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Quba Ansari

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## **COVID -19: A KNOWLEDGE, ATTITUDE, PRACTICE RELATED TO PREVENTING COVID-19 AMONG MUSLIM COMMUNITY IN SIKANDRABAD (UP)**

**Keywords:** Muslim Community, Covid-19, Preventive Measures, Knowledge, Attitude, Practice.

**INTRODUCTION:** Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS) are viral respiratory disease caused by a novel virus SARS-COV-2. Newly identified corona virus called severe acute respiratory syndrome corona virus 2 is first identified in Wuhan city of China in 2019 and has subsequently spread worldwide [1]. Owing to the predominance of outbreaks in the middle east countries the virus was renamed as Middle East Respiratory Syndrome Corona Virus (MARS-CoV) [2]. This agent is also responsible for current pandemic COVID-19 which is transmitting through a cough or sneezes from a infected person or by touching infected objects which has an incubation period of 2-14 days after exposure, that is spreading worldwide. Till 14 may 2020, total cases of infection reach 49219, cured/discharged patient 26234 and the death toll is 2549 and 1 migrated in India [3]. Sikandrabad a remote location, in Bulandshahar district is not very far from Delhi – epicenter of COVID-19. Information about global news is hard to get by and the people who do get it interpret it based on their level of education. Also the lack of resources and circulation of news, articles may draw false narrative and influence people in a wrong way. Being a minority population in India they feel discrimination and prejudice, even if policies are made for their own benefits they feel it is a conspiracy against their well-being. The importance of conducting this study is to facilitate learning and understanding of multiple aspects of COVID-19 and increase public awareness. Union Health Ministry in its daily briefing are informing about country's preparedness against the Covid-19 infection. Asymptomatic Covid-19 infected people account for very less in comparison to available global data [4]. The evolution of the pandemic and its economic impact is highly uncertain which makes it difficult for policymakers to formulate an macroeconomic policy response [5]. World Health Organization (WHO) has said novel SARS-COV-2 causing COVID-19 could become endemic like Human immunodeficiency Virus (HIV). The World had some control over COVID-19. More than 100 potential vaccines are being developed, include several in clinical trials but scientists had underscored the difficulties of finding vaccines that are effective against novel corona virus. The WHO and Centre of Disease Control (CDC) have said that the two major groups of people who are more likely to be affected by the disease are the elderly with some underlying medical conditions like Cardiovascular disease, Diabetes, Lung Infection are more prone to COVID-19 infection. People who are aged and have weak immunity system may have the harder time fighting off the COVID-19 disease. Elderly and patients with co-morbidities are more likely to be infected and are more prone to serious health complications, which may be associated with acute respiratory distress syndrome (ARDS) and cytokine storm [6]. However, each and every person of any age group need to take the necessary precautions even if you are young and healthy [7]. Peer educators are best way to increase awareness and knowledge in the community in an informed manner

& discuss about sensitive issues. The whole world is suffering from COVID-19 diseases and a large group of population is highly affected. Effective knowledge, attitude, hygiene practices of individuals during COVID-19 disease are very important because it affect health in view of increased susceptibility or vulnerability to lung infection and could lead to mortality [8]. In this study, the researcher investigated the KAP towards COVID-19 among Muslim residents of Sikandrabad during the rapid rise of the COVID-19 outbreak.

## **OBJECTIVES:**

- 1) To study the knowledge, attitude, practices related prevention of COVID-19.
- 2) To review the government of India guidelines for preventing COVID-19.
- 3) To distinguish how many demos (people) are following sanitation practice.
- 4) To track the awareness (consciousness).

**REVIEW OF LITERATURE:** In the context of ongoing COVID-19 crisis, the KAP is affected by various state of affairs like social media, face to face interaction and self awareness which plays an important role in changing the mindset as well as daily basis followed practice of a person to detract the transmission of corona virus. All these contents change the perception and behavior of a person, avail the self efficacy and promote decision making. World Health Organization (WHO) has revised the guidelines on prevention of corona virus. Thus, more than one model of prevention from corona virus is followed by n number of people amidst Covid-19 pandemic like social distancing, covering mouth and nose with mask, frequently hand washing with soap/water and using alcohol based hand rub, which brings the lower network transmission of the infection [9]. Centre for Disease Control and Prevention (CDC) is working closely with the World Health Organization (WHO) and other partners to assist countries to prepare for and respond to Covid-19. CDC routinely provides technical assistance to health ministry, sub national and international partners to improve the collective response to infectious disease threats like COVID-19. CDC also expostulate the importance of Quarantine and Isolation which can be desired or undesired with respective to the person who shows the symptoms or a suspected case [10]. In the context of KAP, the study was conducted in the province of China, Henan which was selected as the geographical area to study & analyze the KAP of Healthcare Workers. An online inquiry survey was conducted & sent to 1825 general hospitals along with a consent form to maintain the confidentiality. A total of 1357 completed questionnaires were received . Hence, collected the information concerning preventive measures of HCWs to analyze the KAP towards COVID-19. Data were collected through an online questionnaire among HCWs in medical, surgical wards and intensive care units (ICUs). The questionnaire had divided into two parts as Demography (age, gender, education, job category work experience, frontline/non-frontline status & overworked status) & KAP respectively [11].

In addition, In a government medical college, Uttarakhand. A cross-sectional survey was conducted immediately before the lockdown in India. The questionnaire were distributed

through an online platforms like whats app & e-mail among the medical students to access KAP towards COVID-19. The study participants were informed about the study objectives for filling the questionnaire and confidentiality at the beginning of the survey along with an informed consent was obtained from each participant. Again, the questionnaire were divided into two parts as Demography (age, gender, religion) & KAP respectively [12].

The observation has been made that preventive measures is essential for controlling and stopping the transmission of SARS-CoV-2 disease which is caused by novel corona virus. Thus, Knowledge, Attitude and Practice plays an important role in affecting the preventive practices towards Covid-19.

**METHODOLOGY:** The inclination towards conducting the study started upon converging with the neighbors, the researcher came to know about the mindset, belief and the observations made by people regarding the pandemic. Formal permission were obtained from the mentor where this study was undertaken, as well as the respondents (signed a consent form before conducting the survey).

Study Area: Sikandrabad, Bulandshahar in Uttar Pradesh

Study Population: An adult (between 18-60 years) from Muslim households.

Study Design: The study was Descriptive in nature.

Sampling and Sample size: Purposive sampling was used. The survey was started from one direction and the muslim households were visited. If the household had an adult during the time of visit and agreed to participate, the interview was done. During the lockdown period a total of 83 interviews were conducted.

Data Collection Methods: Quantitative method were used on an integrated field - based data collection during lockdown along with a questionnaire.

Review of literature and COVID-19 guidelines:

- 1) Regularly wash your hands with soap/water or using alcohol-based hand.
- 2) Maintain at least 1m distance between yourself & others.
- 3) Maintain social distancing by avoiding to go in a crowded places.
- 4) Avoid touching eyes, nose & ears.
- 5) Stay home, Quarantined & Isolated even with minor symptoms like cough, fever, headache.
- 6) If suffering from breathing difficulty, fever & cough, seek immediate medical attention.

Data Collection Tool: Interview Schedule was developed and pre-tested. It comprises of 44 items divided into four parts:

Demography: The variable included name, age, gender, occupation, marital status, family type (nuclear/joint), residence (urban/rural), family members in the house, room number in the house and old persons in the house (above 60). Interview schedule along with consent form was developed to collect the data.

Knowledge: A total of 14 items were based on the COVID 19 related knowledge

Attitude: It has eight items concerning respondent`s belief and perception with five point rating scale. However, middle point was not used to have responses with clarity.

Practice: COVID-19 related practices were asked through nine items

Data Collection: The data was collected during 23 April to 15 May 2020

Data Analysis: The analysis of data has been done by IBM SPSS Version 26.0. The descriptive analysis used frequency percentage.

Ethical consideration: All the respondent were informed about study, purpose and maintaining confidentiality of their responses.

**RESULT:** The result stated, 83 respondents were participated with the mean ( $\mu$ ) of 35.41 and standard deviation ( $\sigma$ ) 12.624 in the offline survey after reading the consent form. The respondents had been interviewed personally in Isolation which was the most influential commotion to get the quantitative as well as qualitative data for both Demographic characteristics and KAP.

#### *Demographic Characteristics:*

The results showed that, 83 respondents were in the mean age of 35 years  $\pm$  12.6 ( $\sigma$ =standard deviation). Out of the 83 participants, 60 per cent were women. About 64 per cent of the respondents belong to nuclear family. In terms of household size, 39 per cent of the respondents had up to five members in the family, rest of the households had more members. Nearly one-third (33 per cent) of the respondents used to do domestic chores, followed by 29 per cent daily wagers, 20 per cent students, 10 per cent business persons, and six per cent in private service (Table 1).

Table 1: Percent Distribution of Respondents by their Age

| Items                           | Number | Percentage |
|---------------------------------|--------|------------|
| <b>Age (in completed years)</b> |        |            |
| 18-20                           | 10     | 12         |
| 21-25                           | 19     | 22.9       |
| 26-30                           | 6      | 7.3        |
| 31-35                           | 9      | 10.8       |
| 36-40                           | 11     | 13.3       |
| 41-45                           | 7      | 8.4        |
| 46-50                           | 11     | 13.3       |
| 51-55                           | 5      | 6          |

|                           |    |      |
|---------------------------|----|------|
| 56-60                     | 5  | 6    |
| <b>Sex of Respondents</b> |    |      |
| Male                      | 33 | 39.8 |
| Female                    | 50 | 60.2 |
| <b>Occupation</b>         |    |      |
| Housewife                 | 27 | 32.5 |
| Daily wager (zari)        | 24 | 28.9 |
| Student                   | 17 | 20.5 |
| Business                  | 9  | 10.8 |
| Private service           | 5  | 6    |
| Retired                   | 1  | 1.2  |
| <b>Marital Status</b>     |    |      |
| Never Married             | 23 | 27.7 |
| Married                   | 56 | 67.5 |
| Separated                 | 1  | 1.2  |
| Widow/Widower             | 3  | 3.6  |
| <b>Family Size</b>        |    |      |
| 1 -5 Members              | 33 | 39.7 |
| 6 – 10 Members            | 32 | 38.5 |
| 11 – 15 Members           | 14 | 16.9 |
| 16 + Members              | 4  | 4.9  |
| <b>Type of Family</b>     |    |      |
| Nuclear                   | 53 | 63.9 |
| Joint                     | 30 | 36.1 |

The results revealed that the participants were aware of the ways to spread COVID-19 including from the infected person (33 per cent), infected objects and then touching nose, eyes, and mouth (15 per cent), and droplets (7 per cent). Nearly 36 per cent of the respondents were not aware of while about nine per cent respondents shared incorrect ways. Preventive measures related knowledge was also studied in terms of social distancing (36 per cent), hand washing (25 per cent) and face cover (21 per cent).

Findings related to knowledge about any health facility where the respondents can get themselves tested for COVID-19 show that only 11 per cent of them knew it. On being asked their understanding of terms like Quarantine and Isolation, results revealed that only 19 and four per cent respondents could respond correctly. Similarly, about the incubation period (days after exposure to corona virus can an individual get sick) only 28 per cent respondents could respond correctly that it would take 12-14 days. Only 10.8 per cent of the respondents were aware of Arogya Setu App (Table 2).

Table 2: Percent distribution of respondents by their knowledge about COVID 19

| Items                                                                                           | n  | Percentage |
|-------------------------------------------------------------------------------------------------|----|------------|
| Ways to spread corona virus                                                                     |    |            |
| From other person who has the virus                                                             | 30 | 31.6       |
| Droplets from the nose or mouth which are spread when a person with COVID-19 coughs or exhales. | 7  | 7.4        |
| Touching infected objects or surfaces, then touching their eyes, nose or mouth.                 | 14 | 14.7       |
| Do not know                                                                                     | 33 | 34.7       |
| Other (Correct - Physical contact, crowded settings)                                            | 7  | 7.4        |
| (Incorrect – Through influencing others, religious belief)                                      | 4  | 4.2        |
| Preventive measure                                                                              |    |            |
| Hand washing                                                                                    | 33 | 19.6       |
| Using alcohol based hand rub                                                                    | 13 | 7.8        |
| Social distancing                                                                               | 63 | 37.5       |
| Avoid touching eyes, nose and mouth                                                             | 2  | 1.2        |
| Covering the mouth and nose                                                                     | 36 | 21.4       |
| Do not know                                                                                     | 8  | 4.8        |
| Other (Correct- Quarantine, visit to doctor)                                                    | 3  | 1.8        |
| (Incorrect - Soaking sunlight, Religious practice)                                              | 10 | 5.9        |
| Awareness of any health facility where they can get themselves tested for Covid-19 (Yes)        | 9  | 10.8       |
| Days after exposure to corona virus can an individual get sick (Correct number of days: 12-14)  | 23 | 27.7       |
| Awareness of government app (Arogya Setu)                                                       | 9  | 10.8       |
| Understand the meaning of Quarantine (Correct)                                                  | 16 | 19.3       |
| Understand the meaning of Isolation (Correct)                                                   | 3  | 3.6        |

Attitude related result (Table 3) shows that 47 of the respondents have positive attitudes that corona virus can infect any person even Muslims. About 41 per cent of the respondents think that corona virus can spread in a religious place like Mosque when people are together. A majority (82 per cent) of the participants believe that COVID-19 is being a curse to the human beings. In addition, the majority of the participants (88 per cent) supported that social distancing is a solely prevention to combat COVID-19. About 65 per cent of the respondents think they have fair chances to get infection

Table 3: Per cent Distribution of the Respondents by their Attitudes towards COVID-19

| Items | Percentage     |       |          |                   |
|-------|----------------|-------|----------|-------------------|
|       | Strongly agree | Agree | Disagree | Strongly disagree |

|                                                                                |              |            |             |              |
|--------------------------------------------------------------------------------|--------------|------------|-------------|--------------|
| Corona virus can infect any person even in Muslim Community                    | 37<br>(44.6) | 10<br>(12) | 9<br>(10.9) | 27<br>(32.5) |
| Corona virus spread while people are together in a religious place like Mosque | 27<br>(32.5) | 7<br>(8.4) | 3<br>(3.6)  | 46<br>(55.5) |
| COVID-19 is being “Allah ka Azaab” to all he human beings                      | 66<br>(79.5) | 2<br>(2.4) | 2<br>(2.4)  | 13<br>(15.7) |
| Social distancing is a solely prevention to conquer COVID-19                   | 63<br>(75.9) | 10<br>(12) | 4<br>(4.8)  | 6<br>(7.3)   |
| Chances to get COVID-19 infection                                              | 44<br>(53)   | 10<br>(12) | 1<br>(1.2)  | 28<br>(33.8) |

Most of the respondents (73 per cent) used to wash their hands seven or more times in 24 hours. Almost one-half of the respondents did not follow lockdown guidelines. Seventy-six per cent of the respondents reported that they washed their hands before handling infants. Nearly one-third of respondents allow breastfeeding the child in case of the women have cold, cough and fever. Only one-half of the respondents suggest going hospital in case of pregnant women have cold, cough and fever (Table 4).

Table 4: Percent distribution of the respondents by their practices

| Items                                                                                                                   | n             | Percentage |
|-------------------------------------------------------------------------------------------------------------------------|---------------|------------|
| Number of times people wash their hands to prevent themselves from COVID-19 using soap/water and sanitizer in 24 hours  |               |            |
| >12 times                                                                                                               | 30            | 36.1       |
| 7-12 times                                                                                                              | 31            | 37.3       |
| 1-6 times                                                                                                               | 9             | 10.8       |
| Not sure or Uncertain                                                                                                   | 13            | 15.7       |
| Average (range)                                                                                                         | 10.65 - 11.08 |            |
| Not following lockdown guidelines (Going outside) (Yes)                                                                 | 42            | 50.6       |
| Hand washing prior to handle infant is important                                                                        | 63            | 75.9       |
| If the women shows the symptoms like cold, cough and fever, does the mother continued breastfeeding to the infant (Yes) | 27            | 32.5       |
| If a pregnant women Shows symptoms like cold, cough and fever what would you suggest?                                   |               |            |
| Take her hospital for COVID-19 testing                                                                                  | 46            | 49.5       |
| Keep at home in Quarantine setting                                                                                      | 8             | 8.6        |
| No cause of worry                                                                                                       | 1             | 1.0        |
| Other (Correct - Medical Treatment, Isolation)                                                                          | 11            | 11.9       |

**DISCUSSION:** Studies had recommended that each and every epidemic signifies, the well beings of all the respective communities or backgrounds has changed their KAP practices to slacken the impact of the outbreaks which could lead to superior policy improvements pertaining to the epidemic and influence the behavioral changes [13]. Thus, helps to alleviate the disease globally. Several KAP studies has shown variegated data on how people are following numerous practices to make themselves and other people protected through providing safe environment by reviewing of government guidelines on preventive measures on novel corona virus [3]. Whereas, KAP regarding Covid-19 among healthcare workers (HCW) in Henan, China, included a total of 1357 completed questionnaires. Nearly one-half of the study respondents (46.5%) were nurses and 36.5% were doctors. 89% demonstrated sufficient knowledge of COVID-19. Doctors showed higher knowledge scores than nurses and paramedics. 89.7% of the surveyed HCWs followed correct practices towards Covid-19 and Overworked HCWs washed their hands less frequently than those who were not overworked. Moreover, this study has a limitation which says survey was conducted in only one province of China, so the results may not be generalized to other hospital's HCWs [11]. In addition to the discussion, one more study had been conducted in the reference of Covid-19 which aimed to assess KAP of medical students from a government medical college, in Uttarakhand, from the week immediately before the lockdown in India concerning corona virus disease. A total of 354 participants answered through an online questionnaire where, 50.3% were males while the rest were female 49.7% and the majority of them were 21-23 years old while only 10% were  $\geq 24$  years old. The majority of the participants (86.7%) had correct knowledge about the main symptoms of Covid-19. Furthermost, 92.4% of the participants were aware that early symptomatic and supportive treatment can help most patients recover from the infection. Attitude shows, high percentage of the students (76.6%) agreed that media coverage (e.g. newspaper, television, online) give much exposure to news about Covid-19 virus. With respect to the religions, participants belonging to the Hindu religion had more knowledge in comparison with the Muslim and others, although the difference was not significant. Maintaining social distance during the outbreak was the second most prevalent behavior reported by the participants. Also, a high percentage of participants taking preventive measures which represented a good practice of the participants towards Covid-19 [12]. In comparison of mentioned studies, A KAP study in Muslim Community in Sikandrabad (UP) had been conducted in which the results revealed that the participants were aware of the ways to spread COVID 19 including from the infected person (33 %), infected objects and then touching nose, eyes, and mouth (15%), and droplets (7%). Nearly 36 per cent of the respondents were not aware of while about nine per cent respondents shared incorrect ways. Preventive measures related knowledge was also studied in terms of social

distancing (36%), hand washing (25%) and face cover (21%). Findings related to knowledge about any health facility where the respondents can get themselves tested for COVID-19 show that only 11 per cent of them knew it. On being asked their understanding of terms like Quarantine and Isolation, results revealed that only 19 and four per cent respondents could respond correctly. Similarly, about the incubation period (days after exposure to corona virus can an individual get sick) only 28 per cent respondents could respond correctly that it would take 12-14 days. Only 20 per cent of the respondents were aware of Arogya Setu App. Attitude related result shows that 47 of the respondents have positive attitudes that corona virus can infect any person even Muslims. About 41 per cent of the respondents think that corona virus can spread in a religious place like Mosque when people are together. A majority (82 per cent) of the participants believe that COVID-19 is being a curse to the human beings. In addition, the majority of the participants (88 per cent) supported that social distancing is a solely prevention to combat COVID-19. About 65 per cent of the respondents think they have fair chances to get infection. Most of the respondents (73 per cent) used to wash their hands seven or more times in 24 hours. Almost one-half of the respondents did not follow lockdown guidelines. Seventy-six per cent of the respondents reported that they washed their hands before handling infants. Nearly one-third of respondents allow breastfeeding the child in case of the women have cold, cough and fever. Only one-half of the respondents suggest going hospital in case of pregnant women have cold, cough and fever. Furthermore, the non-parametric test results indicates a significant chi-square value for awareness among Muslim Community i.e the values better fitted the model but comparatively follows less of the preventive measures which shows poor among the people of Muslim Community.

**CONCLUSION:** As the days are passing, the number of cases and risk of covid-19 is increasing every single day which is abruptly affecting the lives of well beings as well as the economy globally. Since, the SARS-CoV-2 becomes the most perilous virus and being the reason of current epidemic the Knowledge, Attitude and Practice of people has changed in the context of preventing themselves from novel corona virus .The study suggested, the people of Muslim Community in Sikandrabad are aware of the ways to spread COVID-19 and revealed that people follows good sanitation practice as well as other preventive measures reviewed by WHO. Hence, people showed a positive attitude towards COVID-19 disease & do think they have fair chances to get infection. Moreover, few people in Sikandrabad knew the correct meaning Quarantine & Isolation which shows a low education status. In addition, majority of people did not follow lockdown guidelines which shows a poor consciousness or sensitivity towards current pandemic.

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[14]Census India (Sikandrabad population facts) <https://www.censusindia2011.com/uttar-pradesh/bulandshahr/sikandrabad-population.html>

# e-Health: An Electronic Record

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| Student's Name             | Quba Ansari                                                                              |
| Roll No                    | 0967                                                                                     |
| Course Name                | e-Health: More than just an Electronic Record.                                           |
| Website                    | Coursera                                                                                 |
| Number of Hours            | 15 hours                                                                                 |
| Duration                   | From 5 May,2020 - To 15 May,2020.                                                        |
| Objective(s) of the course | a) Expostulate e-Health and elucidate the need in developing Era.                        |
|                            | b) Grasp the comprehensive highlights and visualize the e-Health Model.                  |
|                            | c) To understand the fundamental principles of e-Health.                                 |
|                            | d) Discuss the importance of information and its applications for a futuristic approach. |
|                            | e) Appreciate current and future challenges.                                             |

**ABOUT THE COURSE:** As the world of technology is evolving e-Health becomes an emerging field in the Medical and Healthcare delivery system which comprise of Medical Informatics, Public Health, Business concerning to health services, delivery of information through related technology and internet. The detailed e-Health is supported by electronic process and technology based communication. It's reckon in e-Health tools such as electronic medical records (EMRs), personal health records (PHRs), mobile apps, patient portals, and many other software used to help patients monitoring and manage their health. e-Health has it's own futuristic approach and may include health technology by evolving their homes as hospitals in future. In today's world we see health in our hands recourse by m-health (mobile apps), wearable devices, online health information system, social media to collect our own data. However, evaluating health apps plays major role to scale the accuracy of e-Health tools. We say e-Health is more than just an electronic record, reason behind Digitization record enables a patient's medical history to be tracked over time for routine and follow up consultation, monitoring the patient's vital signs. Hence, improve the quality of care & performance, improve care personalization, efficiency with comprehensive patient profiles. At present, e-Health interacting in new ways by means of improving access to healthcare such as Virtual consultation rather than online which bring error in diagnosis in online consults when compared Face to Face, Tele-health, Telemedicine, Teleconferencing, Videoconferencing and Intersected social media ( Twitter, Instagram , What's app). Bring it all together, e-Health enables professional development of Doctors and Healthcare professionals as well as personal development of patient in terms of maintaining their own health with the help of e-Health tools.

**COURSE CONTENT:**

| Module                      | Objectives                                                     | Content                                                                                               | Methodology                                                   | Key Learning                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Application                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
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| Module1:<br>What is health? | Expostulate e-Health and elucidate the need in developing Era. | What is e-Health?<br>What does e-Health mean ?<br>A model for e-Health.<br>Challenges.<br>The future. | Includes Videos, Reading material, Lectures and Quiz material | e-Health practice is supported by electronic process & Communication Technology (CT).<br>Health in the hands of Consumer (wearable device apps, social media internet).<br>Interacting with health professionals(Tele-health, coaching),<br>Data record and Quantified Self. Lack of Education, Expectations of Patients, Collection & Importance of Big Data, Right Investment on training , good plans, education, How e-health business can grow & bring the Change in Health services and consumer health.<br>Accessibility, Healthcare Delivery, Recording the Information, Directed Health delivery & patients, Precision & Personalized Medicine, Compiled Information in one place, Self prescription when needed, Development of inexpensive devices, Digital Hospital | Electronic Health Records (EHRs), provide all of the healthcare information to patients and clinicians via the Web or local IT, Hence, improve the operation of the organization.<br>Disease Prevention and Health Promotion by Tele-Health, Tele-Communication, Tele-Rehabilitation, Tele-Medicine and Social Media.<br>Enable its implementation in health care practice, education, research, and policy.<br>Ensures the data should be security and protected.<br>Recruiting new IT talent.<br>Electronic health records can also make it easy to share patient data between systems. e-Health can also empower patients with their own electronic health records and can also be used to implement various Tele-health and home health options to improve chronic disease management. |

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| Module 2 :<br>Health in<br>our<br>Hands. | Grasp the<br>Comprehensive<br>highlights and<br>visualize<br>the e-Health<br>model. | Health not<br>healthcare.<br>Wearable:<br>Collecting<br>your own data.<br>Clinical use of<br>personal<br>health data.<br>Mobile apps for<br>health.<br>Social media<br>for health.<br>Health<br>information<br>online.<br>Co-design of<br>e-Health<br>solutions.<br>Evaluating<br>health apps. |  | <p>Fitness apps tells the Physical activity, Health Professionals become a Coach to support patients rather than dictating them.</p> <p>Fitness brands developed multiple apps like fit bit to track gym sessions and Holter meter to record 24hrs of ECG.</p> <p>Misfit is the device used in clinical practice to track daily movements like sleep quality of sleep &amp; kind of energy use as well.</p> <p>m-Health provide assessment ,treatment, support for remote monitoring &amp; data collection.</p> <p>Allow people in digital age to connect locally and globally in a variety of ways, promote health information and gather data, assist conversation between patient and health professionals.</p> <p>Allow people in digital age to connect locally and globally in a variety of ways, promote health information and gather data, assist conversation between patient and health professionals.</p> <p>Maintain certainty and save time.</p> <p>Design and development of technologies to support well being and human</p> | <p>A personalized experience, Integrated geo-location, Push notification system And reminders, Gaming , Multi-device synchronization, Sleep and Food Tracker.</p> <p>Wearable technology are designed for the prevention of diseases and maintenance of human health, such as and physical activity monitoring and weight control and are used for patient`s management and disease management. Hence,can directly impact clinical decision making.</p> <p>Personal Health Records (PHR) include multiple tools to help the individuals role in their own health.</p> <p>m-Health stands for mobile health which helps in collecting community and clinical health data, delivery of healthcare information</p> <p>Social media provide HCPs (Healthcare personnel) with tools to share health information, to promote health care and behaviors to engage with the public, and to educate people, interact with patients, caregivers, students, and colleagues.</p> |
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|                                             |                                                    |                                                                                                                                                                                                                                                                                                                                           |  | potential (positive computing). Also, provide autonomy and sense of urgency which directly impact on personal development and long term well being. Accuracy of measurement, Range of motion, m-Health apps satisfy quality criteria, need minimal training, Rating scale, MARS (tool for classifying and assessing the quality of m-Health apps.                                                                                                                                                                                         |                                                                                                                                                                                                                                        |
| Module 3 :<br>Data and the Quantified self. | Understand the fundamental principles of e-Health. | Data and the quantified self.<br>Data and digital health records.<br>Anatomy of a digital health record.<br>Case study: Electronic records supporting remote care.<br>Predictive and precision medicine.<br>Big data from our biology & environment.<br>Owning your Own data.<br>Patient reported data in practice.<br>Privacy & security |  | Precision medicine, a medical model , that propose the customization of healthcare with medical decision, treatments and practice to individual patient instead of a one-drug-fits all models.<br>Digitization paper record Enables a patient`s Medical history to be tracked over time for routine, follow up, monitoring of vital signs. Hence, improve the quality of care.<br>If somebody does not have any information regarding his/her health but the data must be in the computer of pharmacy, they can go to one of their nearby | Electronic applications and Devices provides personal health data. Hence, improves the patient`s quality of life and safety of healthcare. Electronic Record (ER) eliminates the transportation expense and regular checkups expenses. |

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|  |  | <p>should we be worried.</p> <p>Using data to Improve our performance.</p> |  | <p>computers and find out all the care data that had been given to the patient in the facility and beyond. Predictive medicine aims to identify patients at risk of developing a disease, thereby enabling either prevention or early treatment of that disease. Precision medicine, a medical model , that propose the customization of healthcare with medical decision, treatments and practice to individual patient instead of a one-drug-fits all models.</p> <p>Food, Sleep, Exercise are three basic component of Our environment Interface and Obesity, Diabetes Cardiovascular Disease are the components of Biology interface. Hence, we need to identify and help us to manage the relationship between our Biology and Environment.</p> <p>Un- patient ( a patient under some treatment) , may own their own heath data records other than Doctors and Healthcare Providers. Also, patient Should not leave the place until and unless they own their own health data.</p> |  |
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|                                                                   |                                                                                        |                                                                                                                                                                                                                                                               |  | <p>e-Health enables us with collecting and dealing with patient reported outcome is by being able to provide immediate feedback to the care team that's seeing the patient.</p> <p>Homo-morphic encryption (privacy preserving outsourced storage and computation) allows calculation of data that remains encrypted, so nobody can't see the data but can see the results of analytics.</p> <p>To improve efficiency, personalize treatment, advance treatment method, communication between Doctors and Patients and enhance wealth outcomes.</p> |                                                                                                                                                                                                                                                                                                                                                                                       |
| Module 4 - Interacting With Health personnel using new technology | Discuss the importance of information and it's applications for a futuristic approach. | <p>Interacting in new ways.</p> <p>Improving care: e-Health advantages</p> <p>Face-to-face vs. online.</p> <p>Tele-health and New models of healthcare.</p> <p>When healthcare &amp; social media intersect.</p> <p>Using apps to Personalize healthcare.</p> |  | <p>Virtual consultation, Assistive technologies, Biometric devices, Apps and Gaming.</p> <p>Tele-stroke projects, Online health, Increase in Radiology devices for better annotated reports, Healthcare professionals Can now have the Flexibility to work from home or café, Tele-rehab, Tele-medicine, m-Health, Tele-conferencing, Video-conferencing, Social media (Face-book,</p>                                                                                                                                                              | <p>Virtual care offers patients convenience. via the Web or local IT for improving and transforming healthcare.</p> <p>Tele-health includes health education services, remote monitoring of vital signs, ECG or blood pressure and remote doctor-patient consultations (Tele-medicine).</p> <p>People can see and talk to a doctor through their smart phone, tablet or computer.</p> |

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|                                  |                                           | e-Health enabled professional development. How do we enable interdisciplinary e-Health? |  | <p>Insta-gram, What`s app). Error in diagnosis in Online consultation when compared to face-to-face. Tele-medicine, m-Health, Tele-conferencing, Video-conferencing, Tele-health, Access to patient's medical record including images and Ceiling camera allows to Communicate with nurse, patient, family. Twitter, Insta-gram, what`s app, Face-book.</p> <p>Renal patients use Dialysis machine at home to record data, My Physio App track an adherence to an exercise program, multi model App for Aphasia patient.</p> <p>Breast Reader Assessment Strategy (BREAST) to Improve the performance Of radiologists, EQ clinic where doctors improve their communication skills, Q stream is a global leader providing mobile healthcare.</p> <p>Mobile health interventions, including Tele-health and electronic medical records (EMR).</p> | <p>Patient use it to look for information, find support, and make healthcare decisions. Interdisciplinary approach can improve patient outcomes, healthcare processes and levels of satisfaction.</p> |
| Module 5 : e-Health in practice. | Appreciate current and future challenges. | Course review. Using the 'My Physio' app. Case study:                                   |  | My Physio App track an adherence to an exercise program which is created by the clinicians to specify the number of                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Tele-health online Consultation are great for anyone and are especially great for those who are living in rural or suburban areas.                                                                    |

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|  |  | <p>Electronic records supporting remote care.</p> <p>Case study: Physio Online.</p> <p>Case study: The 'My Home Dialysis' program.</p> <p>Case study: 'Synergy' online mental health and well wellbeing.</p> <p>Case Study: Supporting Wellness after cancer treatment</p> |  | <p>reps, sets, rest time and number of days that you are able to do exercise. If somebody does not have any information regarding his/her health but the date must be in the computer of pharmacy, they can go to one of their nearby computers and find out all the care data that had been given to the patient in the facility and beyond. Great for anyone seeking physiotherapy no matter where you are and especially great for anyone who is living in rural or suburban areas but is unable for whatever reason to come into the clinic. Although patients respond much better when they are involved in a progressed clinical exercise regime and taught how to self treat to some extent. Renal patients use Dialysis machine at home to record data. Home Dialysis provide more time to do what you like, enhance reduction in travel-related expenses, understanding of end stage renal disease. Hence, improved quality of life. Synergy is a back end solution. So, a data store, open API's and</p> | <p>Synergy helps to create better and effective results and also offer better solutions to problem to achieve decision making.</p> |
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|  |  |  |  | storage that enables data to be kept safe. |  |
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**CONCLUSION:** e-Health has helped in improving the healthcare facilities across the universe in the both developed and developing countries where e-health system has been implemented. It has been an emerging field where protecting & sharing electronic information with clinicians and patients is the top most priority. In addition, provide help to the health care professionals to pass on more information and provide more effectively diagnosed reports of the respective patients, reduce medical errors, and provide safer care. Furthermost, it is improving concerning the patient and provider interaction and communication process, as well as health care outcomes. Hence, enabling safer and more reliable prescribing.

COVID-19, Contact Tracing.

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| Name                       | Quba Ansari                                                                                                                                                                    |
| Roll No.                   | 0967                                                                                                                                                                           |
| Course Name                | COVID-19 Contact Tracing.                                                                                                                                                      |
| Website                    | Coursera.                                                                                                                                                                      |
| Number of Hours            | 6 Hours.                                                                                                                                                                       |
| Duration                   | 1 Week.                                                                                                                                                                        |
| Course Instructor          | Emily Gurley, PhD, MPH.<br>Associate scientist Department of Epidemiology, Johns Hopkins<br>Bloomberg School of Public.                                                        |
| Objective(s) of the Course | a) To know the science of COVID-19, including its origins, clinical signs and symptoms, risk factors, diagnosis, transmission, and infectious period.                          |
|                            | b) To understand the tools being used to stop the spread of COVID-19: contact tracing, isolation, and quarantine.                                                              |
|                            | c) To elaborate the steps of the contact tracing process.                                                                                                                      |
|                            | d) To learn the important ethical dimensions of contract tracing, including how we balance the protection of the public's health with limits on personal privacy and autonomy. |
|                            | e) To know the importance of effective communication, that includes building rapport with cases and contacts, active listening, and asking the right kinds of questions.       |

**ABOUT THE COURSE:** Newly identified corona virus called SARS-CoV-2 which is first identified in Wuhan city of China in 2019 and has subsequently spread worldwide. This agent is also responsible for current pandemic COVID-19 which is transmitting through a cough or sneezes from an infected person or by touching infected objects which has an incubation period of 2-14 days after exposure, that is spreading worldwide. In COVID-19 Contact Tracing course, Emily Gurley an associate scientist Department of Epidemiology, Johns Hopkins Bloomberg School of Public Health explained why and how contact tracing can be such an effective public health intervention. Contact tracing is a tedious process of identifying the Contact and Case, assessing them, and managing people who have been exposed to a disease to prevent onward transmission. Contact tracing will break the chains of transmission of COVID-19, if it applied systematically and become an essential public health tool for controlling the outbreak. Contact tracing starts with a person testing positive for SARS-CoV-2, the virus that causes COVID-19. It can also be done for suspected cases, as when someone shows symptoms of COVID-19, such as cough, fever and shortness of breath. Contact tracing for COVID-19 requires identifying people who may have been exposed to COVID-19 and following them up daily for 14 days from the last point of exposure. In order to contain future outbreaks of the new corona virus, public health organizations will need to track people who have come into close contact with someone who has tested positive for the virus. A trained public health worker interviews that person to help them recall all the people they have had close contact with while they were infectious. A close contact is someone who was within 6 feet of an infected person for at least 15 minutes starting from 48 hours before illness onset until the time the patient is isolated, according to the Centers for Disease Control and Prevention (CDC) guidelines on contact tracing. These people are encouraged to stay home and maintain social distance at least 6 feet from others until 14 days after their last exposure. They are also asked to check their temperature twice daily and monitor themselves for symptoms. To protect privacy, close contacts are not told the name of the person with the virus they may have come in contact with. Throughout the process of Contact Tracing, the Tracer ensures they must have a good rapport concerning the suspected person or the COVID-19 patient which could lead to an effective communication and active listening. Contact Tracer should be empathic, have compassionate tone, good and positive attitude will always improve

the quality of the conversation. Observing without judging could lead to a honest impression which may embrace both speaking and listening. Whenever, a Contact Tracing started it always have some complexities regarding the process, people and context. So, defining the problems and then understand what the problem is and then select a solution is going to work best, implement and then check it continuously to see if that solution is really solving the problem or not.

***COURSE CONTENT:***

| Module    | Objectives                                                                                                                                         | Content                                                                                                                                                                                                                                     | Methodology                                                     | Key Learning                                                                                                                                                                                                                                                                                                                                          | Application                                                                                                                                                                                                                                                                                                                                                                                                                          |
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| Module: 1 | To know the science of COVID-19, including its origins, clinical signs and symptoms, risk factors, diagnosis, transmission, and infectious period. | Basics of COVID-19 SARS-CoV-2 Virus.<br>Natural History of SARS-CoV-2.<br>Risk Factors for Severe Disease.<br>Diagnosing COVID-19.<br>Transmission of SARS-CoV-2.<br>Why Stopping Transmission is So Important?<br>Summary of COVID-19.     | Includes Videos, Reading materials, Lectures and Quiz Material. | SARS-COV-2 came from bats, Patient can be both Asymptomatic and Symptomatic, PCR test identifies the virus in the body and also called Molecular test, Stopping the transmission is important to mitigate the impact of pandemic.                                                                                                                     | In confirming if someone has <i>COVID-19</i> .<br><br>To make people aware about the most severe risk factors, to enhance the reduction of Reproductive number ( $R_{naught}$ ) of COVID-19.<br><br>To make the population aware about what does Symptomatic, Asymptomatic, Incubation period and Infectious period mean.                                                                                                            |
|           | To understand the tools being used to stop the spread of COVID-19: contact tracing, isolation, and quarantine.                                     | Basics of Contact Tracing for COVID-19.<br><br>Contact Tracing for COVID-19 prevention.<br>Defining Case, Contact, Isolation, Quarantine.<br>Calculating Isolation and Quarantine duration.<br>Identifying High Risk Situations.<br>Summary |                                                                 | Contact Tracing can limit the transmission onward and contact between people who are infected and others. There are multiple high risk settings which should be avoided to reduce the transmission, Need to understand the meaning and importance of Quarantine and Isolation to keep ourselves safe and provide the safety to others simultaneously. | To find Cases and Contacts in a very short timeline to be optimally effective to mitigate the transmission of COVID-19.<br><br>To provide the understanding amidst people about Quarantine Duration and Isolation Duration to reduce the physical contact between two or more than two people.<br><br>To make the community aware about those high risk settings like Malls, Visiting places, Bars, Restaurants to ensure the weaken |

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|  |                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                            | transmission of SARS-COV-2.                                                                                                                                                                                                                                                                                                                                                                                      |
|  | To elaborate the steps of the contact tracing process.                                                                                                                      | <p>Steps to Investigate Cases and Trace their Contacts.</p> <p>The Basic Steps, Observing basic Case and Contacts. Calls Summary</p>                                                                                                                                                                                                                                            |  | Basic steps include to Introduce yourself to the case, Inquire the case, Identify Contacts, Provide Isolation instructions to the case, Initiate Contact Tracing and then Implement the regular check ins or follow up.                                                                                                                                                                                                                    | Investigation may use to trace the Case and Contact to inform them (suspect) about their exposure, ask about symptoms and give Quarantine instructions and Isolation instructions, if needed.                                                                                                                                                                                                                    |
|  | To learn the important ethical dimensions of contract tracing, including how we balance the protection of the public's health with limits on personal privacy and Autonomy. | <p>Ethics of Contact Tracing and Technological Tools.</p> <p>Contact Tracing as a Common Public Health Tool.</p> <p>Defining Privacy, Confidentiality, and Other Terms about Ethics.</p> <p>Balancing Public Good with Privacy, Autonomy, and Confidentiality.</p> <p>Rationale for Using Technology for Contact Tracing.</p> <p>Examples of Technology Used for Each Step.</p> |  | Contact Tracing strategy used to end the Outbreak, Test for Public Health includes Respectful Intervention of Individual, must be beneficial to society, must benefit all the members of the society. Technology can improve the efficiency and speed the Public Health functions, including Contacting people like Electronic Case Reporting, Text messages, Automated communication, Centralized database of phone no. and Applications. | <p>To trace the outbreak of any contagious disease.</p> <p>Contact Tracer can ask about private information only for the purposes of Contact Tracing and the information must to keep Private and Confidential to maintain the autonomy of the suspected person.</p> <p>Technology can improve multiple aspect of any respective program which is needed to reach people very quickly in order to help them.</p> |

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|  |                                                                                                                                                                       | Summary.                                                                                                                                                                                                                                                                                                                                                                            |  |                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                   |
|  | To know the importance of effective communication, that includes building rapport with cases and contacts, active listening, and asking the right kinds of questions. | Skills for Effective Communication.<br>The Importance of Rapport.<br>Tips for Effective Communication.<br>Question Types and When to Use Them.<br>Active Listening: Helping People Feel Heard.<br>Bringing It all together into One Communication Framework.<br>Common Issues and Tips.<br>Embracing Complexity.<br>Addressing Process, People and Context Complexities<br>Summary. |  | Rapport is a feeling of mutual understanding, trust, agreeableness between people which depends on effective communication. Hence, Active listening helping people feel heard. Empathic listening and Honest impression always embrace the communication. | Good rapport with Cases and Contacts may help you to ask for accurate information, could help you to pervasively ask for them to follow Quarantine and Isolation instructions and always improve the quality of the conversation. |

**CONCLUSION:** Contact Tracing is a tool used by public health professionals to break the chains of transmission of an infectious disease through determining the Contacts as well as Cases, by suggesting number of measures like Quarantine and Isolation. Hence, Contact Tracing became an essential public health tool for controlling or narrow down the transmission of infectious disease outbreaks and stopping the onward transmission to provide safer and more reliable environment to well beings.