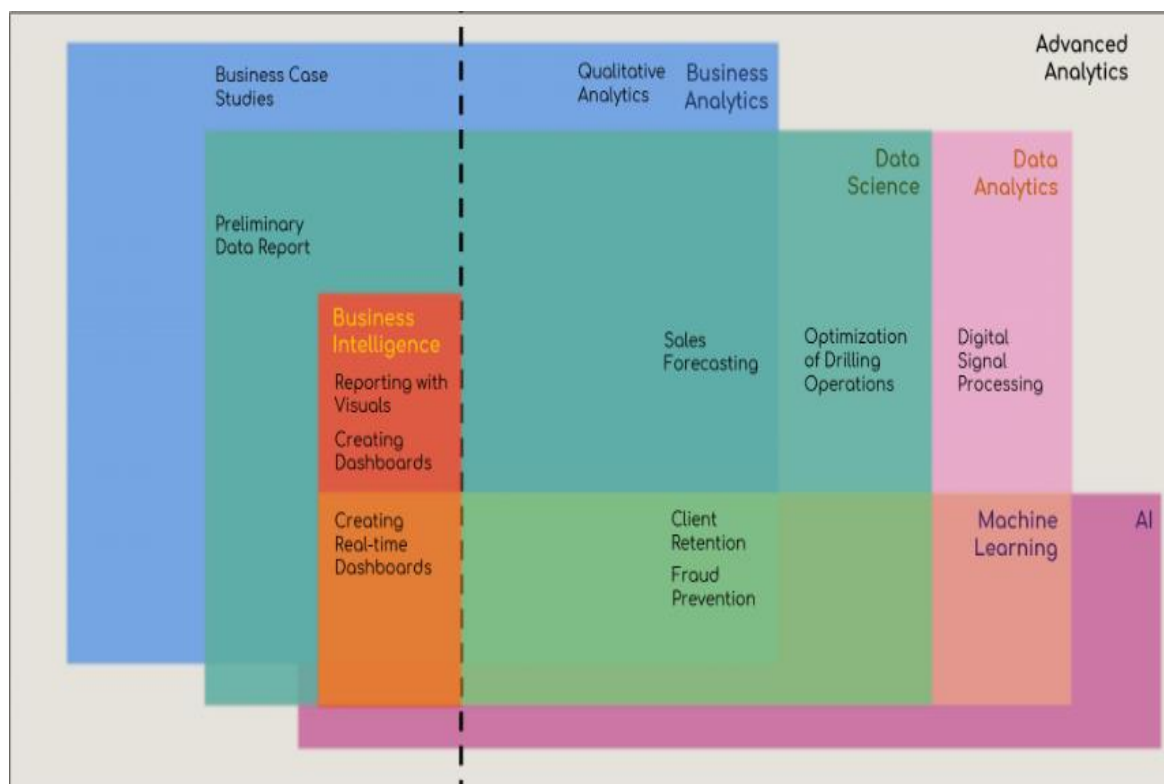
The final part of the program and what every section has been leading up to is deep learning. Being able to employ machine and deep learning in their work is what often separates a data scientist from a data analyst. This section covers all common machine learning techniques and deep learning methods with TensorFlow.

4. Key Course Objectives:

This course comprises many objectives related to data science and its application in relevant field. It includes: -

- To analyse data driven decisions, require well organized and relevant data stored in a digital format.
- To use data how to create reports and dashboards to gain business insights.
- To assess potential future scenarios by using advanced statistical methods.
- To understand various business driven processes like basic customer data financial, trading data, price Optimization, inventory management, User experience, sales forecasting, fraud detection and client retention
- To utilize artificial intelligence to predict behaviours in unprecedented ways.
- To learn data pre-processing and data analysis various statistical tools like regression and clustering analysis.
- To understand basic of python, machine learning, artificial intelligence and statistical methods.

Figure 3: Popular disciplines in the data science field and how they intertwine with each other



5. Course Modules:

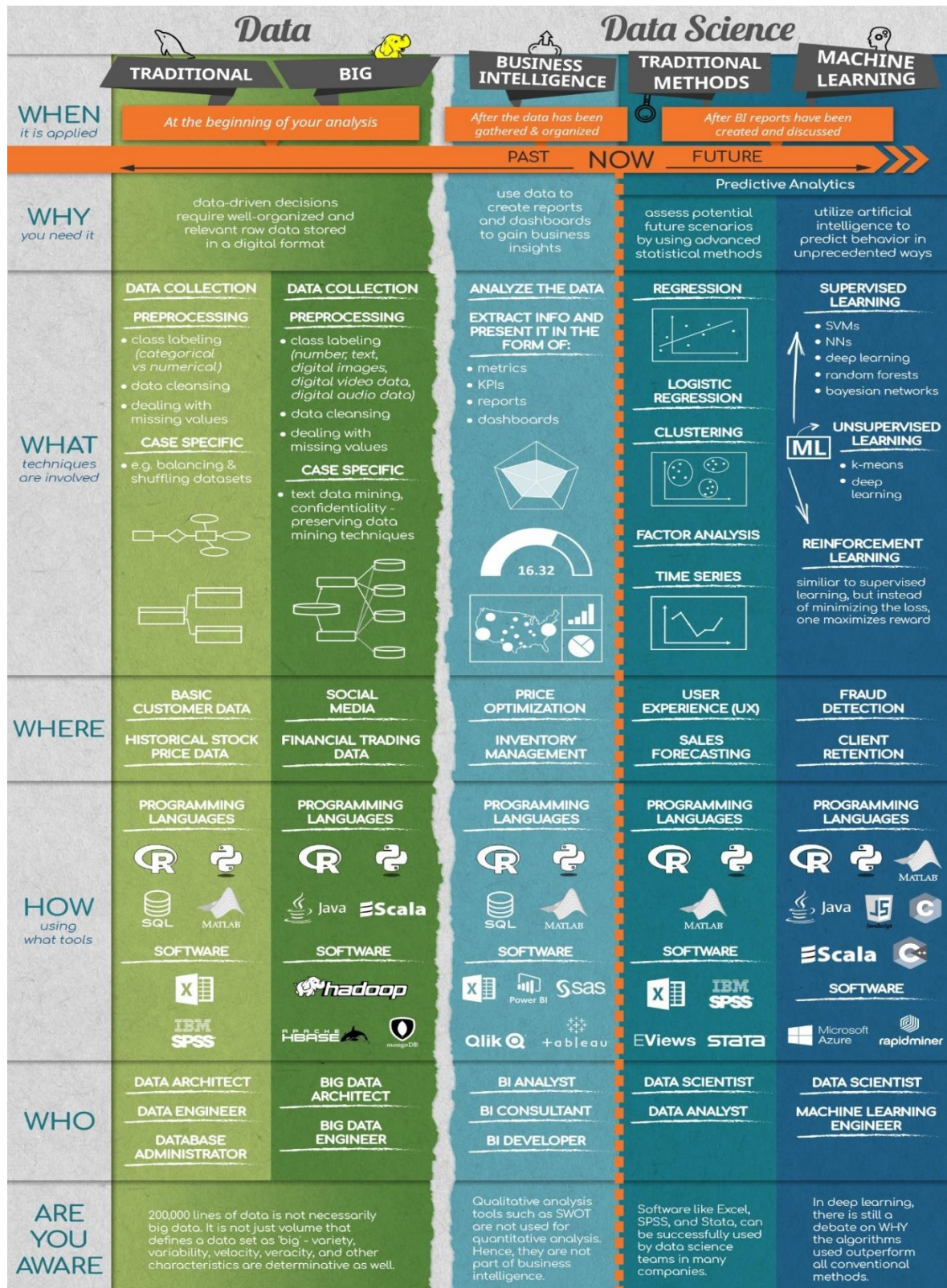
This course was divided into 8 sections namely –

- The field of data science - Introducing various data science disciplines, career in data science
- Probability - Bayesian interface, permutation combination, probability distributions and probability in Healthcare
- Statistics - Descriptive statistics practical examples, inferential statistics and hypothesis testing`
- Python - Basic syntax, functions, iterations, advanced statistics method in Python, linear equation, multiple regression, Logistic regression and clustering analysis.
- Deep learning - Neural networking, TensorFlow, overfitting & underfitting and MNIST data set
- Business case analysis by deep learning TensorFlow
- Case study
- Analysing the Predicted Outputs in Tableau

6. Learning Methodology:

This course includes 29 hours on-demand video lectures with 90 articles and 154 downloadable resources. Along with that multiple real-life business cases (Case Study) that gives a better understanding. Moreover, an unsolved assignment and quiz had to be submitted in favour of completing the course. The instructors were Martin and Ylia from 365 careers team on Udemy platform.

7. Course Learning Flow Chart:



8. Lesson Drawn & Final Outcome:

- The course provides the entire toolbox that need to become a data scientist.
- Developed the data science skills: Statistical analysis, Python programming with NumPy, pandas, matplotlib, and Seaborn, Advanced statistical analysis, Tableau, Machine Learning with stats models and scikit-learn, Deep learning with TensorFlow
- Learn how to pre-process data
- Understand the mathematics behind Machine Learning
- Start coding in Python and learn how to use it for statistical analysis
- Perform linear and logistic regressions in Python
- Carry out cluster and factor analysis
- Be able to create Machine Learning algorithms in Python, using NumPy, stats models and scikit-learn
- Applying skills to real-life business cases
- Use state-of-the-art Deep Learning frameworks such as Google's TensorFlow develop a business intuition while coding and solving tasks with big data.
- Improve Machine Learning algorithms by studying underfitting, overfitting, training, validation, n-fold cross validation, testing, and how hyperparameters could improve performance.

