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Comparative analysis of risk communication during pandemics: *Behavioural science and minority groups with regards to HIV/AIDS and COVID-19*

A thesis submitted

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Abstract

Human evolution is full of surprises. Human societies have fought many epidemics and pandemics in past centuries and just when humans start thinking of bright and better days ahead, they are surprised with another unknown and infectious virus which may wipe out the entire world population. From plague also known as black death which almost wiped out entire Europe to Influenza pandemic during early 20th century killing almost 50 million people have altered the fundamental paradigms of the world in socio-economic, healthcare facilities, religious beliefs, migration, women's rights, political, and many other ways. Human evolution in Last 40 decades have been extraordinarily amazing in the field of technology, industrial evolution, healthcare and medical practices, and space exploration. However, humans are also suffering from various unknown and infectious diseases such as HIV/AIDS, Polio, SARS, Ebola, Swine Flu, and most recent COVID-19 pandemic.

This master's thesis is designed to conduct the importance and interrelation of risk communication and behavioural change actions in controlling and slowing the transmission of deadliest virus during HIV/AIDS global pandemics and COVID-19 pandemic since these both disease correlate with each other. Moreover, the topic itself is worth discussing since many countries, organizations, and policy makers are considering behaviour change actions as the primary interventions to deal with COVID-19 pandemic from the beginning. In addition to that, the main issue of the thesis concerns with the minority groups and the effect of pandemic on them. The COVID-19 pandemic has portrayed the dark side of racism, xenophobic, stigma, and discrimination among particular communities more than ever. Hence, the importance of behaviour change strategies and risk communication has been considered as one of the most important and primary attributes of all.

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List of Abbreviations

AAA	Act Against Aids
AAPI	Asian American and Pacific Islander
ADB	Asian Development Bank
ARRM	AIDS Risk Reduction Model
ART	Antiretroviral Therapy
BAME	Black, Asian, and minority ethnic community
BBC	British Broadcasting Corporation
BCCC	Broadcasting Content Complaints Council
CDC	Centres for Disease Control and Prevention
CNN	Cable News Network
COVID-19	'CO' stands for corona, 'VI' for virus, and 'D' for disease
CRED	Convention on the Elimination of All Forms of Racial Discrimination
EOC	Emergency Operation Centre
FBI	Federal Bureau of Investigation
FDA	Food and Drug Administration
GDP	Gross Domestic Product
GRID	Gay Related Immunodeficiency Disease
HBM	Health Belief Model
HHS	Health and Human Service
HIV/AIDS	Human Immunodeficiency virus /Acquired Immunodeficiency Syndrome
HK	Hong Kong
IFRC	International Federation of Red Cross
INGO	international non-governmental organization
LGBTQ	Lesbian, gay, bisexual and transgender
MSM	Men who have sex with men
NASA	National Aeronautics and Space Administration

NCVS	National Crime Victimization Survey
NGMHAAD	National Gay Men's HIV/AIDS Awareness Day
NGO	Non-Governmental Organization
NIBRS	National Incident-Based Reporting System
NYT	New York Times
PCP	Pneumocystis carinii pneumonia
PEP	post-exposure prophylaxis
PMT	Protection Motivation Theory
PrEP	Pre-exposure Prophylaxis
SARS	Severe Acute Respiratory Syndrome
STC	Social Cognitive Theory
TB	Tuberculosis
TRA	Theory of Reasoned Action
UCR	Uniform Crime Reporting
UK	United Kingdom
UN	United Nations
UNAIDS	United Nations Programme on HIV/AIDS
UNDP	United Nations Development Program
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNHR	United Nations Human Rights
UNICEF	The United Nations Children's Fund
UNMEER	UN Mission for Ebola Emergency Response
USA	United States of America
USAID	United States Agency for International Development
USD	United States Doller
VOA	Voice of Asia
WHO	World Health Organization
WWW	World Wide Web

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Chapter 1: General Overview of the Topic

Purpose of the Master Thesis

The term risk communication has been around human societies for a long time. It has been used, accessed, and has avoided many risks related outcomes in its own way. When I think of risk communication I remember a verse in "**Bhagwat Gita**" a holy book in Hindu religion where lord Krishna tells warrior Arjun how to access the risk factor around you and how to communicate it to your army. Lord Krishna says, if you really want to win the battle you must know your enemy, their strength and army and so you compare them with your strength and then communicate to your soldiers what you are up to (**Bhagwat Gita, 1:23**). This is just an example where risk assessment and risk communication came into effect even before when philosophers and authors started writing on them.

The evolution of risk communication research started in the late 20th century. Professor William Leiss divided evolution of risk communication into three phases where phase I (1975-1984) focused on establishment of public concern and regulatory actions based on the risk assessment. Phase II (1985-1994) and Phase III post 1994 stressed on how to make effective risk communication based on communication channels, source, trust, clarity, and credibility (Leiss William, 1996). Why philosophers, researchers, and experts jumped late into this subject "Risk Communication" since it had a huge influence from past centuries; the emergence was inevitable due to a series of events that took place in the early 20th and most of them occurring in the late 20th century. Occurrence of Influenza in different intervals in 20th century , NASA's Apollo 1 disaster in 1967 followed by Challenger disaster in 1986 and Columbia Space Shuttle disaster in 2003, HIV/AIDS outbreak since 1980's, various organizational accidents, and most importantly 9/11 terrorist attack on USA in 2001 was a game changer in risk analysis and communication. Hence, risk communication has established itself as one of the integral parts of every organization ever since. Communication has given various names depending on the nature of the field of study. Risk communication, disaster communication, crisis communication, public health communication and so forth.

The role of risk communication is not only to transmit risk related information to the public but to bring change in individual behaviour. Social and behaviour change communication tends to promote changes in social norms, values, beliefs, attitude and behaviour which triggers people

to adopt social, beneficial, and positive behaviour (BCCC, USAID, 2021). When HIV/AIDS was first identified on gay men it was given a name "**GRID (Gay Related Immunodeficiency Disease)**" only because it is widespread among gay people. In 1982, CDC renamed GRID as AIDS but the harm that caused during that time period among gay and bisexual communities was beyond imagination; the impact of the term GRID also devastated public at large and people started to believe that they weren't really at risk unless they were gay. Even though HIV/AIDS is now no longer limited to gay and bisexuals, only the discrimination and homophobia is further supported by racism and economic inequality which in result promoted sexual abuse, risky sexual behaviours, few social supports and acceptance, suicidal thoughts, stress and depression (Halkitis, 2012). Since AIDS was found out to be the deadliest virus ever to exist and have no cure, behaviour change was the only important available strategy to control and prevent further spread since it was vulnerable in certain groups and communities around the world.

Likewise, former US president Donald Trump deliberately spoke of CoronaVirus as a "**China Virus**" in one of his election campaigns speech in 2020. Since the COVID-19 was found out to be emerged from Wuhan, China in 31 December 2019; we have seen many racial abuses, criticisms, attacks, and even isolating a nation economically. Most recent example of Atlanta shooting killing 8 Asian American people is just one example out of many such incidents happened since COVID-19 pandemic started. Chinese people around the world are mocked as "coronavirus", even many researchers and experts claimed COVID-19 as a lab-generated virus by China which is termed as a biological weapon to control the world economy. Moreover terms "isolation" and "quarantine" sounds more depressing than COVID-19 itself. Here we are in 2021 four decades after the implementation of behaviour change strategies against many pandemics and global epidemics such as HIV/AIDS came into effect and we are again in deep need of more serious and intense behaviour change practice and strategies to guide us through COVID-19 period.

Despite many epidemics and pandemics in the 20th and 21 century which taught us many lessons, it is still challenging for the global healthcare system to overcome the spread and damage of new emerging viruses such as COVID-19. In a global context where countries are more interconnected than before, viruses can spread much faster and knowledge and information transfer has also become much easier and quicker. However, when a new virus emerges everything needs to start over from the very beginning since research and identification of the nature of the virus takes time to generate possible outcomes.

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In this master thesis I am going to evaluate on how the concept of behavioural science and behavioural change actions helped overcome HIV/AIDS in "**Gay communities**" in the USA around late 20th and early 21st century and how can Behavioural change help prevent and control spread of the virus and stigma and fear specially among "**Asian-Americans**" when Hate and attacks are increasing in the US against them by native Americans . The researchers and the medical experts who worked during AIDS epidemic believe that COVID-19 and HIV/AIDS parallels each other because the renaming of the coronavirus as a "Chinese virus" by former US president and his allies imitated the act of how politicians branded AIDS as GRID which misinformed Americans back then and will do the same now (Joseph Jaafari, March 30, 2020). Moreover, a well-constructed comparison between behavioural approaches and practices which proved its success during HIV/AIDS outbreak and their relevance on recent Covid-19 pandemic will be conducted in this thesis.

Problem Statement

Following the purpose of this master thesis which has already been discussed above. Behavioural science comes in handy when there is no exact solution to the problem but change in certain behaviour in individual and social level may lead to minimizing the damage and control or delay the outcome of certain events. When majority of the people infected with HIV during 1980 and 1982 were among gay; the virus itself named after them and they faced many consequences of it. Likewise, in 2020 when COVID-19 was identified as a virus which came from China which was levelled Chinese virus; the rest of the world started blaming and discriminating Asian people as if they are the coronavirus. Especially in the US we have seen many hates and attacks on Asian people are rapidly increasing in recent time.

HIV/AIDS outbreak which started in early 1980's and still influenced mostly by behaviour change and health communication strategies until now. An effective risk communication became one of the most important components in HIV/AIDS prevention and control mostly due to absence of cure against the virus. **William Leiss** on his 3rd phase of evolution of risk communication stressed that best risk communication can only be achieved if we give more emphasis on social context, which is social interrelations between the parties involved in the risk communication. The reason behind the success of HIV/AIDS and behaviour change strategy is, it is developed in such a way that social contexts and cultural contexts are matched, and various campaigns were developed accordingly (Leiss William, 1999). On the other hand, we are into the second year of COVID-19 pandemic and are already realising the need of

behaviour change strategies to prevent and control infection. Although many healthcare companies have come up with vaccines which are declared effective, there is a fear of side effects of vaccines among people rather than fearing COVID-19 especially taking into consideration AstraZeneca vaccine and blood clots which took few lives as per Norwegian health experts in mid-March 2021. John M. Berry on the great influenza once told **"The fear, not the disease, threatened to break the society apart."** Prolonged COVID-19 pandemic, conspiracy beliefs, disinformation, and future uncertainty has caused mental imbalance in the public **.** Dr. Mike Ryan, EXD on WHO health emergency programme, confessed that everything in the COVID-19 pandemic is about trusting each other. Dr. Mike added, as a responsible organization, or a government, or a leader we have failed to convince people to wash their hands, wear face masks, avoid meeting people, and keep social distance which is as good as a vaccine. The most important innovation needed right now is in behaviour change actions on how individuals, families, and societies understand and respond during this pandemic (WHO, March 24, 2021).

In a nutshell, as per the title of the thesis suggests, I will be mainly focusing on how LGBTQ community suffered during HIV/AIDS in the USA and the behaviour approaches and the solidarity actions taken to support stigmatized communities and how Asian Americans are stigmatized and discriminated with the emergence of COVID-19 in the USA and the possible mitigation measures based on the solidarity and behavioural actions adopted during HIV/AIDS. To make this study more realistic and deliver good understanding on how behavioural science and risk communication cannot be separated from each other; I will be highlighting the various behavioural theories used during the HIV/AIDS global pandemic and how those theories were used to frame the attitude and the behaviour of the particular group to further formulate and implement behavioural change actions followed by various campaigns, research reports. Articles and journals published in different digital platforms which will be further supported by literature, theories, and principles brought forward by renowned authors and philosophers on risk analysis, risk perception, and risk communication. Moreover, when it comes to health related risk communication which will be the main focus of this master thesis; contribution of various organizations such as NGOs, INGOs , public sectors, and private sectors such as WHO, CDC, UNAIDS, ADB, UNICEF, Bill and Melinda Gates Foundations, local governments and the people on effectively coordinating and communicating communicable and non-communicable disease to deadliest viruses ever existed with various campaigns, financial, mental and moral supports will be equally important. Their contribution on eradicating many

diseases and research reports and data, case studies and many resources on how behavioural science played a pivotal role in communicating health related risk communication will be a great source for my thesis work.

Chapter 2: Literature Review

History of Communication/Risk Communication

Communication nowadays has been used and been one of the influential players in sharing information everywhere. Medias such as broadcasting channels, mass media as social networks, printed media as newspapers have played a vital role in conveying messages to different target groups. Risk communication is a scientific discipline which is dealt by various data and calculations to measure impact of the hazard. This works as a motivating factor for the public to generate a sense of urgency when the facts say that the hazard is serious (Vincent Covello and Peter M. Sandman, 2004).

Risk communication is simply a process of sharing risk related information to different people or groups of people. The knowledge of risk communication includes how the communication is conducted and different theories, concepts and approaches used in the risk communication process (Terje Aven, 2020).

Similarly, the World Health Organization (WHO) defines risk communication as the two-way and multi-directional communications and engagement with affected populations so that they can take informed decisions to protect themselves and their loved ones. It can and should utilize the most appropriate and trusted channels of communication and engagement. (Gamhewage, 2014)

Over the past couple of decades, the world has witnessed many changes. Various policies such as environmental, social, and government policies have been formed, and a more organized system is formed to make communication better and transparent. Back in the 1970's and 80's people used to hand over all the decision-making power to the concerned agencies and the authorities. This resulted in distrust, upset and anger when ignored addressing their views by those authorities. During a crisis, an open and empathetic way of communication which gains

the public's trust is considered as effective when officials are motivating the people to take positive actions or avoid harmful acts (Fischer, 1998; Novae, 2001; Seeger, 2003; Wray & Jupka, 2004).

William Leiss in his article "Three Phases in the Evolution of Risk Communication Practice" published In 1996 has mentioned three revolutionary stages in risk communication. First stage to be known was pre- risk communication stage which lasted until 1985 in the US. The main goal of this stage was to completely ignore the public. It is assumed that public are stupid, useless, and irresponsible and avoid them as much as you can. It was believed that if public participation was enforced on decision making and policy making everything will be messed up and will not go as the organization desires. Secondly, when the public was ignored for a long time, true risk communication emerged. Various environmental and safety policies were formed, many controversies came up front. This step came up with the solution of how to explain risk to the public. By the late 1980's organizations started to understand the communicating risk as a motivating factor as the public were provided with the data and information based on the seriousness of the hazard, they had enough time to prepare for it. Similarly, the third stage came up with the involvement of communities, especially interested parties such as stakeholders in decision making (Leiss, William, 1996). This stage was based on **The Seven Cardinal Rules of Risk Communication** in 1988. This is considered as a revolutionary stage because risk was characterised as two independent factors: hazards and outrage. By the third stage, experts came to know that risk communication is not only explaining the risk to the public but to reduce the consequences of it. Finally, stage four came out as a result of a fundamental shift in organizational culture, norms, and values. Publics were considered as partners and risk communication was based on protecting the environment and public lives (Vincent Covello and Peter M. Sandman, 2004). Crisis and emergency risk communication is one of the essential parts of communities. The scope of risk and risk communication gradually started to come into the spotlight post 9/11 terrorist attack on world trade centre USA. Use of advanced technologies, tools and ideas started blooming out of nowhere and various research, practice and training started taking place to overcome such risk in the future (Deborah C. Glik, 2007).

However, communication processes within an organizational level and risk communication/health communication on a community and national level, and global level are of two different things ignoring the facts that channels used, strategy and the philosophy may remain the same. When it comes to conveying health related information or risk related

information to different communities within the same country there might be a conflict in understanding due to risk perception factors such as norms and values, knowledge, cultural factors, political and economic factors and many more. Hence, it is a very difficult task to make people understand what message is intended to convey.

Communication is conceived as a social process of promoting public health and health care delivery systems within the health communication field. Health communication is regarded as the most important social process because it intends to guide people to strategic health behaviours, information and knowledge on various deadly diseases and viruses, and treatment process and decision making (Kreps, 1988). Health communication can be gathered from patient interviews and laboratory tests, clinical research and practices, regular check-ups, and many other sources. Whenever something strange and dangerous disease or virus appears to the human body it is first tested and sent for the research purpose to laboratories until the best solution to overcome that virus does not appear. Hence, health communication enables experts who are working to find out the best possible cure to provide target audience with health communication regarding those viruses/diseases to inform them with health knowledge and change in behaviour and attitude.

The USA bags the credit for the evolution of health communication in the middle of the 20th century with the emergence of health as one of the most important aspects of individuals and domination of the healthcare industry as a major industry in the future. Before world war II, health was considered as not much of a valuable attribute. However, after decades of war, killings and injuries, personal health became an important factor and people started to recognize healthcare as a value and health services became an important issue for Americans. With the emerging health concerns and values among Americans, the second half of the 20th century was followed by growth of healthcare industries. Furthermore, once the healthcare system was established as a value in American minds it was a one-way rollercoaster to building the healthcare industry as strong as it gets. Support from publics, youths, educational institutions, political and economic institutions made it even stronger.
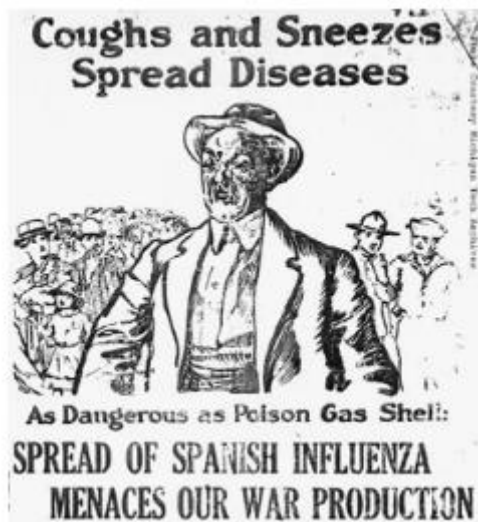
Elizabeth Stephens, in her journal on The Conversation about **"We've known about pandemic health messaging since 1918. So, when it comes to coronavirus, what has Australia learnt?"** gave some insight on how health risk communication took place since 1918. Especially during pandemics, public health education and communication plays a pivotal role in terms of public awareness and more knowledgeable about the crisis.

She further mentioned that most of the public health campaigns of the 20th century focused on posters to warn people about deadly infectious diseases. The US state of Philadelphia circulated around 20,000 players during the influenza pandemic of 1918. However, influenza took almost 100 million people because it came right after war (**Elizabeth Stephens, 2020**).

Most of the innovation and development progress on communication process and tools started on late 20th century. However, in the beginning of the 20th century government, and authorized health organizations used posters, flayers, and parade as a tool to communicate health risk. In contrast, 21st century has seen which people would dream to witness in 21st century. With the help of Social medias, newspapers, televisions, celebrity tweets with millions and millions of followers, social distancing, isolation and quarantine funds, Covid-19 pandemic has taught many things in 21st century.

Living in the 21st century with the first ever pandemic experience, I can say that even in the 21st century having all that hype of social media, advanced technology, evolution of World Wide Web (WWW) and most advanced health care system till date. Posters, banners, and flayers are still considered effective ways to convey health related or any information to the public. Since the start of COVID-19 pandemic, I have been living in Norway and have seen so many health awareness posters, banners, flayers on buses, trains, shopping centres and hospitals

which catch more eyes than social media advertisements which are more inclined towards entertaining platforms.

Hence, the importance of risk communication/public health communication has a pivotal role in spreading awareness and information to the public. However, information and source of information must be trustworthy and easily understandable. **Baruch Fischhoff** in his interview with WHO explained how authorities need to test messages before disseminating them to the public. He has been in the risk perception and risk communication field since 1970's with many journals, articles, books, and conferences. Fichhoff claimed that listening to the public first and testing the draft message will lead both the public and authorities to avoid confusion and better risk communication. Moreover, he confessed that the public may not understand what philosophers and authorities do. So, blaming the public for not communicating the message as it is intended and not testing the message before it is delivered to the public is the real problem in effective communication (WHO, 2020).

WHO Outbreak Communication Model and Risk Communication Guidelines

Established in 1948 World Health Organization is one of the prominent international organizations which has been working for the fulfilment of its goal "*built a better, healthier future for people all over the world*". Known for its never-ending contribution to the public health sector, WHO works based on its regional offices across the continents which coordinate and collaborate with the local government and authorities to facilitate appropriate health information, healthcare delivery, and effective health management approaches to support in decision making.

WHO outbreak communication is not a theory in itself. But it can be used as a resource to formulate other strategic communication methods which are more flexible, easily accessible, credible, transparent, and understandable. WHO communication framework is widely accepted and successful because it analyses the local factors such as culture, traditions, norms and values, and public attitude of a particular region and trains their staff accordingly. Most importantly, WHO hires local advisors or facilitators to understand the minority groups or affected communities to formulate the strategies which match their subjective norms to extend their support in fighting chronic health issues and deadliest and infectious viruses (WHO communication framework, 2017).

WHO communication framework consists of six principles.

Accessible
Actionable
Credible and trusted
Relevant
Timely and
Understandable

Figure 1: WHO Strategic Communications Framework for Effective Communications,

January 2017

Accessible

This principle functions based on the audience's accessibility on the communication channels and what channels they prefer to receive health information which facilitates two-way communications. After successfully mapping the best communication channels, it is now time to choose the right way to disseminate the information to the target group which can be done through three main communication channels. ***Mass media*** which have a broad and direct reach to the audience; ***organization, and community*** channels such as common interest groups, local radio or TV talk shows, and health workshops and fairs; ***interpersonal*** channels such as , counsellors, experts, teachers or local leaders. On the other hand, WHO has its own mechanism for global communication systems, with their website, conferences, and workshops WHO have provided every possible way to disseminate information to address its audiences with physical disabilities as well.

Actionable

WHO communication framework is designed to encourage people to adopt healthy behaviour and carry through its policies to protect health in the long run. This principle seems to work based on Weber's social action theory where individual behaviour is guided by behaviour and actions of others in the society. Hence, Actionable principle accommodates the individual

knowledge, attitude, and behaviour to formulate interventions which help decision makers to design necessary approaches.

Credible and Trusted

In other words, acceptable, reliable, or dependable. As one of the most reputed and well-known organizations in public health, WHO's reputation is the key factor here to convince audiences to take advice and guidance on decision making. To make sure the information transmitted are trustworthy and accurate, WHO officials, experts and communicators focuses on few components such as competence; use of health experts and organizations, openness and honesty; transparency in what and how it does, dependability; what is promised has to be fulfilled, and commitment and caring; convincing people that the mission is committed and is concerned about the public health in every possible way.

Relevant

Relevant information is based on many socio-cultural and demographic factors such as age, sex, education, norms and values, culture and traditions, and geographical locations. Information to be relevant these factors should be accurately addressed and disseminated. Communicators and policy makers have different perceptions on relevance. Communicators may focus on the personal experience of the audience or explaining how the threat may affect their lives, family, and community. Whereas, policy makers perceive relevance as a high priority for essential parts for living such as security and economic affluence. Hence it is important to understand the target audience and their characteristics to design messages and strategies. Including examples from the other communities with the same characteristics may help communicators to convince the target audience that the information is relevant.

Timely

Timely information or communicating information on time is when people need certain health information to make decisions at the time of emergency. During health emergencies, providing regular updates and frequent information on what to and what not to do may help people make the right decision at the right time. On the other hand, timely information on non-emergency situations such as routine health check-up, follow-up vaccines, and promotions on seasonal flues and adoption of healthy habits may remind the target audience to engage in such campaigns. WHO with its emergency response framework, experts and expertise may be the best organization in handling such a crisis For example, WHO involvement in COVID-19 started right after it was found that a viral pneumonia was spreading rapidly in Wuhan china on 31 December 2019. Ever since, WHO has been actively involved in promoting various health

behaviours, promotional campaigns, collecting funds to support vaccines development, financial and expertise support in worst hit regions, and implementation of prevention and control measures in coordination with local governments and authorities all over the world.

Understandable

As already discussed, WHO assigns experts, communicators and policy makers to the designated communities and areas after studying every possible fact about those places and communities. Training, briefing, and possible risk related to these areas and hiring people from the same community to better understand their culture, values and attitude help them understand the people and their attitude to design a message in such a way that it will be easily understood by the target audience. Moreover, to convince people in decision making, information must be clear and actionable in a diverse community with a wide range of tastes and preferences. Use of clear and plain languages, telling stories and including examples to make it look realistic. Using local languages and other standard languages which can be understood by especially abled people such as deaf and blind may make it even more clear and understandable.

Pandemics and Global Epidemics: Risk Communication over the Decades

Throughout the evolution of mankind, humans have suffered and died by many known and unknown viruses and diseases. As human civilization flourished so did the deadliest virus and infectious diseases. Large number of people living in close proximity with animals and lack of proper sanitation and health consciousness provided solid ground to raise infectious diseases. If we go down the history line, it shows us that deadliest pandemics in the past have reshaped societies in a completely different way. It has killed hundreds of millions of people, great empires have fallen, generations and generations have vanished, governments and policy makers have broken down and here we are yet again in the middle of the COVID-19 pandemic which have claimed more than 2.5 million lives and the disease continues to grow stronger and stronger(Michael S. Rosenwald, 2021).

Spanish Flu

Spanish Flu, also known as the Influenza Pandemic, was started in 1918 and lasted almost two years until April 1920. The cause of this deadliest virus was known to be H1N1 Influenza A virus which killed almost 100 million people around the world making it one of the deadliest and scariest pandemics in human history (World Health Organization, 2013). The influenza Pandemic occurred at a different interval of several decades in the 20th century. 1918 Spanish

flu was later followed by "Asian Flu" in 1957 which was caused by A(H2N2) virus and "Hong Kong Flu" in 1968 believed to be caused by A(H3N2) virus killing around 4 million people each (Edwin D. Kilbourne, 2006).

The origin of Influenza virus is still unknown unlike its name Spanish Flu which has no connection with Spain since Spain didn't take part in world war I. many believed the virus came from the USA, China, France or Austria but no one has given a proof or concrete information on this. The virus spread to every corner of the world within a month because it took place in the middle of world war I where soldiers had advanced transportation to travel from one continent to another (CDC: Remembering the 1918 influenza pandemic, 2021). Unlike other deadliest pandemic, Influenza was severe on young and healthy people rather than old and poor immune ones. The virus was so dangerous on its second wave and infected and killed those who survived the first wave (Simonsen L, Clarke MJ, Schonberger LB, Arden NH, Cox NJ, Fukuda K, 1998). It is believed that Spanish Flu had an immense influence on human civilization which may have flipped the outcome of World War I as armies of powerful nations got affected by the virus (Price-Smith AT, 2008). Moreover, US census data between 1960-1980 showed that children born in the pandemic had lower life expectancy than those who were born before or after the pandemic (Whitford F, 1987). Despite being one of the deadliest pandemic in human history, Spanish flu faded as quickly as it got before it could get adequate media coverage which may be because of World War I where people were more focused on the outcome of the war than the pandemic.

In 2018, Influenza marked its 100 years of origin as one of the deadliest pandemics ever known. World has made many advances in the field of public health, understanding of influenza, vaccines and treatment, preparedness, and responses. However, when we travel back to 1918 the reality was awful. World War I was at its peak and the global troops movement helped spread the virus more rapidly. An inevitable public health crisis followed by young and healthy people getting sick and dying, lack of sanitation and public health hygiene and poor nutrition. Moreover, due to lack of research facilities, expertise and laboratory, scientists and health experts were unable to detect, isolate and characterize the nature of the virus (CDC, 2021).

One of the most important lessons learnt from 1918 which has been widely used among health experts, public health institutions and the government is **"flattening the curve"**. During Spanish flu, America was hard hit from the beginning. Hospitals in Philadelphia were full within a couple of days and thousands of people were dead within the first six weeks. However, the city of St. Louis adopted measures like shutting down schools, cinemas, businesses and

churches and it worked to limit spread and minimize the impact on health services, killing only a few hundred people. Current public health advice to flatten the curve has had the same message on the public to encourage social distancing and self-isolation (Elizabeth Stephens, 2020).

Public health communication during the 1918 pandemic was only limited to posters, banners. Flayers and parades. The aftermath gave birth to various health organizations and media outlets, UK established ministry of health in 1919 and the BBC in 1922, Australia established department of health in1921 and ABC in 1932. Though much of the pandemic was overshadowed by the series of events such as World War I, and rapid increase in deaths and chaos, it didn't get as much media attention as it should have. But, the 1918 pandemic has taught many lessons to modern day healthcare facilities and crisis health risk management and the importance of risk communication to the target audience (Elizabeth Stephens, 2020).

Smallpox Outbreak in Former Yugoslavia

Known as one of the highly infectious and rapidly spreading diseases in the modern world, Smallpox outbreak in 1972 in the former Yugoslavia is considered far cry from even an epidemic (Ilic M, Ilic I, 2017). One of the pilgrims returning from the middle east started to develop fever and skin eruption which became the source of this deadly disease. The outbreak was followed by introduction of martial law, mandatory revaccination, sealed borders and the whole village and neighbours were sealed off to control the infection. Although the outbreak was considered highly infectious and rapidly spreading in nature, life returned to normal within 2 months. Government was well praised for its actions and planned revaccination campaign (entire Yugoslavia population was revaccinated within two weeks which is 18 million people at that time) (O'Toole T, Mair M, Inglesby, 2002). 175 people were infected and 35 reported death during an epidemic. The 1982 film **Variola Vera** is based on this event (Markovic, Goran ,1982).

On the other hand, it is believed that smallpox virus caused almost 300-500 million deaths around the world between 1950 and 1971 in most of the European countries and Canada (Mack TM, 1972). In 1967 WHO launched its campaign to eradicate smallpox virus with various vaccination campaigns and was declared successful in 1979 and WHO claimed the eradication of Smallpox virus in 1980 (WHO; 1980). Covid-19 reminded older generations, government and public in Yugoslavia of that only smallpox outbreak in 1972 which was eradicated within two months with the help of intensive planning and public coordination.

The last time when Yugoslavia faced strict quarantine and isolation was in 1972 which only lasted a couple of months. All credit and praise to the government who introduced martial acts and mass vaccination campaigns which were equally coordinated by the public. Though it was a matter of concern for the US Intelligence Agency and fellow communist party members of Yugoslavia that the state has not declared a state of emergency and informed the public about the outbreak. The Federal Secretary for Work and Social Policy, Vuko Dragašević informed the public and the rest of the world through national television that there are few smallpox cases they are dealing with and the situation is completely in control since only a few municipalities have few reported cases. Hence, with the help of US Centre for Disease Control, WHO, Yugoslav health service, and with support of the Yugoslav National Army, intensive measures were taken, and the outbreak was controlled within a short span of time (Sabina Ferhadbegović, 2020).

Polio

It is believed that polio has been around human civilization since prehistory. However, it was known by various names back then. Dental Paralysis, Infantile Spinal Paralysis, Essential Paralysis of Children, Regressive Paralysis, Myelitis of the Anterior Horns, Tephromyelitis (from the Greek tephros, meaning "ash-gray") and Paralysis of the Morning are some names that were used in early 19th century (Gould T, 1995). Richard Rhodes (1990) in his book **"A Hole in the World "** claimed that polio was a form of plague which had a mild symptom first with headache and hour later you were paralyzed. Families had that fear that it would attack again in summer and waited fearfully. Few diseases frightened in the early 20th century than polio did. At a time when other considerably deadly diseases such as Diphtheria, Typhoid, And Tuberculosis were declining, polio used to strike in warm summer months and passed through towns to towns most often. Many people recovered, however some people suffered temporary and permanent disability, and many lost their lives, mostly young people (Eggers HJ, 1999).

Polio claimed its spot as an epidemic status in the early 20th century with relatively high living standard communities. Over the past thousand years, polio survived as an endemic until the beginning of the 20th century when major outbreaks appeared throughout Europe (Trevelyan B, Smallman-Raynor M, Cliff A, 2005). Polio became one of the widespread diseases soon after it reaches to united states in 1910. Polio epidemic occurred many times in the first half of the 20th century (1900s-1955s) paralyzing and killing over half a million people every year worldwide (Canadian International Immunization Initiative, 2007). The United States suffered the most with polio epidemic throughout the 1950's with two major outbreaks in 1916 and 1952

with more than 57,000 cases and more than 3000 deaths in 1952 alone (Dana Robinson and Ann Battenfield, 2020).

Polio epidemic is the best and perfect example of how risk communication/health communication helps in eradication of any deadliest diseases that human beings fear. Since 1988 World Health Organization with the help of other supporting institutions such as rotary international, United Nations Children Fund (UNICEF), Bill and Malinda Gates foundation, Centers for Disease Control and Prevention (CDC), USAID, various governmental and non-governmental agencies, governments of polio affected countries and private sectors jointly declared that polio has almost eradicated through Global Polio Eradication Initiative (Rafael Obregón, Ketan Chitnis, Chris Morry, Warren Feek, Jeffrey Bates, Michael Galway, Ellyn Ogden, 2009). Mass vaccination campaign, use of mass medias to disseminate information, and global health communication strategies adopted by the various institutions such as **"Polio Community Global Guide"** designed by UNICEF for its country and regional officers, World Health Organization's **"Communication for polio eradication and routine immunization"** published on behalf of USAID and UNICEF under Global Polio Eradication Initiative (Global Polio Eradication Initiative, Accessed on 2021).

SARS

SARS (Severe Acute Respiratory Syndrome) which was identified in 2003 affected almost 23 countries with around 8000 confirmed cases where only 10 % of them died. Like COVID-19; SARS also emerged from China affecting its neighbouring countries at the initial stage. It was a respiratory virus caused by the coronavirus which is different from the COVID-19 but was deadlier than COVID-19 and much harder to transfer from one to another person (WHO homepage, Retrieved April 2021). SARS was categorised as the first pandemic of the 21st century however it is recognized as an epidemic aftermath. Although having mere numbers of infected people and deaths compared to recent pandemic COVID-19; SARS affected largely on Asian countries such as Hong Kong, China, Singapore, and Taiwan. Healthcare communities in hard hit countries suffered the most. SARS proved that the world healthcare system was not prepared for the rapidly spreading disease such as SARS back then. Asian countries faced almost 30 billion USD worth of economic loss and in Hong Kong it resulted in political fallout due to the poor management and failure to cope with an epidemic.

The risk communication during SARS played a pivotal role in preventing and controlling spread of the virus around the world. Countries who were able to pass the public health guidelines to their public through various means of communication found it easier to control the spread of

the virus than the countries with poor risk communication strategies and means. China. At first, it tried to hide the fact of the SARS virus from its own people and tried to solve the problem behind closed doors. However, the information somehow leaked through the internet and later local newspapers. When disease was spreading rapidly, and the public knew about the deadliest virus outbreak; china started to track the virus and started various packages and strategies to control the virus spread. On the other hand, Hong Kong media were well ahead of the government to cover the deadliest virus emergence in China and inform the public.

When the situation went out of control, countries around the world started reacting to SARS. WHO and CDC released their own campaign to disseminate information to global communities around the world. WHO announced the Global Outbreak Alert and Response Network (GOARN) and started working and coordinating closely with affected countries. CDC on the other hand, activated Emergency Operation Centre (EOC) and issued health alerts, travel alerts, and health guidelines to local health departments.

Moreover, one of the serious public health crises that Taiwan faced during the SARS outbreak in 2003 was its public panic. Demand for facemasks and shortage of other daily consumption goods created social panic among the public because many retailers hide their stock to sell them at higher price. Which in return forced the Hong Kong government to implement strict measures to control the outbreak. In order to control the spread of SARS outbreak HK government implemented WHO outbreak communication guidelines such as introducing toll-free hotline, transparency in communication, routine media communication, and rumour monitoring analysis (Yu-Chen Hsu, Yu-Ling Chen, Han-Ning Wei, Yu-Wen Yang, and Ying-Hwei Chen, 2017). HK adopted the same communication strategies to fight against other outbreaks later such as the Ebola outbreak, MERS, and influenza epidemic between 2009-2016 which proved to be much more effective than other strategies. This reminds me of the exactly similar situation when COVID-19 was first identified and started spreading on a global level. There was a panic among people and panic buying around the world led to a shortage of facemasks, hand sanitizers, toilet papers, and daily consumption goods. Many grocery stores in America, Europe, and Australia faced overcrowding and some of them were forced to shut down the store. This led them to limit the number of buyers allowed to the store at a time, compulsory use of hand sanitizers and face masks, keeping the distance of at least 1 meter to each other, and limit in buying of demanding goods.

Ebola

The first known case of Ebola was first discovered in 1976 in the Ebola river which is now Democratic Republic of Congo; The 2014-2016 Ebola outbreak is considered one of the deadliest and first of such Ebola outbreaks in human history. It is yet to be known the source of the Ebola virus. However, scientists and research experts believe the virus is transmitted from animals such as chimpanzees, Apes, and monkeys. People in west Africa hunted those animals for consumption of mead and could have contacted the virus. Ebola is transmitted through the direct contact of blood and body fluids to humans (CDC, 2020). During its outbreak the virus has killed almost 11,325 people out of 28,652 confirmed cases all over the world. Majority of the total deaths and confirmed cases came from the worst hit Western Africa countries Guinea, Liberia, and Sierra Leone.

Controlling the spread of the virus was challenging initially due to the geographical location, availability of resources, and economic condition of the affected countries. There was no way the local government and the authorities could stop the virus' spread without proper communication channels, lack of funds, and high illiteracy rate. CDC through its Emergency Operations Center deployed its personnel to west Africa with surveillance, contact tracing, health education, laboratory testing, communication analytics, and trained healthcare staff to overcome Ebola outbreak (CDC, 2020). Similarly, WHO has been actively engaged in eradicating Ebola affected countries head to head with the help of UNMEER (UN Mission for Ebola Emergency Response) in training health personnel, training burial teams, contact tracing, working with the communities, building Ebola treatment centres and community centres, health communication among the affected communities and families to prevent rapid spread of the virus and many more.

Stigmatization and discrimination during and aftermath of the outbreak among the survivors were clearly visible in hard-hit African communities. People who survived the virus were forced to leave the job, survivors abandoned or isolated from the family, physical violence, facing difficulties in buying food because sellers would not take cash from Ebola survivors, and landlords issuing evacuation notices because they didn't want Ebola survivors to stay in their homes. These behaviours did not only affect them physically and mentally but pushed them backward in economic status as well. Many well-known international media covered the story and warned the people around the world about the deadliest virus. Social media, newspapers, television media tried to fuel the fear and panic around the globe due to its dangerous symptoms and absence of vaccines and drugs. However, some local newspapers, radios, and TV stations

tried to bring positive change through awareness programs and messages on nature of the virus and some preventive measures while rest of the world exaggerated the outbreak and spread fear and panic among people (Mayrhuber EA-S, Niederkrotenthaler T, Kutalek R 2017).

Chapter 3: Theoretical Framework

Risk and Risk perception

The concept of risk is a multidimensional approach. There have been many attempts to draw a standard definition of risk concept, but none have come up with a solid definition. There are many concepts and definitions of risk from various philosophers and literatures but to be broadly accepted one needs scientific studies and widely accepted. In layman's perspective people's understanding of risk and their actions and behaviour towards mitigation of risk depends upon their background knowledge of the present risk exposure and risk reduction measures. The term risk simply stands for a danger of a series of unknown and unwanted events which may cause physical, social, or financial loss due to hazard within a specific time period (Drottz 1991, Fischhoff 1984, Renn 1992, Rohrmann 1998). Where hazard is a situation or a risk event which can be harmful for humans and physical property. Society for Risk Analysis (SRA, 2015b) has defined risk as a future event or phenomena which is uncertain and has positive or negative consequences in relation to something that human value. In addition to that, ISO 31000(2009) defined risk as an effect of uncertainty on objectives where an event or phenomena is uncertain and has positive and negative consequences on objectives. So, in simple terms risk is an event which has a probability to occur in the future and is associated with uncertainty and consequences. Apart from that risk has been established as a science in the contemporary world. Risk assessment is part of every organization now. Because of political unrest, global warming, technological advancement and various other factors, the concept of risk and risk management has established itself as a one of the important disciplines of science. Risk assessment uses various tools, concepts, models, principles, and strategies to identify, communicate and manage risk.

Risk and risk perception is different for the real life risk events since they are affected by many affective (emotional state of mind), cognitive (mitigation measures, and media coverages), contextual (background knowledge), and individual (attitude and behaviour) factors (Godovykh, Maksim; Pizam, Abraham; Bahja, Frida, 2021). Scientific research on risk perception carried out by some of the renowned risk experts such as (Boholm 1998, Renn &

Rohrmann 2000, Rohrmann 1999) have found out that socio-cultural and socio-psychological factors have strong influence on risk perception. Probability of occurring the risk, preparedness and planning, and acceptance of risk is dependent on type of risk event, personal experiences, attitude and behaviour, diverse societal influences, and belief, norms, and values.

Humans are social creatures where every individual's decisions, attitude and behaviors are influenced by societal norms and values. People living in the society share common feelings, emotions, and act in a similar manner if put into a similar situation. Hence, it is very important to frame the attitude and behavior of an individual to develop and implement behavior change approaches and strategies towards certain risk events. Here I have discussed a few well-known theories and concepts used during various global pandemics and epidemics to frame individual attitude and behavior and develop necessary intervention to control and prevent such humanitarian crises. These theories have been used during HIV/AIDS global pandemics and might well be used for COVID-19 pandemic which we are still in the early phase of developing sure-shot medicines and vaccines.

Moreover, I have also included a concept of social solidarity developed by Emile Durkheim in his book the division of labor and the role of media and misinformation in changing human behavior during pandemics. Over the decades, technological advancement has brought a great deal of risk associated with it and is considered as one of the prominent sectors in risk analysis. More specifically I will be discussing the impact of social media, and online news platforms on behavior change. On the other hand, the social solidarity concept of Durkheim is also important just because behavior change and social solidarity especially during the pandemic when each and every individual is equally affected by the crisis needs collective actions to support the authorities to control and prevent the spread of the disease.

Health Belief Model

The Health Belief Model was first developed in 1950 to accompany the failure of tuberculosis screening (TB) among people in the US. The HBM is the result of lack of people's participation in adopting preventive behaviour against tuberculosis in the US during 1950's which resembles HIV/AIDS in many ways such as fear of the procedure, lack of time, behaviour constraints, finance, perception, discrimination and stigma factors, and so on (Rosenstock et al., 1994). The health belief model works based on many assumptions such as people's belief on how vulnerable and exposed they are, seriousness of the disease on their lives if they contract it, effectiveness of the treatment, influence on decision making based on surrounding environment

such as certain actions need to be taken if someone close by contracts a disease, and the effectiveness of the health intervention approaches (Martin Fishbein, Mary Guinan, 1996).

HBM claims that two primary factors affect individual behaviour to adopt a healthy protective behaviour. First, the person must feel he/she is directly exposed to or threatened by the disease and, secondly, preventive actions should always outweigh the health intervention approaches. HBM was considered one of the successful approaches among many cognitive and social learning theories during prevention and controlling of HIV/AIDS (Martin Fishbein, Mary Guinan, 1996). This model was extended from Kurt Lewin's theory of goal setting which is based on different regions of individual life and their values. Among positive, negative, and neutral values, disease is considered as a negative value. Hence, value placed to achieve specific outcome and the individual's estimation of likelihood that specific action will result in the desired outcome, will affect individual behaviour (R. Davidhizar, 1983). For instance, using condoms (Action) will prevent and control the spread of HIV/AIDS (Outcome). The health belief model proved to be a successful theory in changing sexual behaviour among gay communities in the US because of its primary factors such as severity of the disease and the benefit over cost approach. Since, AIDS has no cure and once people have it, they have no way other than waiting for a death to come; and, preventive measures took over the unhealthy sexual behaviour. This is when HBM came into effect and promoted social and individual behaviour strategies through various health promotion and communication campaigns.

The HBM conceptual model presented below in *figure 3* summarises the concept of health belief model and its application in behaviour change. Perceived susceptibility is the individual perception of risk of contracting the disease whereas perceived severity is the consequences of contracting the disease. Perceived benefits on the one hand refers to the individual perception of the effectiveness of self-protective behaviour. Perceived barriers on the other hand, are the factors which prevent individuals from adopting self-protective behaviour. Finally, self-efficacy is the individual belief which allows people to successfully obtain desired action to behaviour change (Rosenstock et al., 1994).
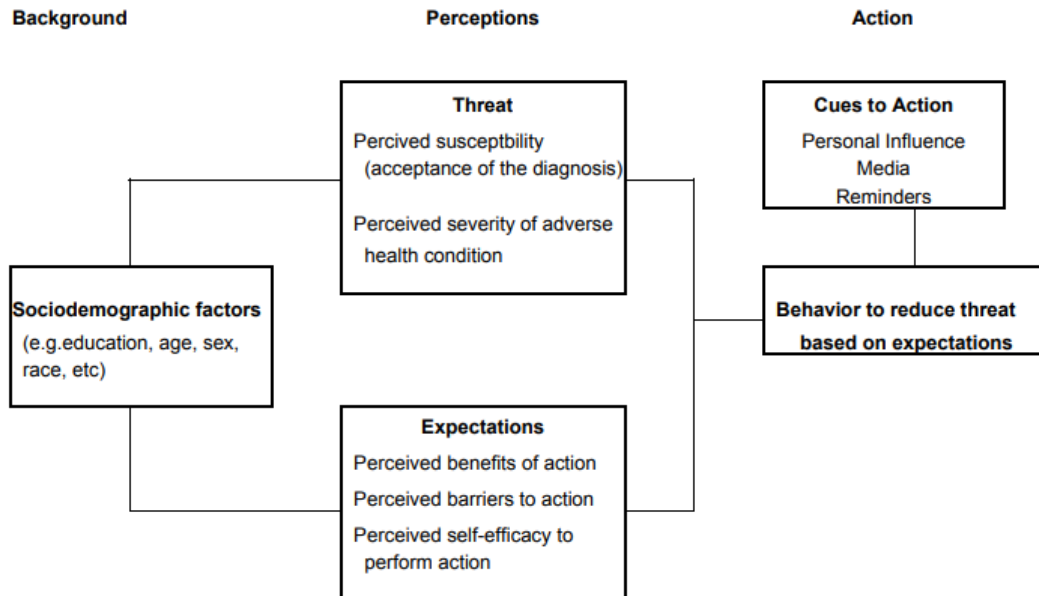
Figure 2: The conceptual HBM approach

The HBM approach is used by some of the researchers during COVID-19 to find the relationship between HBM components and the intent to COVID-19 vaccine in Malaysia. Out of 1159 participants, the majority of the people (48.2%) showed definite intent to have a vaccine whereas 29.8% showed probable intent and 16.3% showed possible intent towards vaccines. The research also found out that many people were worried about getting COVID-19. However, only few realised that they have a high chance of getting the virus. Which indicates the need for high-risk perception among the public to adopt preventive actions. Moreover, the majority voted as definite intent of taking vaccines shows that people have high perception of severity and perceived benefits. However, introduction of new vaccines, side effects and efficacy and safety issues remain as a perceived barrier (Li Ping Wong, Haridah Alias, Pooi-Fong Wong, Hai Yen Lee & Sazaly AbuBakar, 2020)

Health belief model is seen as the **Protection Motivation Theory (PMT)** which is one of the most cited and popular theories in the field of risk analysis. This theory suggests that people are more likely to adopt protective behaviour when the consequences of any given risk event is negative or high (Campbell Institute, 2017). PMT theory has been used in many safety awareness campaigns in many organizations such as use of protective gears to offshore oil workers, speed driving among youths and many more. PMT believes that, helping people to understand the consequences may lead them to adopt protective actions and motivate them to divert them from high risk behaviour and help others.

Theory of Reasoned Action

First developed by Martin Fishbein in 1960's the Theory of Reasoned Action (TRA) was later revised by Fishbein and Icek Azjen in the following decades. TRA assumes that the performance or non-performance of certain individual behaviour is determined by his/her intention to perform or not perform. Where the intention whether to perform or not perform certain behaviour is defined as a subjective likelihood that a person will behave in a certain way in the given situation (Martin Fishbein, Mary Guinan, 1996).
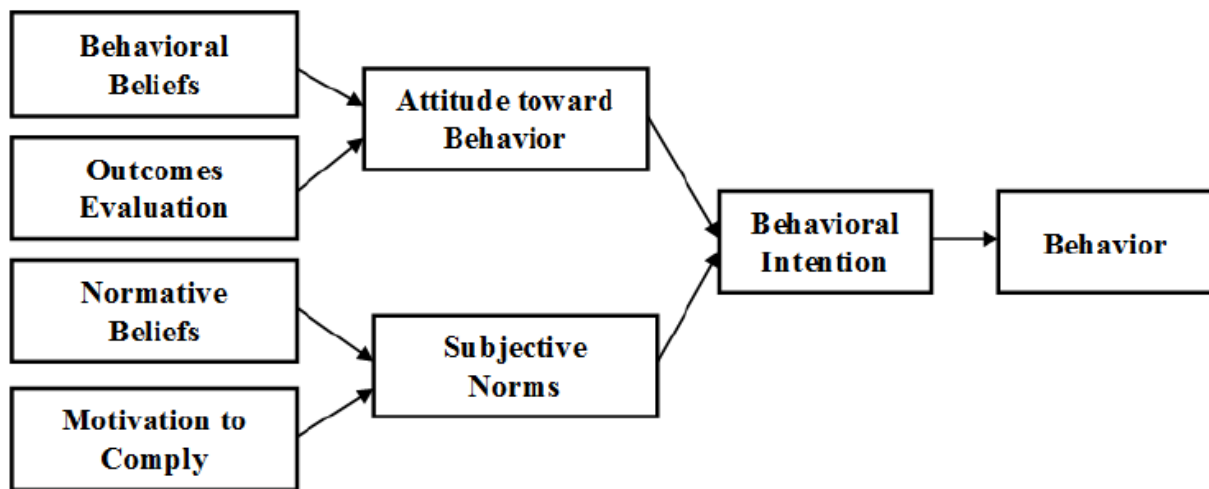
Figure 3: Theory of Reasoned Action (Fishbein and Icek Azjen, 1980)

TRA was specially designed to explain and observe human behaviour in particular situations where intention to behave is guided by two most important factors which are a person's attitude towards that behaviour and subjective norms. Person's attitude is viewed as a collective effort of behavioural beliefs (belief that performance of the certain behaviour will lead to certain outcome), and outcome evaluation. Subject norms on the other side is viewed as a collective effort of normative beliefs (influence of the surrounding environment on decision making such as certain groups or individual's perspective on whether to perform or not perform behaviour), and motivation to comply (factors which push individual to perform certain behaviour such as a positive outcome) (Fishbein and Icek Azjen, 1980). However, it is difficult to identify which one is a primary determinant of intention and behaviour given the different population, areas, and societies. Some populations may get influenced primarily by attitude and some populations may primarily get influenced by subjective norms or self-efficacy. Hence it is very important to determine the primary determinants of the behaviour change prior to developing an

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intervention. A research conducted by Fishbein on using condoms among sexually experienced US male college students showed their behaviour of using condoms was primarily influenced by norms where the same study on sexually experienced male college students in Mexico found out to be primarily influenced by attitude (Fishbein, 1991).

W.M. Doswell, Braxter, Cha, and Kim's study among African American teenage girls in 2011 using TRA found out that their behaviour towards having early sexual relations were primarily influenced by pre-existing attitude and norms. Here attitudinal behaviour is favourable and unfavourable individual character towards sexual behaviour whereas subject norms are the perceived social pressures from their colleagues, classmates, and other peer groups (Doswell, Willa & Braxter, Betty & Cha, EunSeok & Kim, Kevin, 2011). The use of TRA approach in this study was believed to be successful because person's intention to have early sex was influenced primarily by his/her attitude and subjective norms.

Similarly, with respect to the COVID-19 situation in the US; political affairs created the void between native Americans and Asian Americans. The primary determinant of change in harmful intentions towards Asians can be considered subjective norms such as the government, society, and various peer groups who forced each other to change their attitude towards Asian people because they believe that Asian people created coronavirus. The term China virus turned conspiracy theories into reality and hate and crime against Asian communities started rising.

Social learning and cognitive theories

When we start talking about the risk perception theories and risk communication in relation to industrial level and public health sectors, their application and factors which influence them always remain the same. One's risk perception towards certain risk events may be influenced by his/her attitude, social norms, culture, values, environment, peer pressure, political and economic factors, background knowledge and many more. However, dealing with minority groups or vulnerable communities which do not have larger social support needs the interventions and strategies to modify the peer network to bring positive behaviour change. Social Cognitive Theory (SCT) like other behavioural theories focuses on two factors which are self-efficacy and outcome expectancies. In order to change behaviour in a particular situation he/she must believe that they have a capability to perform the behaviour and there should always be a pushing/motivating factor as such a positive outcome should always outweigh the negative outcome.

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Risk Compensation/Risk Homeostasis Theory

Risk Compensation Theory explains that people tend to take more risks when they feel more secure and satisfied. In other words, individual risk-taking behaviour is largely influenced by safety measures they are exposed to (Wilde. 1994). Most of the research and study based on this theory are on the transportation fields such as adding some safety measures to the car (seatbelts, airbags, warning systems) encourage people to drive fearlessly because they feel protected by the safety features of their cars. However, another study suggests that introduction of alcohol laws and seat belts were the reason for decline in accidents between 1964 to 1990 overshadowed the previous statement of over speeding and safety features (Robertson, 1998). Moreover, this theory was further supported by Bridger and Friendburg's study on squat lifting experts with and without abdominal belts. The research found out that squat experts wearing abdominal belts and protective gears tend to lift more weight, increase work speed and less hazards with increased confidence and carelessness (Klen, 1997).

In dealing with the recent COVID-19, an autonomy supportive healthcare system such as providing choices and giving priority to what patient's perspective are motivates people to change their behaviour. Recent studies have found out that people maintaining social distance and wearing face masks were motivated by their responsibility towards the society and not wanting other people to get infected (Porat Talya, Nyrup Rune, Calvo Rafael A., Paudyal Priya, Ford Elizabeth, 2020). Almost all the countries around the world have implemented some anti-infection measures and behaviour change strategies. Australia implemented strict border closure when the infection was about break out. Working in coordination with the public and health experts to locate and isolate the outbreak helped Australia to overcome coronavirus, unlike the rest of the world which is still suffering from COVID-19 crisis. Taiwan on the other hand, brilliantly handled the crisis with its WHO outbreak communication model previously designed during SARS. It is visible that some of the countries with tighter COVID-19 regulations such as Vietnam. Singapore, and China with the help of their public were able to get control over the spread of the virus where USA and the many European countries suffered the most by the virus with the late reaction and lack of early tight measures. Last summer in 2020, Norwegian PM Erna Solberg requested people to spend their summer holiday within Norway and promote local tourism and food rather than going abroad, which in return boosted the domestic tourism and hospitality business somehow (Norway Today, 2020). Hence, in these situations, it is most important to understand what people can do from their side and advise

accordingly to act wisely. Moreover, helping public in need and empower them in some part of their lives ensures public to be motivated to take more preventive measures and less fear.

Situated Rational Theory

Situated rational theory was first identified by Rhodes in 1997 to observe sexual risk-taking behaviour. Theory argues that it is incorrect to presume that safe behaviours normally are characterised rational and high-risk taking behaviours are characterised irrational. In other words, individual rationalities about the risk-taking behaviour are dependent on the situations such as risk is perceived in relation to more immediate risk and dangers. Hence, situated rational theory emphasises that individual behaviour of risk taking does not occur in a context-free vacuum rather socially situated. (Rhodes, 1977). For instance, Rhodes example on unsafe sex, to show the trust and love towards their partner people may engage in unsafe sex who are known to be HIV positive and drug users. Here, it is important to understand the relative importance given by the drug users over the transmission of HIV AIDS in relation to other risks and dangers in their lifestyles. This statement can be justified by two examples, **overdose** and **unprotected sex**. Drug users perceive overdose as a greater risk than transmitting HIV because overdose may result in death anytime and overshadow the risk of getting HIV. Unprotected sex on the other hand, is more of a attachment and showing love and care among partners as suggested by the Rhodes in his example. Here the perceived risk of getting HIV may not outweigh the cost of having unprotected sex with the partners but, relationship seems to be more important than the life itself (Tim Rhodes, 1997).

This example can be related in the same way with COVID-19 situation. People are now forced to self-quarantine, isolation, social distancing, and many other restrictions. People are not allowed to meet their families on special occasions such as Christmas, new year and Easter in fear of spreading the virus. However, people may put more value on their family and loved ones over getting infected with COVID-19. Which outweighs the cost of getting COVID over relationships.

Social Action Theory

Developed by Max Weber in the early 20th century; social action theory states that actions taken in the past, present and future are actions taken with reference to behaviours and attitudes of others. Social actions are not the actions taken in isolation but are meaningfully related to the behaviour and actions of others in the social context (Harvey, 2012). According to Max

Weber, social action can be verified by subject meaning only. A blind imitation of certain acts without knowing its true meaning is not a social action. Rather, action is social only when humans attach subjective meaning to it. Subjective meaning is that; actors include specific socio-historic contexts in their mutual orientations so that the individual behaviour is influenced by others behaviour.

Weber's social action theory is based on the four forms of social actions which are **Rational Action**, **Value-Oriented Action**, **Affective Action**, **and Traditional Action**. Rational action occurs when people tend to follow the others behaviour to attain their own rationally chosen outcomes. Value-oriented actions are driven by their values independently whereas affective actions are based on the feelings and emotions of the actors. Traditional actions are long established and habitual actions which are taken for granted (Rashmi Priya, 2013).

Social action theory states that normally people take risk because of their friends and the society they live in persuades them with the perception that the activity involves no risk at all or low risk. This gives them a feeling of "everyone else is doing it, why not me". Moreover, theory also suggests that subjective meaning attached to the high-risk taking behaviour such as "smoking or taking drugs makes me look cool among my friend circle" motivate people to engage in such behaviours.

For instance, mass shootings in the USA is not a new thing for the world communities. It has been growing in numbers every year and is growing like people want to adopt mass shooting as part of their culture. In 2020 alone a total of 615 mass shootings took place taking 521 lives with 2541 wounded (Gun Violence Archive, 2021). Three of these shootings occurred at the school or university which shows that people are taking such things as revenge and executing it as a motive to kill minority groups or target populations whose actions or behaviour have a positive or negative impact on them. Mass shooting in New Zealand in 2019 at the mosque had the intent to kill Muslims simply because they are given a tag of terrorism. According to Max Weber, Actions which have motives or intent are social actions. So, these actions may be the result of the affective or emotional state of an individual.

Societal stigma and disparity model presented by Earnshaw, V. A., Bogart, L. M., Dovidio, J. F., & Williams, D. R. (2013) illustrates fundamental relationship of social stigma and racial and ethnic disparity in relation to incidence and screening, treatment, and survival instinct. Social stigma represents the lower social values and dishonour based on individual attributes and demographic factors such as age, gender, race, and sexual orientation.
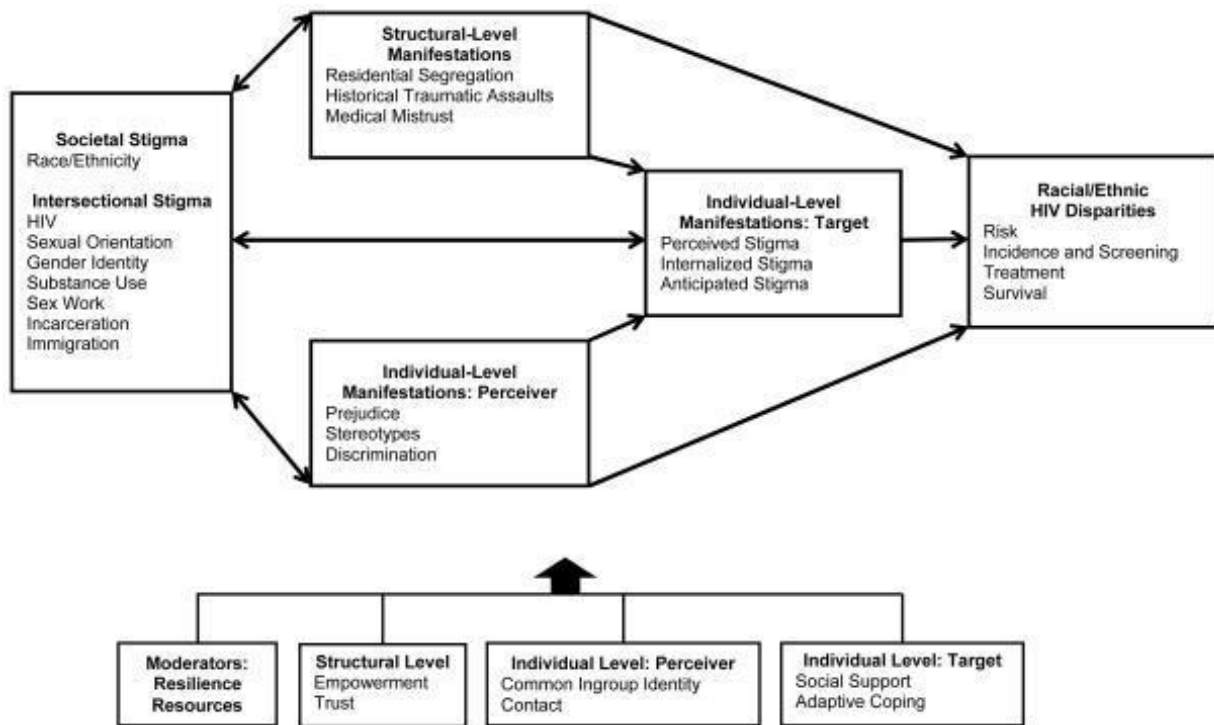
Figure 4: Social stigma and Disparity model presented by Earnshaw, V. A., Bogart, L. M., Dovidio, J. F., & Williams, D. R. (2013).

Stigma and disparity model presented above shows the individual and structural levels through which exhibition of social stigma in relation to racial and ethnic characteristics are expressed. Which is, furthermore, justified by the status, social, political, and economic influences, and resources by bi-directional arrows within the model. Structural level stigma manifestation consists of residential segregation, history of traumatic assaults, and medical mistrust. Residential segregation and medical mistrust are believed to be a fundamental cause of social disparity. Mistrust upon the healthcare system is the result of unethical experiments and the conspiracy beliefs that HIV is a man-made virus to wipe-out the minority groups. Moreover, the history of traumatic assault also results in social disparity on a large scale. It is believed and portrayed African Americans as a minority groups, slaves, cultural destruction, genocide, displacement and, residential segregation which has hugely impacted on the health and psychology of the minority groups.

On the other hand, at the individual level, stigma is manifested by the perceiver's stereotype, discrimination, and prejudice towards minority groups. Prejudice is the disruptive cognitive-emotional set or attitude towards a minority group which come out in the form of anger, disgust, or fear and discrimination is the unfair behaviour or biases among such groups.

Social Solidarity Concept

Social solidarity portrays the individual's interdependence in the society where they can feel they are part of the society and share the same beliefs, values, and common interest between different social groups. Sociologist Emile Durkheim's concept of social solidarity in his book The Division of Labour in Society in 1983 where he mentioned two types of social solidarity-how society holds together (Mechanical Solidarity) and what binds the individual to the society (Organic Solidarity). Where in most of the part individuals act under certain obligations to each other and society as a whole which gives them special recognition for their rightful acts and contributions (Grabb, Edward G, 1990). Social solidarity not only emphasizes the collective actions for the wellbeing of the members of the different social groups and society at large but for taking care of needs and interests of minority population of the community (Reichlin, 2011).
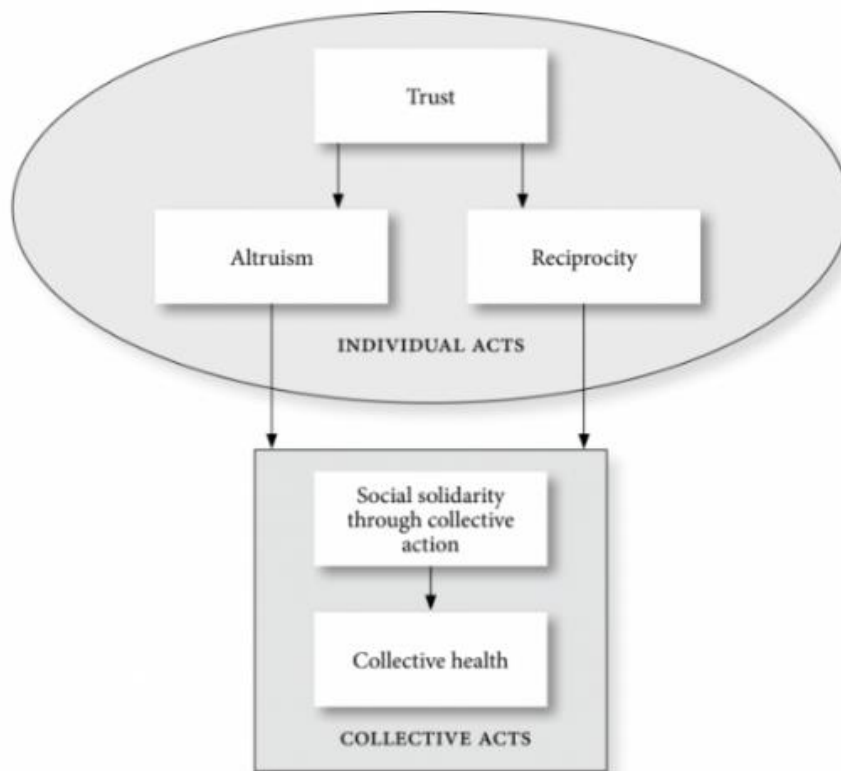
Figure 5: conceptual framework for collective actions through social solidarity R. Campbell, "Altruism in Auguste Comte and Ayn Rand," Journal of Ayn Rand Studies 7/2 (2006)

From the beginning of the pandemic in 2019 UN, WHO, CDC and other non-profit organizations have been continuously underscoring the importance of solidarity and global cooperation to fight against the pandemic. These organizations are repeatedly publishing global standard public health measures guidelines to combat the global issue together. There is no doubt countries across the globe are coordinating and cooperating with shared resources and

expertise among each other to fight the crisis. However, COVID-19 has provoked a series of hate crimes, discrimination, and disparities towards particular groups in the society. United Nations Educational, Scientific and Cultural Organization (UNESCO) report illustrates that the people who are affected the most with the discrimination, stigma and verbal and physical attacks are Asians and Asian descent. As the pandemic evolves, discrimination and the hate crimes also take new forms and the numbers are increasing every day (UNESCO, 2020).

Social solidarity is the bond between people who live in the society which ensures social order and stability. It focuses on the interrelation between different groups in the society which brings the courage of improving life for each other. COVID-19 has portrayed the consequences of globalization which has turned the whole world into a global village. Easing border regulations and travel across the globe has played a supportive role in spreading corona virus rapidly all over the world. As a result, countries across the globe implemented measures such as border closure, lockdown, social distancing, and isolation as a primary intervention to control the humanitarian crisis (Wilder-Smith, Freedman, 2020). Social distancing has become one of the inevitable measures of mitigating COVID-19 spread among the countries. Social distancing helps in controlling the virus somehow by limiting social interaction between people and close contact between suspected COVID-19 cases which may transmit the virus. However, social distancing and social distance are two different things which may create conflict between the different interest groups in the society and can help manifestation of stigma, discrimination, and prejudice. Social distancing promotes the degree of intimacy, closeness, and understanding between each other, where social distance illustrates the way an individual feels closeness towards certain groups or an individual based on social stereotype (Natraj, 1965). The understanding of social distance over social distancing may have resulted in the increasing hate and crimes against particular social groups during this pandemic.

Emile Durkheim's theory of social solidarity is developed based on mechanical and organic solidarity. Where mechanical solidarity best fits in the traditional societies where likeliness and the closeness of the people with same interests; and organic solidarity exists in modern societies where people have different ideologies, pursuits, and interests. In short, a set of beliefs, ideas, and moral attitude as a unified force within a society governs the mechanical solidarity in traditional societies, and division of labour and interdependence in the contemporary society (Durkheim, 1984). However, Durkheim lacks the clear argument on whether both solidarities are inversely related to each other or increase in one does not lead to decrease in other. Moreover, Durkheim believed that there is an increase in solidarity in modern societies during

normal times, but social integration may be affected by the crisis under the advance division of labour in the modern society. Perhaps, at times like this mechanical solidarity may have the best attributes to deal such cases in modern societies over organic solidarity (Pope and Johnson, 1983). Durkheim towards the end of his life believed that social norms, values, and the belief are the basis for social solidarity in all groups and both traditional and modern societies. Hence, it is organic solidarity which has flourished and updated the principle of mechanical solidarity over time (Schiermer, 2014).

Durkheim's social solidarity concept has its implication during COVID-19 humanitarian crisis. Durkheim differentiated traditional societies where collective consciousness was marked as a social solidarity when division of labour was considered as a social solidarity in modern societies. The division of labour is the allocation of work based on the specialization among individuals in the society. During COVID-19 crisis we witnessed the prolonged lockdowns, social distancing, and isolation where only specialized personnel could work at the forefront such as healthcare professionals, media personalities, political officials, national and international non-profit organizations, and other essential security forces. Rest of the people were ordered to work from home and be obliged to the COVID-19 preventive measures. This illustrates the simple division of labour in the society. Moreover, Durkheim's social solidarity is the set of norms, values, beliefs, and ideologies followed by the intangibility in nature. However, he believed that laws and order can guide us to find social solidarity at a given point of time. Durkheim categorised law into repressive and restitutive laws where repressive law is based on the penal law which involves punishments for violating social way of thinking. Restitutive laws on the other hand works on cooperative, and civil laws with corrective intention on violations (Sheleff, 1975). During COVID-19 crisis there were numerous laws and order in action to prevent transmission of the virus. Measures such as restriction on freedom of movement, social gatherings, work from homes, lockdowns, and isolation have forced people to start their social life as a new normal. And, we have witnessed many cases where individuals were penalized for breaking the COVID-19 laws as well. Norwegian Prime Minister Erna Solberg was fined 20,000 Kroner ($2,352) for celebrating her birthday with 13 relatives where 10 people were the maximum limit on COVID-19 regulations imposed by the government. She immediately apologised to the public for her mistake later on the national television (Reuters, 2021). Countries across the globe have deployed armed forces to monitor people's movement during strict lock downs and to help needy minority groups with health facilities, food, and place to live.

These activities which are happening around the world for at least one and half years now during COVID-19 crisis portrays the role of rules and regulations over controlling and maintaining social solidarity at the time of crisis as mentioned by Durkheim's social solidarity concept. However, human behaviour flips more often than one can ever imagine and things around us are the triggering factors which is already discussed above. But, at such difficult times the only thing which keeps us away from the danger is social solidarity and the trust of the authorities who are working 24/7 to get through this tough period and get back to normal life.

Media: from crises and scares

Risk communication and mass media are two very important components in risk management where one without another component is incomplete. The ever-increasing importance of risk communication resulting from technological evolution, public health, and the environment we live in cannot be eliminated but can be reduced. Hence, to involve the public in the decision making process certain actions and trade-offs must be made. It is important to let the public know the risk factors around them and ways to reduce them and the best way to disseminate this information to the mass population is to use mass media. Mass media account for most of the source of people's knowledge on risk and technology. Media such as newspapers, Televisions, Radios, Magazines, and increasing use of social media such as Twitter, Facebook, snapchat, Instagram many more mediate the message given by the experts and concerned authorities.

Mass media are considered essential tools in communicating health risk information to the large population. They have the power to influence on risk perception and behaviour towards question in line, spreading risk awareness, and reducing the social damage which may possibly be caused by the probable risk event (Lisa Meyer, Constanze Rossmann, Hans-Bernd Brosius, 2015). However, it is very difficult to understand the role of media disseminating risk related information firstly, because most of the news organizations are greatly influenced and operate under political culture and the political culture varies significantly within countries. Secondly, the term mass media is so vast that televisions, daily and weekly newspapers, tabloids and most valued newspapers have their own practices and way of portraying the events. It is baseless to compare *The New York Times* with any other tabloid newspapers, and BBC and CNN with any other local news broadcasting organizations (Judith Lichtenberg, MacLean Douglas 1991). One cannot deny the fact that the media have played a significant role in portraying risk and environmental issues in the past however it is human nature to know how these various media

organizations and their news coverage on certain risk events affected public understanding, and behaviour about the issue.

Participation of mass media during COVID-19 is more prominent than any other pandemics or epidemics in the past. The study conducted by *Times Magazine* shows that COVID-19 news covering is 23 times higher than that of Ebola in 2018. Since the outbreak started; the corona virus has been portrayed as a killer virus or deadliest virus by many well-known magazines, newspapers and news broadcasting channels which has spread fear much faster than the COVID-itself. WHO's statement on fake information and fear is another pandemic growing parallel with COVID-19 proves that many conspiracy theories and fake information are making it even more challenging to fight COVID-19. In the UK, WHO has been involved in strategic partnership with the government of UK to spread the awareness of misinformation and encourage people to report false and misleading information through **Stop the Spread** campaign in May-June 2020. Similarly, WHO has launched its own web page named "**WHO myth busters**" where people can report false information and get to know what is trustworthy and what is not (WHO, 2021).
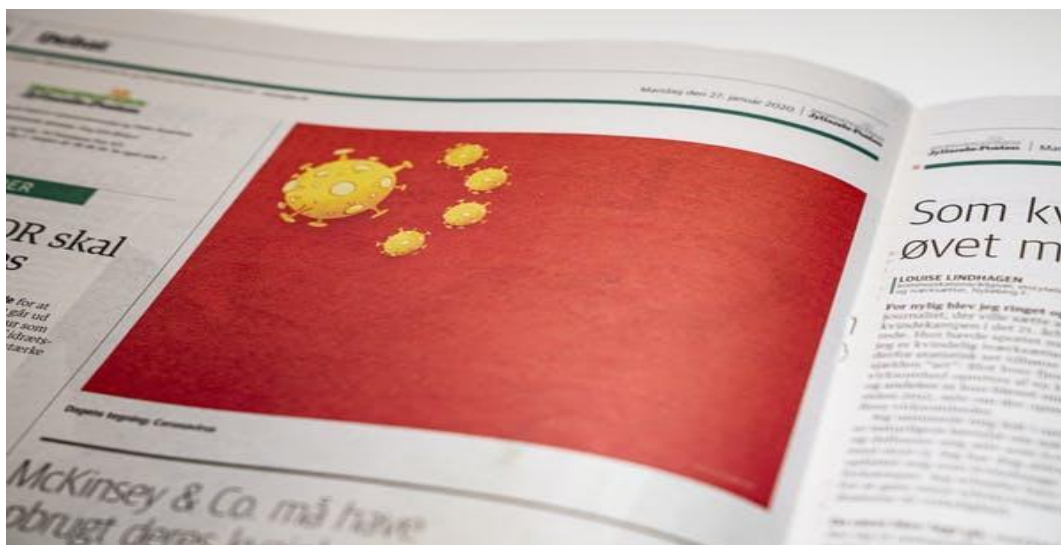
Figure 6: Danish newspaper Jyllands-Posten prints Chinese flag with virus-like figure replacing five yellow stars on 27 January 2020.

On the other side, many conspiracy theories emerged as the corona outbreak started getting out of China and spread throughout Europe and most parts of the world. Many articles, news, and self-proclaimed groups spread the rumour that coronavirus is a lab generated virus by China to wage a war against the USA where others believed that corona is a Hoax to obstruct Donald Trump's election campaign. And nowadays Anti-masks and Anti-Lockdown groups are

protesting against the authorities because they believe that such measures have attacked their civil rights (Karen M. Douglas, 2021). Conspiracy theories are the malicious act of secret and powerful groups intended to disseminate misleading information about significant events and circumstances. These groups use various social media platforms to spread the false information in which people are drawn and forced to believe them to satisfy curiosity and avoid uncertainty (Van Prooijen, J-W., Douglas, K. M. (2017). People normally start believing in such stories because they are physically and mentally scared about the situation, frustrated and uncertain about their and their loved one's future. Conspiracy theories may have severe consequences, when taken seriously may lead to act of violence and terrorism. For example, which I have already discussed above, the "China virus" conspiracy theory has resulted in hate and crime against Asian in many European countries, especially the UK, and the USA.

Infodemic and pandemic

On the one hand, the entire universe is tired of planning and implementation of reducing and controlling measures against COVID-19 humanitarian crisis. Authorities, national and international non-profit organizations, policy makers, health experts, and scientists are working days and nights to control the virus and find the cure to completely eradicate the crisis. On the other hand, another epidemic called Infidemic is rapidly spreading through various social media and other platforms which is posing a serious problem to the measures and interventions against COVID-19 implemented by the government. Luis Felipe López-Calva, (*UN Assistant Secretary-General and UNDP Regional Director for Latin America and the Caribbean)* believe that COVID-19 has brought one of the many parallel battles along with it which is spreading more faster, easily and as dangerous as the COVID virus itself is termed misinformation or infodemic (WHO, 2020).

A Joint statement by WHO, UN, UNICEF, UNDP, UNESCO, UNAIDS, ITU, UN Global Pulse, and IFRC also illustrated that, COVID-19 is massively impacted by the use of technology and social medias in order to disseminate various health related information, safety and precautions guidelines, to connect every individuals with each other during social distancing and isolation. However, the same platforms experts are using to get people informed, productive, and connected has created an infodemic with misinformation, conspiracy theories, and hate speech, which in return has caused psychological and mental problems, stigmatization, and poor understanding of public health interventions implemented to control the crisis (WHO, 2020). Factors such as (dis)trust, (mis)information, and (non)cooperation may cost people their lives since lack of understanding of the diagnostic tests and immunization campaigns go unseen

and the virus keeps spreading even stronger and faster. Realising the impact of disinformation and its possible damage to human society along with COVID-19 WHO Member States passed Resolution WHA 73.1 on the COVID-19 response in May 2020. The resolution aims its member states, national and international organizations to address and find the way to monitor and control mis- and disinformation which is the critical part of controlling COVID-19 itself.

To overcome the fear of the pandemic and counter all the mis- and disinformation related to it along with protecting public health at large is a mammoth task but is an integral part of public health crisis management. Pandemic along with infidemics need to be evaluated and managed with the help of mental health experts with behavioural modification and spreading awareness campaigns, which help in preventing stigmatization of the population at risk.

It is obvious that during outbreaks, uncertainty and fear is the only thing which drives people crazy. People need quick responses from the government on what is going on and how it may affect them. This is the time when people need the government and their presence to ensure the safety and right to know the rightful information of its public. Transparency, trust, and easily accessible information may help people to control their emotions and support the initiatives put forward by the authorities. Moreover, it is necessary to have a communication authority who can transmit and update its people every bit of information they need to know so that people can rely upon them to know the truth rather than following rumours, misinformation, conspiracy theories, hate speech, and spam messages. Governments and various organizations around the world have followed the trend of daily, weekly, and monthly updates on COVID-19 cases, total deaths, progress on vaccines, public safety, and other campaigns to update the public. Such actions influence people to believe in the government and the policy makers and make it easier for the authorities to formulate and implement COVID-19 interventions more effectively which is equally supported by the society.

Chapter 4: Methodology

Research Design

Research design examines how the research is organized and the way data is collected and interpreted to answer and explain the research question. It's the research question and therefore the purpose of the research that determines what research method will be used. During a research project objects are often divided into three parts with the aim to explore, describe or explain questions (Easterby-Smith., 2012).

Quantitative and qualitative designs are two different approaches to conducting a search. It is important to know the difference between these techniques so as to seek out the foremost proper way of collecting primary data for the matter statement and research question. Qualitative analysis draws on the assumptions and research designs supporting relativism and nominalism also as on social constructionism in an epistemological approach. Quantitative analysis is inspired by the realist ontologies and by positivism in terms of epistemology (Easterby-Smith, 2012).

Easterby-Smith, M., Thorpe, R., and Jackson, P (2012) suggests two different views on the way to conduct research, either through **positivism or social constructionism**. The appliance of positivism in science stems from the view that reality isn't an objective exterior but socially constructed and given meaning by people. Social constructionism focuses on the ways in which people add up on the planet through sharing their experiences with others via the medium of languages. A researcher with a positivistic view sees the planet as external, and measures properties through objective methods rather than sensation intuitions. The social constructionist on the opposite hand focuses on people's thoughts and feelings, and the way people communicate with one another. The task among social scientists should be to understand the constructions and meanings that people place upon their experience (Easterby-Smith, 2012, p.23-24). The philosophical position is that the underlying thinking is about the research design, where the researcher is drawn from different epistemological perspectives when conducting his research. Epistemology is alternative ways of enquiring into the character of the planet and can affect which methodology the researcher chooses to deal with (Easterby-Smith, 2012).

This Master's thesis aims to extend the basic understanding of behaviour science and its implication in changing individual behaviour and attitude towards the question in line. it will be able to base my study on social constructionist research approach, as it will be able to

perform in-debt analysis and comparison with relevant behavioural theories and approaches used during global epidemics such as HIV/AIDS and how similar mechanism might be the better option for COVID-19 pandemic, when both the humanitarian crisis have been compared parallelly. Since my research work will be a qualitative research; I will be using literature study and case study as my main research design based on many literatures on risk communication, behavioural science, behavioural changes, and theories in changing individual and social behaviour during humanitarian crisis such as HIV/ AIDS global pandemic and COVID-19

Literatures Study

According to G. Lin (2009) literature research methodology is the process of reading through and detailed analysis of the literature to dig out the essential attributes of materials. Its significant difference from other methodologies is that it doesn't directly affect the thing under study, but indirectly access to information from a spread of literature, which is usually mentioned as "non-contact method." Literature materials are the crystallization of wisdom, are the ocean of data, have important values for the development of human society, history, culture, and research scholars. Education researchers shall fully share information, conduct literature research to understand sources of relevant researches and scientific developments and to understand what our predecessors have achieved and therefore the progress made by other researchers. However, within the ocean of knowledge of such a huge amount of data, how should we elect representative literatures?

Literature research methodology includes non-structured qualitative analysis and structured quantitative analysis. Generally, literature are descriptions of the character, functions, and characteristics of objects. These qualitative descriptions hardly ever show the variable relationship of the research subject, so researchers tend to use logical reasoning to explore the logical relations among objects instead of the number relationship. In general, chemical analysis is to classify information contained in literature, to pick typical examples to re-organize and to come to a conclusion on the idea of qualitative description. The chemical analysis of literature has special values in distinguishing the past trends and forecasting future models. Qualitative research of literature doesn't specialise in the number and completeness of literature materials. It focuses on personal literature research and chooses small samples or characteristics of cases consistent with the interests of the researchers and subject requirements. Qualitative analysis is to review whether the objects under research have a certain nature or to review chance reasons and process analysis. The bottom of chemical analysis is the philosophy method. It compares the similarities and differences between things through reasoning, sums up the kinds of things

and grasps the principles of things. The common reasoning process of qualitative research tries to work on the problem, concept, facts, reason, and the conclusion of the study. G. Lie (2009) has suggested seven approaches to conduct qualitative research such as causal analysis, comparative analysis, conflicts analysis, the results and functional analysis, induction and deduction analysis, and synthesis and scientific abstract method.

In this study I have chosen literature research methodology to conduct detailed analysis of behavioural theories, their application and relevance in individual and societal context. There are numerous literature published over the past decades which have proven to be excellent in behavioural science and human behaviour in different aspects of life and most importantly in risk perception and risk communication.

Case Study

In this master thesis I decided to use the comparative case studies approach so as to analyse and present my findings. This method sits on the hypothesis on epistemological perspectives such as positivism and social constructionism which I have already discussed above. within the literature one may find the claims that case studies are often designed both from the positivist and constructionist perspective. A case study looks thorough at one, or a little number of organizations, events, or individuals over time. The case study approach focuses on single and multiple cases. Single cases generally come from constructionist epistemology, multiple cases on the other hand fit more with the positivist epistemology (Easterby-Smith, 2012, p.54).

The case study approach in social sciences consists of detailed examination of the facts of an episode so as to develop or test explanations which will be generalizable to other events (Bennett & George, 2005, p.5). Case study methods include both analysis of single cases and comparisons of a little number of cases. Case studies are characterized as "small-n" studies in contrast to "large-N" statistical studies, with regard to the difference within the number of cases studied. The term "qualitative methods" usually encompass both case studies administered from a positivist view of the philosophy of science and people implemented with a postmodern or interpretive view. The case study approach tries to formulate and implement clear standards for predicting whether some generalizations fit in the society than others. Case study methods are proven to be strong where statistical methods and formal models are weak (Bennett & George, 2005, p.17-19). The strengths of case study methods are conceptual validity, deriving new hypotheses, exploring causal mechanisms also as assessing complex causal relations. The case study approach is on the other hand criticized for being incapable of case selection bias, meaning that the planning of the study or the phenomena being investigated suffers from

systematic errors. The case study approach is additionally criticized for the "degrees of freedom" problem, meaning the lack to discriminate between competing explanations on the idea of the evidence. A 3rd criticism is said to lack representativeness of diverse populations, and lastly, it's criticized for "overgeneralizing" findings to types or subclasses of cases that differs from those actually studied (Bennett & George, 2005, p.19-32).

Search Criteria

During this study, I have gone through many books and literature published by renowned authors and philosophers in the field of risk analysis and communication. The foundation of risk analysis and governance by Tarje Aven 2020 edition, Ortwein and Renn's book on risk governance, Risk Perception and Communication Unplugged: Twenty Years of Process' by Baruch Fischhoff and many other articles, journals, and theories in the field of behavioural science and risk communication. Since, this study is based on the comparative analysis of evolution of risk communication in relation to behaviour over the 40 decades timeframe; I have gone through many literature, case studies and contributions which are relevant to my thesis.

Moreover, I have accessed many resources through online platforms such as google scholar and other research articles, and journal publishing platforms such as research gate, springer, Jstor, Elsevier, Cambridge.org, and many more. I have used keywords "behaviour science", "behaviour science and HIV/AIDS", "AIDS and Gay communities", "Stigma and HIV/AIDS", "COVID-19 and Behaviour change", "conspiracy theories and consequences" and few others.

Reliability and validity

Reliability is concerned on how trustworthy the research is, considering how data has been collected and analysed. Reliability of a study forecasts if a research project will produce a desired result and scores similar to another research project which is carried out on similar circumstances which is in most cases unlikely to possess the same result (Easterby-Smith, 2012). One may distinguish between internal and external reliability, where internal reliability refers to get accordance within the construction of knowledge (Thagaard, 2009, p.199). External validity on the opposite hand concerns scientific research which will be transformed and applied to similar phenomena.

validity is defined as" the extent to which measures and research findings that provide accurate representations of the items they're alleged to describe" (Easterby-Smith, 2012, p.347). The concept of validity is vital to define and choose the foremost appropriate methods for collecting data. Validity refers to the interpretations that derived from the study, meaning that the

researcher should examine his or her interpretations and obtain them confirmed by other studies (Thagaard, 2009, p.201). Reliability and validity are mostly concerned with eliminating errors on the gathered data. Errors can occur from mistakes like poor choice of methods, choosing the incorrect samples or data. For the research to be reliable the researcher must be honest, presenting the info in a logical and proper way. The researcher should avoid expressing their opinions, leading the respondents during a desired direction. Another issue of reliability is said to the researchers own interpretations of the knowledge. The way the researcher interprets the data, provides guidelines for the result of the study.

Reliability and validity of this master thesis is based on the generation of facts and figures and supporting materials gathered through many literatures and research studies done by many researchers and experts on this field. **Validation and reliability of my work on this topic is based on four principles mentioned by G. Lie**. The first one is Purpose: Literature materials must be reliable, valuable for the topic under research, which researchers could use to seek the past trends and to predict future relevant to those materials. The second is Authority: to understand the value of the literature and the author in my study, his reputation, published articles, books, and journals, affiliation on reputed organizations, and number of times the literature is cited plays pivotal role. The third one is effectiveness: Research materials are valuable for the research subject hence values are presented through being good for abstracting, obtaining arguments, and being conducive to the formation of research question. Therefore, research data must be accurate, comprehensive, profound and typical, and not outdated. The stronger the effectiveness the more appropriate and scientific conclusions might be achieved. The fourth one is reliability: The reliability of literature includes validity of the literature and therefore the reliability of the contents. When researchers reference certain literature, they need to first confirm whether these literatures are authentic, or fakes or modified, especially for historical documents describing issues. Because the formation time of them is way from our times, it's hard to work out its authenticity G. Lie (2009).

Chapter 5: Comparative Analysis

In chapter 3, I discussed some widely used and important theories and concepts of behavioral change in relation to HIV/AIDS and their implication in framing individual attitude and behavior. These theories played an important role in framing individual behavior and attitude towards HIV/AIDS among minority groups around the world and helped healthcare experts and organizations to develop and implement intervention to control and stop spreading the virus at an impressive level. As per my understanding the various risk perception and behavioral theories discussed in Chapter 3 are the tools used to identify and frame individual behavior and attitude when exposed to a particular risk situation and help policy makers and experts to formulate and implement the measures which can best fit in such situation to control and prevent loss and insure future safety.

In this chapter, I will be focusing on how the ideas and the interventions based on these behavioral theories have helped formulating policies and measures which proved to be fruitful during HIV/AIDS global pandemic and how similar tactics are being used and might be used during COVID-19 pandemic to control infection. I have included Emile Durkheim's concept of social solidarity in the Chapter 3 because it is going to be a prominent approach to deal with behaviour change actions and solidarity as a whole to control and overcome global epidemic and the recent COVID-19 pandemic I am going to work on. The reason I am focusing more on social solidarity concept and media influence is the that most of the theories I have discussed earlier have common attribute which is societal influence on individual behaviour and attitude and have been discussed most frequently during COVID-19 by various organizations such as WHO, UNICEF, UNHCR, and CDC. In addition to that, the situation we are put in during COVID-19 such as measures like social distancing, isolation, lockdowns, travel restrictions, face coverings, and maintaining distance in the public places needs collective actions which defines solidarity more clearly. Moreover, a pandemic such as the one we are facing now is not possible to control by a single person or an organization at large but it is only possible if everyone comes together as a collective force and helps the authorities to implement effective measures to drive through tough times with social solidarity and collective actions.

HIV/AIDS

The first known case of HIV/AIDS was believed to be found in 1981. However, researchers claimed that HIV was present in the pre 1980's era and caused many deaths between 1900s to 1980's. in 1981 a rare lung infection disease called **Pneumocystis carinii pneumonia (PCP)**

were found in five gay men in Los Angeles who were reported to be healthy previously and by the end of the year 121 had died out of 270 due to severe immune deficiency (Masur, H. et al, 1981). HIV infection in humans is believed to come from Chimpanzees blood when humans hunted them for meat in central Africa and slowly spread all over the world (CDC, 2020).

Since the first known case in 1981, AIDS has grown to a global epidemic proportion and have resulted in almost 65 million active cases and over 25 million lives have been lost. AIDS has been one deadliest virus in human history which has no known cure and once you have it you will live with it (UNAIDS, 2006). Absence of the cure for the disease employing effective risk communication strategies was an inevitable process in controlling spread of this deadly virus. Eventually, risk communication emerged as an effective way to control spread, prevention and care through various campaign and communication strategies to communicate relevant messages to the public at large. Various social psychological theories and models of behaviour change have been introduced to guide communication approaches to the public (Collins Airhihenbuwa, Rafael Obregon, 2000). However, almost a decade of fighting with the deadliest virus till date, serious questions have been raised over the relevance of some of the theories in different communities around the world and a critical debate is about lack of depth and other social factors such as cultural, social norms and values guides individual behaviour change and decision making in critical scenarios (Airhihenbuw, 1995; Edgar, Fitzpatrick and Freimuth, 1992; Lupton 1994).

There have been numerous theories and models introduced by health professionals, governments, non-governmental organizations, various public and private sectors to guide health communication programs. The Health Belief Model (HBM), Theory of reasoned Action, Social Learning/Cognitive Theory, diffusion of Innovation, and Social Marketing are some of the best known among all. The HBM theory was developed in the 1950s with the intention of predicting individual response of the diseases, and utilization and screening of preventive health services (Baker, 1974). Theory of reasoned action developed in 1975 by Fishbein and Ajzen used to predict individual behaviour based on belief, behavioural intentions and attitude whereas Social Learning/Cognitive Theory was based on predicting individual behaviour which is more influenced by environment, social norms and values, culture, and psychology. Diffusion of Innovations (Rogers, 1983), on the other hand introduced a communication process in which an opinion leader was used to influence the attitude and behaviour of the people. Lastly, the social marketing theory extensively used marketing's four Ps (product, place, price, and

promotion) to prevent HIV/AIDS and condom promotion (Collins Airhihenbuwa, Rafael Obregon, 2000).

On the other hand, organizations such as UNAIDS and WHO have been continuously involving in HIV/AIDS prevention and public health awareness campaign till date with various strategies and frameworks globally and regionally in Latin America, Africa, and Asia (Collins O. Airhihenbuwa, Bunmi Makinwa, Rafael Obregon, 2000). Moreover, there are numerous campaigns being carried out to educate the public by various media, celebrities, public and private sectors, NGO's, governments, and people who got HIV virus influencing and spreading positive messages all over the world. As part of CDC's "*Let's Stop HIV Together*" many campaigns such as Doing It, HIV Treatment Works, Drugs + HIV, Get Checked, Get Yourself Tested, One Test. Two Lives, Prevention IS Care and so forth have helped people to openly express themselves and encouraged many to fight against the virus (CDC Homepage, Accessed on 22nd march, 2021).

HIV/AIDS and Minority Groups: GRID to HIV/AIDS

Regardless of the sexual orientation, gender, age, race, cultural values, and the community where they live; HIV/AIDS can affect anyone. The virus is transmitted through unprotected sex among HIV infected people and use of drugs. Moreover, factors such as economy, demography, social stigma and discrimination, education, and geography also plays pivotal role in spreading the virus in more dominant way. Over the past 30 years the United States have made significant progress in controlling HIV prevention and infection rate. In 2009 President Barack Obama lifted the travel ban imposed on HIV infected people in 1993. Medical communities started to accept that HIV is not the virus that affects only LGBTQ communities. Regular use of medicines among people at high risk of HIV but do not have HIV infection such as pre-exposure prophylaxis (PrEP), have increased the life expectancy of the minority groups and decreased the infection rate (CDC, 2018). However, there is still a need for awareness and behavioural change to reduce stigma and discrimination among minority groups. CDC's report published in 2018 suggests that racial and ethnic disparities still exist among LGBTQ communities compared to others. out of 37,968 HIV cases 69% of them are bisexual men and 492,000 sexually active gay and bisexual men are at high risk of getting HIV virus (CDC, 2018).

From the archived article by Lawrence K. Altman May 11, 1982 in *The New York Times,* out of 335 recorded cases most of them were male homosexuals. The disease was named Gay-related immunodeficiency just because there was no known cause for the disorder and considered a matter of public health emergency by CDC saying there may be hundreds of

thousand gay and homosexual men with GRID and be at risk of serious outbreak (NYT archive, 1982). We have come a long way since it was first described as GRID. Having increased visibility, acceptance and recent socio-political advances with reinforcing LGBTQ rights and legislation, LGBTQ community continue to live in a society which privileges heterosexuality while still disqualify homosexual and gay relationships. As a result, minority group still face stigma hardly came across by heterosexual counterparts.

Race/ethnicity	% of People with HIV, 2018	% of U.S. Population, 2018
Black	41%	13%
White	29%	60%
Latino	23%	18%
Asian	1.5%	6%
American Indian/Alaska Native	0.3%	1.3%
Native Hawaiians and Other Pacific Islanders	0.09%	0.2%

Figure 7: CDC, Estimated HIV incidence and prevalence in the United States, 2014–2018, and US Census Bureau.

As shown in the chart above, black people represented 13% of the total US population but 41% among those have contracted HIV which is very high compared to other race and ethnic groups. Further breaking down into these data; gay and bisexual men of all races and ethnic groups accounted for 46% among infected with HIV (Hiv.gov, 2021).

Violence Against Homosexuals in rise
September 27 every year, United States celebrates the National Gay Men's HIV/AIDS Awareness Day (NGMHAAD) which is to raise awareness and direct attention to the continuing HIV stigma and disproportionate impact among gay and bisexual men in the US. there are various campaigns and programmes such as doing it, Start Talking. Stop HIV, stop HIV stigma and many more under "**Let's Stop HIV Together**" specially focused on special groups or minority groups in the society to create awareness and spread love and prosperity among such groups. However, despite having all those activities people's stereotype towards minority groups is growing and hate and crimes are in increasing trend.

Let's go back to early days when HIV/AIDS was in rise among gay and bisexual people in the US; one of the archived articles written By William R. Greer Nov. 23, 1986 to *The New York* titled "VIOLENCE AGAINST HOMOSEXUALS RISING, GROUPS SEEKING WIDER PROTECTION SAY" there is a dramatic increase in violence against gay men, and lesbians which is directly connected to AIDS. Gay and homosexual communities were always been a

victim of violence but with increasing cases and infection among gay and homosexuals' attacks have been more brutal and occurring more than often (William R. Greer, 1986). Even though the United States has made a historic stride in protecting the LGBT citizens and their rights with the legislation of same sex marriage in 2015 and many other privileges, 2016 Orlando gay night club shooting shock the whole world yet again. Killing a total of 49 people the incident was described as an act of terror and hate by the president Barack Obama. Many other such incidents were reported afterward the legislation of same sex marriage was passed in the US. However, such events were occurring more often in early days as well. In 2014 a gay bar was set on a fire but no casualties were recorded, in 1997 a lesbian bar was bombed in Atlanta with few injured people and most importantly, with the establishment of Islamic State's (a terrorist group in middle east) hate against LGBT community has given rise to such crimes over the years (BBC, 2016).

Hate crimes are defined as the act or crime against a certain group of people because of their race, ethnicity, gender, sexual orientation, religion, and physical disability. Such violence against minority group may be the cause of the homophobic or transphobic nature of the perceivers and cultural, political, and religious factors. To protect LGBTQ communities and their rights, the United States has passed the **Hate Crimes Statistics Act** along with the FBI's Uniform Crime Reporting (UCR) program and National Incident-Based Reporting System (NIBRS). However, the crime against these minority groups is increasing from bad to worse according to the FBI report. An FBI report says that most crimes in the United States are motivated by prejudice and a negative attitude towards race, religion, and gender. Between 2014 and 2017 total of 1130 case were recorded and majority of cases were related to gay and homosexuals (FBI, 2017). However, the experts say there is a huge discrepancy in the FBI data than the actual numbers. National Crime Victimization Survey (NCVS)'s self-reported data suggests the total number of hate crime is closer to 200,000 every year that of FBI's mare 7500.
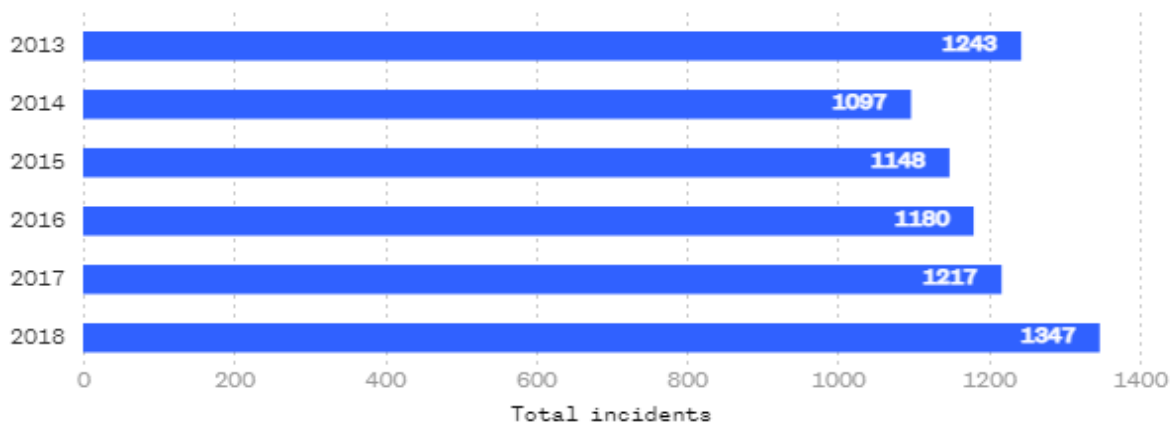
If we observe the above chart, we can see the number of incidents against LGBTQ community is increasing at a constant number throughout 2014 and 2017. However, the number increased by almost 34% from 2017 to 2018 with the total number of reported crimes reaching 1347 (FBI, 2018).

Looking at these numbers, what we can conclude is, despite so many legislations, protection acts, awareness campaigns, behavioural change approaches and movements; there is still a wide gap which divides minority groups and native Americans in the United States. The gap created by the socio-cultural, political, and economic attributes resulted in increasing hate crimes. The recent hate crimes against Asian-Americans which is believed to be a result of conspiracy belief/theory of China virus is rooted in a similar way which took place in the early development stage of HIV/AIDS and is growing rapidly. According to social identity theory (Tajfel 1974, 1981, Tajfel & Turner 1979, Abrams & Hogg 1990, Hogg 1995), people have a fundamental desire to obtain positive self-esteem in society. That desire drives people to two socio-cognitive process categorization and self-enhancement which lead them to pick out different social groups which emphasize norms, values, and the stereotype of that group (M. Hechter and D. Okamoto, 2001). Such group formation may result in a war within a country between different groups with different socio-cultural beliefs and ideologies. Hence, such hate crimes must stop and promote solidarity to fight against the deadliest virus to uplift human civilization.

Transformation: Behavioural Science and Solidarity as a Social Weapon

Dr. Jonathan Mann, former Executive Director, World Health Organization / Global Programme on AIDS during 2021 world health assembly said, **"At the moment, education and communication are the only weapons we have against HIV/AIDS"**. Elimination of the

global pandemic which has been around for almost 4 decades now or slowing down the spread is not solely possible by developing the vaccines or medical cure. HIV/AIDS is inevitably interrelated to behaviour and social science. Without the behavioural change approaches, public health communication, education, awareness, and campaigns it would have been more destructive than a war or far worse (WHO, 2021). We are into the third clinical trial of HIV/Vaccines in humans which will not guarantee the success until promising results are out. Yet, there is a mammoth task to be done and learned within the high-risk population until the vaccines are available for widespread testing and distribution.

As soon as HIV/AIDS was identified as a sexually transmissible virus and is dominant among gay and homosexuals, and drug users primarily; various health education, awareness and prevention campaigns were conducted rapidly which resulted decline in anal sex among gay and homosexual men and use of condoms to prevent HIV transmission was a great success (Crawford J, Bermingham S, Kippax S, 1996). Moreover, various behavioural theories, social and psychological theories have also been used to monitor the behaviour and attitude change among high risk populations in the United States and many western countries and development of intervention so that the awareness campaign can capture audience's attention. I have already discussed a few theories above which have been used in framing people's attitude and behaviour towards HIV/AIDS and developing intervention measures. Most of the theories are derived from other social and behavioural science areas and adopted to meet the demand of HIV/AIDS and prevention. However, the AIDS Risk Reduction Model (ARRM) was especially designed to frame the behaviour change towards HIV/AIDS in 1990 (C Bonell, J Imrie, 2001).

The AIDS Risk Reduction Model is composed of three stages which are developed to predict and explain the behaviour change among individuals, especially sexual behaviour which may result in HIV infection. Like other behavioural and social theories, ARRM also adopts some variables from HBM, efficacy theory, and some emotional and interpersonal influences. Hence ARRM simply explains the influence of knowledge and attitude about HIV/AIDS on risk-related behaviours, especially sexual behaviour. The first stage is labelling which identifies high risk sexual behaviour of an individual which may lead them to contract HIV. Commitment is the second stage which encourages individuals to make a commitment to reduce high risk sexual behaviours and adopt low risk approaches which may help in preventing and control spread of HIV/AIDS. Lastly, enactment or taking actions which motivates individuals to adopt strategies and activities such as seeking help from others, adopt remedies and enacting solutions which support achieving first and second stages (Catania, Kegeles and Coates, 1990).

On the other hand, since the early years of the HIV global pandemic, stigma has been considered as one of the topmost barriers in preventing, controlling, and treatment of the disease. Jonathan Mann, former head of the WHO Global Program on Acquired Immunodeficiency Syndrome (AIDS) described stigma as a "third epidemic" saying stigma, discrimination, blame, and denial are the greatest barriers which we have to overcome to prevent and control HIV transmission among individuals, families, and communities as a whole. As part of the horizon program between 1997 to 2007 to study the causes of stigma and discrimination in Africa, Asia, Latin America, horizon developed and implemented wide range of intervention strategies in collaboration with local government and authorities to reduce stigma. Seven strategies developed and implemented by the program which are *Help institutions recognize stigma, Address social stigma and the environment, Respond to the needs of stigmatized populations, Use the media to show that AIDS has a human face, Involve people living with HIV in service delivery, Engage the community, and Expand antiretroviral therapy (ART)* were considered successful and used as a base strategies to develop other HIV/AIDS campaigns and awareness programmes.

We are in this together

On 27th February 2014 UNAIDS launched "Zero Discrimination Day" and started celebrating it since March 1, 2014. The main message of this campaign was to raise the voice against discrimination and promote solidarity to achieve ambitions, goals, and dreams (UNAIDS, 2014). On December 1, 2020 WHO called all its partners, global leaders, and citizens to join a rally for "Global Solidarity" to continue their support and love towards HIV victims and the frontline workers who have been working day and night to deliver best service delivery. The world has seen remarkable progress in combating HIV/AIDS since 1980's. However, it remains one of the major global health issues since it is so much influenced by stigma and discrimination despite many awareness campaigns and approaches.

In 2012, CDC and Department of Health and Human Services (HHS) jointly launched a campaign "Let's Stop HIV Together" as part of Act Against AIDS (AAA) to raise awareness against HIV/AIDS in the United States among minority groups and high-risk populations. Study shows that the most Americans are aware of how HIV transmits and its consequences. But, the misperception, discrimination and, stigma continues to intervein its progress. Such practices prevent people with HIV to speak against the disease, using protective measures, and seeking healthcare facilities which force them to hide their feelings. Let's stop HIV Together

initiate encourage minority groups and high-risk population to speak against the fear and breaking the stereotype.

Currently, this initiative is working with its seven campaigns to educate, aware, and motivate HIV infected communities and vulnerable communities to express themselves in the public and raise awareness and motivate each other to stand in solidarity to fight against the disease (hiv.gov, 2021).

Doing It: this campaign encourages people to get tested against HIV/AIDS and know their health status. The main message of this campaign is to promote HIV testing as part of their regular health routine.

HIV Treatment Works: this campaign helps people understand that HIV treatment helps them to live longer and healthy lives. Regular therapy, positive mindset, and intensive health care and healthy habits help people with HIV to increase their life expectancy.

Start Talking. Stop HIV: this campaign is specially designed to promote awareness among Men who have sex with men (MSM), about safe sex practices. It encourages open communication between sex partners, condom use practices, HIV testing, and pre-exposure prophylaxis (PrEP).

Stop HIV Stigma: it encourages people with HIV to raise their voices and know their rights to live with HIV. UNAIDS, CDC, and WHO have been constantly working on this during world AIDS day and other special events to educate and aware people against stigma and discrimination among minority groups and high-risk population to protect their rights and give them equal importance as a normal human being.

Prescribe HIV Prevention: This campaign is directed towards healthcare professionals to prescribe pre-exposure prophylaxis (PrEP) and post-exposure prophylaxis (PEP) to help reduce risky behaviour and encourage people to test against HIV.

One Test. Two Lives, and Prevention IS Care: These campaigns are also directed to health care professionals where one test two lives highlights preventing HIV transmission from mother to child and encourages them for early testing to know their health status. Whereas, prevention focuses on information, tools, and approaches to healthcare professionals to communicate people with HIV to adopt healthy habits, treatment, and stop transmission to others.

These are some major campaigns and initiatives started by CDC and HHN under Act Against AIDS (AAA) to contribute and support national HIV/AIDS strategies. However, there are numerous educational, training and awareness, financial aid campaigns carried out by WHO and UNAIDS in coordination with their global and regional partners to spread awareness and change in behaviour and attitude towards HIV/AIDS and people with HIV to live a free and happy life. These campaigns are no doubt directly or indirectly related to the behavioural theories and their application on framing individual attitude and behaviour towards sexual behaviour which is largely influenced by social context and other determinants. Such behavioural theories helped health experts and organizations who are helping people fighting against AIDS to formulate and implement intervention strategies to prevent and control HIV transmission.

Covid-19

As of now, I am writing on COVID-19 and how behaviour change can be the best option to prevent and control spread of the virus; CDC and FDA paused the use of Johnson and Johnson's corona vaccines due to some blood clotting cases in the US. In March we had the same news with the AstraZeneca vaccine which was proving to be effective against COVID-19. COVID-19 has changed the world in every aspect. Face Masks became an ornament with various designs, shapes, and sizes. CDC's study in august shows the increase in anxiety and depression among people due to loss of jobs, social distancing, and isolation. Excessive consumption of alcohol; Rumours, discrimination, and conspiracy theories; people forced to adopt new normal with mandatory face masks, maintaining distance, working from home, no gatherings, and mandatory appointments for meetings; most of the universities, colleges, and schools went digital and on and on.

The world economy has faced tremendous collapse with closure of many industries and business operations. Service sectors and tourism among hard hit businesses are still facing

uncertainty of when the smooth operation will take place. Most of the airlines are grounded, many hotels and resorts are closed due to travel restrictions imposed by the governments around the world. According to the IMF, the global economy shrunk by 4.4% in 2020 which is the worst case since the 1930's great depression (BBC, 2021). The World Bank report on **"The Global Economic Outlook During the COVID-19 Pandemic: A Changed World"** the COVID-19 has brought the economic shock the world has ever experienced. The economic shock needs an urgent action plan to control global health and economic consequences which may result in many developing and underdeveloped countries into recession (ADB, 2020). The healthcare sectors have a biggest challenge of developing the cure for the virus on the one side and scarcity of healthcare professionals due to infection among them and large numbers of them quitting a job due to overload and stress.

Since the beginning, governments, healthcare authorities, local municipalities, and business organizations around the have adopted behaviour change strategies to stop spread of the virus in their own ways. Local governments, NGO's, INGO's private sectors, public sectors, and healthcare organizations promote the habit of washing hands, using face masks and sanitizers, avoiding unnecessary travels. Whereas, business organizations have adopted work from home strategies, mandatory appointments for the meetings, avoiding physical gatherings and unnecessary business travels. It has set a strong bond between the government and the different entities in the society who are fighting hand on hand to overcome this crisis. However, another growing issue which is named "infodemic" by WHO is growing parallel to COVID-19 which has created chaos and difficulties in finding trustworthy and reliable information on decision making due to false and misleading information. The excessive use of social media during the lockdown has given scammers and Conspiracy-Theory creators an opportunity to spread false information and create panic among the public. In addition to that, a key strategy in risk communication includes addressing the social norms and vulnerable communities in the first place such as homeless people, disabled people, frontline workers during pandemics, communities with poor economic background, and color. However, "I" as an individual and ``us" as a society failed to establish solidarity to face the crisis together. With the increasing criminal acts in the USA over Asian Americans and immigrants has raised a serious impact of COVID-19 on Black, Asian, and minority Ethnic (BAME) communities around the world, especially in USA and UK (Talya Porat1, Rune Nyrup, Rafae A. Calvo1, Priya Paudyal, and Elizabeth Ford, 27 October 2020).

Solidarity is one of the most important factors which motivates people to stand together at the time of crisis, which also brings peace and hope among people in different communities. However, it leads to a war when used adversely. What is going on in the USA and other western societies in recent times may be the result of political influences, and economic rivalry where war languages and conspiracy theories divided people between "us vs. them". As of 16/04/2021, out of 139 million confirmed cases USA shares 31.5 million with 565 thousand people already lost their lives (WHO Coronavirus (COVID-19 Dashboard, 2021). Whereas, the epicentre of the outbreak Wuhan China was declared COVID-19 free on April 28 with the last COVID patient being discharged from the hospital. However, the news is not yet confirmed by CDC or WHO but, Wuhan got back to normal as per the Chinese government and the Chinese news portals. Nevertheless, with the total confirmed cases of 103,185 with 4856 total deaths until now, China has significantly fought COVID-19 crisis better than the rest of the world with the only country to have a 2.3% increase in GDP in 2020 (ADB, 2020).

On the other hand, the individual and social behavioural aspect is another side of the COVID-19 which is growing as another pandemic. The world communities have started thinking of behavioural science which can be a game changer like it did during HIV/AIDS. WHO has now called together volunteers around the world in which 200 applicants from 47 countries were attracted and only 21 advisers have been selected to work on health promotion, social and behavioural science, behavioural economics, social marketing, design, and thinking (WHO,2020). Governments around the world have come up with different behaviour change strategies. For example, in Norway, government have put ban on serving alcohol in any dining restaurants and closed bars and nightclubs to limit gathering, imposing mandatory quarantine to people entering into Norway which is among the widely adopted strategies worldwide, closure of sporting activities and entertainment sectors such as cinemas also adopted by UK and other European countries, encouraging locals to explore within Norway rather than spending holidays abroad, and limiting the number of people in events such as wedding and funeral are some of the major strategies Norway has adopted to control the infection (Norway Today, 2021).

Last but not the least, violence, and ethnic prejudice towards Asians especially Chinese people in western societies have been growing as a serious issue with lethal consequences. This is not the first-time people have stigmatized and discriminated against certain groups or communities for the disease. Jews were mocked for Black deaths, gay and homosexuals were blamed for HIV/AIDS, Africans were targeted for Ebola, and now Chinese are being bullied for COVID-

19 (Coates, 2020). Despite having a long history of racism and hate crimes, Americans are specially targeting Asian people during this pandemic. The reason behind increasing crime against is believed to be conspiracy theories, and belief of COVID-19 and political and economic rivalry of America and China fuelled by former US president Donald Trump as he labelled COVID-19 as a China Virus and convinced its people that virus is ab generated by China to disturb American economy. Since Trump took an oath of presidency; trade war between two economic giants was at its peak when the Trump administration banned import of any products from Huawei Telecommunication without approval from the white house. The decision was later followed by some European countries as well (David Shepardson, Karen Freifeld, 2019). Effect of emotional contagion and psycho-political techniques played by the political leaders affect human psychology at large and later they use it to manipulate them to protect the political realm.

COVID-19 and increasing hate crimes

The hate crimes against Asian people especially among Chinese people is growing rapidly amidst COVID-19 pandemic in the USA and some other western countries such as the UK. It is a subject of great concern when the whole world is suffering from COVID-19 there are such crimes emerging as another pandemic which not only promote discrimination and stigma against particular community but will further help COVID-19 to spread rapidly.

Figure 9: People take part in a "Stop Asian Hate rally" at Times Square in New York City, April 4, 2021.

Various studies and the data compiled by the Center for the Study of Hate and Extremism at California State University shows that the hate crime against Asian Americans have risen by 164% compared to the same first quarter result of 2020 among top 16 US cities (VOA. 2021). According to the Stop AAPI Hate national report, the AAPI center received almost 3795 incidents related to hate crimes against AAPI community from March 19, 2020 to February 28, 2021 which they believe is the fraction of many such crimes which are not reported or unseen by the authorities. These data are enough to show the vulnerability and the risk Asian Americans are facing during pandemic. The report further clarifies that out of total received incidents verbal harassment and the avoidance of contract with Asian Americans contributed 68.1% and 20.5% respectively. Where physical assault (11.1%), civil rights Violation (8.5), and online Harassment contributed 6.8% (Stop AAPI Hate National Report, 2021).

The report also concludes that among all the Asian nationalities who participated in the research; Chinese people face more hate and discrimination with 42.2 % and women are 2.3 times more vulnerable to such incidents than men.
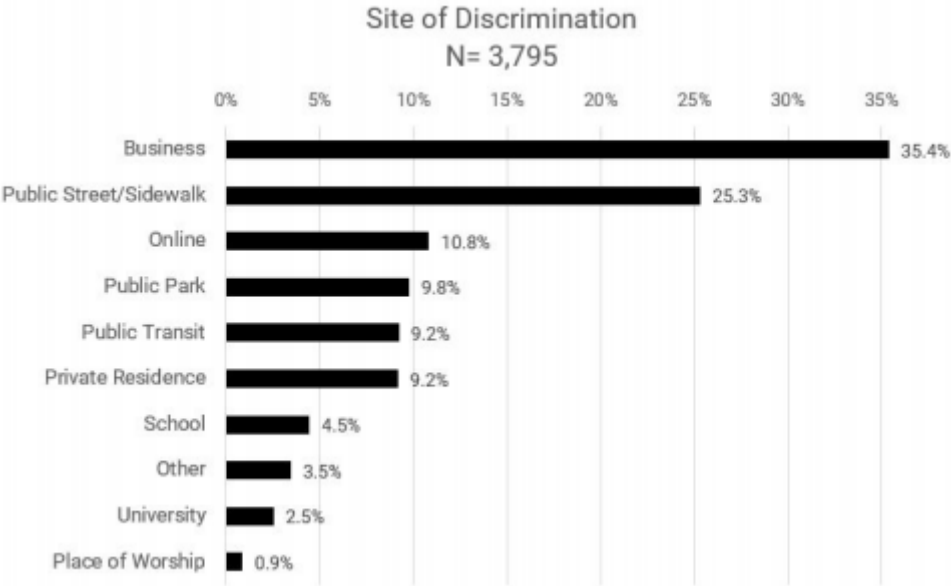

Figure 10: Places where Asian American people face discrimination according to AAPI report 2021

The site of discrimination survey shows more worrisome results as well. People have been facing such behaviour everywhere where most of them are being mocked and discriminated against at public places including streets, parks, and transit which contributes almost 44% and at the workplace with almost 35%. Apart from these places, AAIP communities are facing such incidents at schools, universities and even at their private residence. Amongst all major US cities, New York has seen most numbers of hate crimes targeting Asian Americans during

COVID-19 with the increase of almost 223% from 2020 where Asian Americans comprises 13.95% of the entire New York population (Paul Wiss, 2021).

Moreover, a research conducted by the Pew Research Center after the Atlanta massage center massacre revealed that 32% of the research participants are scared of attack or threatened by someone. Whereas almost 81% believed that violence against Asian Americans are rapidly increasing and 45% of respondents confessed that they have been threatened or harassed during COVID-19 (Neil G. Ruiz, Khadijah Edward, Mark Hugo Lopez, 2021).

United Nations (UN) on 12 August 2020 submitted a report to Palais Des Nations, Geneva, Switzerland on racial discrimination, xenophobia, and related intolerance on the human rights of working groups and migrants. The report was mainly concerned with the surge in hate crimes, discrimination, verbal and physical attacks on Asian Americans in the United States and lack of protective measures to combat such attacks by the US authorities. Despite the FBI warning of a potential increase in hate crimes due to COVID-19 outbreak, almost 1800 such cases were registered within the period of 2 weeks between March and May 2020. Chinese people are the most targeted groups along with Japanese, Philippines, Vietnamese, and other Asian Americans. Physical attacks, vandalism, denial of services and access, cultural harassment, and verbal harassment have become common for Asian Americans in the US. The report also mentioned the contribution of the president of the US in authorising such violence has added more fuel to it and demanded utmost actions and measures to control Anti-Asian hate crimes and remedies for those who suffered by this incident (PALAIS DES NATIONS).

Need for Solidarity and Behavioural change actions

The ongoing COVID-19 pandemic has affected humans in every way. Individuals, families, societies, healthcare services, and the global economy have been badly affected by the pandemic. Many clinical trials are going on all over the world and results are promising however there is still a lot to be done on preparedness and responsiveness and good governance system for the future. Closed borders, strict social distancing measures, insufficient hospital supplies, grounded airlines service, security personnel patrolling the streets, self-isolation and quarantine and many other measures have been a reality nowadays due to this pandemic. In these hard times putting all the conspiracy theories, stigma and discrimination of minority groups, internal and external conflicts between countries, and supremacy aside; the best

possible strategy to combat COVID-19 pandemic is to unite and collaborate together with solidarity to share information and resources.

Solidarity starts from an individual. It is a feeling that one can participate and support government-imposed measures to stop the spread COVID-19 and encourage others to do the same. People and organizations around the world have shown solidarity in many ways. In Serbia, people have been actively posting notices and helping in assisting in groceries, medicines and other highly needed merchandises to the doorsteps, free meals offered by the local restaurants, and participation of the youths in volunteering and donation campaigns (Francine Pickup, 2020). IKEA has extended its support to various European countries with financial donations in collaboration with the Red Cross and local authorities. In Croatia, it has donated HRK 1.5 million aid for healthcare and community support, in Poland, IKEA has donated EUR 1 million with mattresses, bed, blankets and other sanitizing equipment (European Commission, 2020). Recently India has been hit hard by the second wave of COVID-19 pandemic with daily cases surging to around 400,000 per day. Many people have died because of oxygen shortage, ventilators, and bed space shortage in the hospitals. The UK, USA, China, and European Commission have donated necessary oxygen and other medical supplies to fight COVID-19 pandemic in India (BBC, 2021). When Italy was suffering the worst wave of COVID-19 in 2020 countries all over the world came up with medical supplies, medical expert teams, and other financial aid to help Italy fight against the virus.

Likewise, a country can be considered as the whole world where people from different countries with different cultures come and stay together as a family. Cultural diversity has been one of the greatest things globalization has ever brought. However, the same thing can be a nightmare when people blame each other for something which is based on some conspiracy beliefs and theories. Which is exactly what is happening in the United States recently. Asian Americans have been frequently attacked by the native Americans blaming them for coronavirus.

America under Joe Biden's presidency announced a series of initiatives to control Anti-Asian violence two week after the tragic gun slaughter of six Asian Women in Georgia. The actions are based on the president's "**memorandum Condemning and Combating Racism, Xenophobia, and Intolerance Against Asian Americans and Pacific Islanders in the United States**". His actions include COVID-19 equity task force, community outreach, law enforcement on Anti-Asian violence, financial support to Asian American who have survived domestic violence, department of justice cross-agency to effective data collection and transparency. The task force will be responsible for directly reporting to the president with

disparities in health and social benefits. Along with that, the department of health and human services has allocated USD 49.5 million dollar from the American rescue plan to fund AAPI survivors with cultural and community-based programs (WH.GOV, 2021).

Moreover, United Nations have always been working on eradicating racial discrimination, Xenophobia and Bias, with its human rights mechanism called International Convention on the Elimination of All Forms of Racial Discrimination (CERD). Approved in 1994 by the United States, CERD's main principle is to eliminate racial discrimination and its forms and manifestations as soon as possible by adopting every necessary measures. The article 4 of the mechanism illustrates that state is supposed to take immediate actions and positive measures to eliminate and stop all forms of discrimination. Where Article 2(1)(C) suggests state parties to review or amend national and local policies, laws and legislation which may promote racial discrimination, and Article 5 mandates state parties to undertake to guarantee fundamental human rights such as security, public health, freedom of movement, residence, and fair trial. Meaning people are subject to live freely with their fundamental rights no matter where they come from. It is the state's responsibility to ensure a safe and liveable environment to its people at any cost (UNHCR, 2021).

The trend of racial discrimination is existed since early ages. Amnesty international and human rights organizations have been monitoring and documenting this issue for a long time. Anti-Black discrimination in the UK and USA, Anti-Muslimism discrimination in India, and USA after 9/11 attack, existing Anti-African discrimination in France and China, and Anti-Roma discrimination in Slovakia and Bulgaria are few examples. The recent Anti-Asian discrimination is the result of ongoing COVID-19 crisis which is based on the conspiracy beliefs and political influences.

Chapter 6: Conclusion/Recommendation

Human behaviour is a very complex model to justify and draw conclusions based on little research and observations. The topic itself is so vast that it includes whole behavioural science including sociology, anthropology, psychology, and economic aspects of society. Hence, human behaviour is a complex mechanism in which humans process and respond to particular events based on their personality traits and other influencing factors around them.

 Here in this thesis I have tried to discuss the behaviour science and its role in behaviour change during pandemics among vulnerable populations, especially where various factors determine the way every individual responds. Threat perception is largely varying between individuals and minority groups who are already at great risk of contracting the disease. Society makes them feel that the virus is only meant for them, not the superior groups. For examples, during HIV/AIDS global epidemic, it is believed that one must be a gay to contract HIV virus which I have already discussed. The same thing is repeated with the COVID-19 when westerners blame Asians for the Coronavirus. This is where emotions and risk perception come into effect. When the people are already feeling left alone by the society or the government which triggers negative feelings among people and exposes them to even higher at-risk situations. Better risk perception always gives the best choices to make accurate decisions for oneself and the society. Hence, it is very important for the policy makers to base their emergency preparedness and planning in relation to the vulnerable populations and minority groups so that the issue can be controlled before it breaks out.

Similarly, leadership plays an important role in combating pandemics such as COVID-19. Since its outbreak in December 2019, we have seen different nations implementing stricter measures to control the viruses. China, Vietnam, Taiwan, Japan, Honk Kong, and Singapore which were hard hit during the initial stage of the COVID-19 get control over the virus within late April with strict lockdown, quarantine, and social distancing measures when the rest of the world was just heated up with the wave of COVID-19 victims. When Europe was suffering the most and America was busy labelling COVID-19 as a china virus and rooting out hate crimes against Asian Americans. Seth Welles who is one of the early researchers of AIDS and the epidemiologist at Drexel University who believed the term GRID separated gay community from the rest and demonised and identified them as a minority group as a result of political purpose (Joseph Jaafari, 2020). Fake news and communication on the other hand is growing parallel to COVID-19 as another pandemic which is termed as "Infodemic " by the WHO and

have initiated few campaigns to stop spreading fake news and conspiracy theories. Credibility and transparency are two golden rules of communication but during the pandemic fake news and misinformation has led to lack of trust, uncertainty, and panic among people.

In America, with the recent surge in hate crimes and discrimination against the Asian Americans especially after the Georgia attack which killed 6 Asian among 8 total victims; solidarity has emerged across the nation with people marching and rallying in support for the victims and to stop discrimination and promote peace. The White House release of the memorandum to protect Asian Americans and Pacific Islanders with new laws and financial aid to protect their life and many other organizations speaking openly in favour of the community has shown the bright days ahead and will help create solidarity among Native Americans and minority groups. After the controversial statement which resulted in a surge in hate and crime against minority groups in the US during the Trump and he administration tenure. The Biden led administration has primarily shown some solidarity to the Asian American society and released a memorandum to protect them with all possible measures.

Cherish Autonomy: Know Your Rights (Social compensation theory)

If we look back into HIV/AIDS related stigma and discrimination which is still common in the USA and many countries across the world that LGBTQ communities and HIV infected personnel are facing denial of healthcare services, their civil rights, freedom of association to harassment, and violence and murder. Study shows that in USA, Canada, Australia, and many European countries have reported high level of discrimination, and homophobic bullying in schools and colleges and lack of support and preventive measures from the school authorities. In the United States, more than 84% of young LGBT students had been called names or threatened, 40% had been pushed or shoved, and 18% had been physically assaulted at school (UNAIDS, 2012). A 2012 study shows that there are 5.4 million LGBT workers who are somehow been the victim of inequality, unfairness, verbal and physical harassment, and stigma and discrimination in the workplace. The study also revealed that 13 % of LGBT people were unemployed compared to only 10% of straight people (MAP analysis, 2011-2012). Similarly, reports also suggests that one in four LGBTQ employees have reported discrimination at workplace just because of their sexual orientation (The Williams Institute, July 2011). Despite the fact that LGBT people have higher levels of education, intelligence, and experience; research suggests LGBT Americans, particularly families with children and families of color, have higher rates of poverty and economic scarcity. LGBT communities in America report a lower overall quality of life than non-LGBT people, with LGBT society reporting an average

well being score of 58 compared to 62 regular American societies (M.V. Lee Badgett, Laura E. Durso, Alyssa Schneebaum, 2013). Although there are loads of organisations working for the LGBTQ communities, policies and regulations, support, and solidarity but the inequality and discrimination still exists. Apart from social solidarity, the government also needs to come up with the actions such as protective laws in favour of minority groups such as quota system on government jobs, financial aid, social activities and campaigns to boost the morale and so on.

Similarly, during the COVID-19 humanitarian crisis, many reported cases of denial of services, humiliation at workplaces, avoiding public places, entry restrictions in supermarkets and grocery stores, verbal and physical assault have been documented around the United States and some European countries. On his way to work, a doctor was verbally harassed by saying "go back to f—— China.", An Asian nurse taking care of her sick patient was spat on, and parents at a children's hospital refused care from health care staff with "Asian appearances." (PALAIS DES NATIONS, UN report, 2021). Asians are the fastest growing immigrant groups in the United States between 2005 and 2015 with 72% increase in the population. As of 2019 US census bureau records Asian immigrant numbers almost 22.2 million in the total US population (U.S. Census Bureau, 2019). And, the recent study shows that the Asian American communities are playing an influential role in critical electoral battleground districts and are leaned more towards democratic party in past elections (Zheng,2019). This might be one of the reasons why former US President Trump termed corona virus a "China Virus" and encouraged his fellow Americans towards hate and discrimination towards Asian American communities during his second presidency election campaign in mid-2020.

As I already discussed in **Chapter 3 under risk compensation theory of behaviour change** Enhancing psychological needs of the public during pandemics to influence on sustainable behaviour change is a necessity in ongoing COVID-19 pandemic. Every person has every right to access fundamental needs to run their life as smoothly as everyone is supposed to have even in these hard times. It is believed that if people are autonomously motivated, it is easier to achieve positive and sustainable behaviour change (Ng JY, Ntoumanis N, Thøgersen-Ntoumani C, Deci EL, Ryan RM, Duda JL, 2012). An autonomy-supportive healthcare system, freedom of movement, and freedom of living their own life as everyone must be ensured by the authorities in order to maintain sound balance in the society. The recent laws and benefits memorandum signed by the US government in support of the community has somehow eased the pain and suffering. However, strong laws, regulations and actions need to be taken seriously to fight such activities along with the pandemic to build a better and prosperous community to

live in for all. The role of the government is to maintain economic, and social prosperity among its people. Especially during strict lockdowns, social distancing, isolation, travel restriction, social gathering and many other Anti-COVID measures implemented by the authorities should provide choices to its people on what can and cannot be done during these periods so that people can engage proactively in constructive activities which can support in crisis handling rather than propagating hate, discrimination and xenophobic behaviour towards certain groups in the society (CDC, 2019).

Need for actions against Fear, uncertainty, and doubt (FUD) Among Asian Americans
COVID-19 has been also emerged as different types of fear, doubt, and uncertainty is growing as a racial discrimination, stigma, and xenophobic behaviour in United states and some European countries. Minority groups have been continuously attacked and threatened by the native populations blamed for the COVID-19 virus. many research reports, articles, and journals have shown that increasing hate crimes and discrimination has led to increase in fear, uncertainty, and doubt among Asian American people in the US. research conducted by PEW research center in April 2021 documented that almost 32% of the Asian adults in the USA fear someone might attack or threaten them in public which is larger in numbers compared to other ethnic groups in the US during COVID-19. Similarly, 81 % Asian Adults believe that the crimes and discrimination is increasing against them compared to 56% US adults who believe the same. The research concludes that One-Third of the Asian American population are under fear, uncertainty, and doubt resulted by the increasing hate crimes and stigma, and discrimination against them by the Native Americans (PEW Research Center, 2021).

The COVID-19 has exposed the negative perception of Americans towards Asian Americans which has been a common phenomenon in the American society since early days. Many Americans believe that the corona virus is imported and blame especially Chinese and Asian people for the spreading of the disease (Ellerbeck, 2020). Virus does not differentiate among people based on skin color or nationality, However, Asian Americans have suffered from discrimination and hatred during the pandemic. Although the threat of the virus is real for all Americans, Asian Americans bear the additional burden of feeling unsafe and more vulnerable to gate and crime by their fellow American friends.

Hence, humanitarian emergencies do not come along with the solution. It is us as an individual and society who have to work together to fight against such crisis and support the authorities to develop appropriate policies and interventions

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