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Historical Behavior Regarding Infectious Diseases and Natural Disasters

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Abstract: *Disaster affects ecological value and human presence. Only then will it be considered a disaster. Weather, climatic conditions, quality of air, drinking water and unhealthy lifestyles add to the adversity of disaster. Its spread can be sudden, frequent or non-frequent in local, national, multinational or global communities for a short or long period of time. Disasters can be classified into two major categories: natural and human-made disasters. The psychological effects of the disaster are much more than the actual medical condition because the victims keep on re-enchanting the scenes of chaos in their minds and react according to their resilience.*

Key Words: Disasters, Infectious Diseases (I.D.s), Mental Disorders, Human Behavior

Introduction

According to Edmund Husserl, 'the history of psychology is actually only a history of crises' (Dege & Strasser, 2022). Disasters have become one of the largest causes of human misery. 'A disaster is a severe disruption, ecological and psychosocial, which greatly exceeds the ability of the affected community to cope' (WHO, 1991). People's routine lives become non-functional, and they face an immediate paucity of available resources, inadequate decisions, and mismanagement. It becomes the cause of accelerated death rates, socioeconomic changes, cultural norms, eating habits, thinking patterns and human behaviour.

'A serious disruption of the functioning of society, causing widespread human, material, or environmental losses which exceed the ability of affected society to cope using only its own resources' (U.N., 1992). Its spread can be sudden, frequent or non-frequent in local, national, multinational or global communities for a short or long period of time.

The word is derived from the ancient Greek dus-aster, meaning ill from the heavenly body or unlucky star, désastre in French and disaster in old Italian. In Abrahamic religions, Greek and Roman mythologies, many descriptions are found in which God decides to punish humans for their unruly and evil doings. The detailed narrations of Noah's flood, Sodom and Gomorrah, and plagues and famines can easily be found in the Torah, Bible, and Quran. Regarding disasters, philosophers have two major opinions: i. 'Act of God' and ii. 'Natural Evils' because they do not involve human choice. (Mathúna & Dranseika, 2018)

Disasters can be classified into two major categories: natural disasters like pandemics, climatic change, tsunamis, floods, droughts, earthquakes, avalanches, torpedoes, and volcano eruptions, etc. (What is a disaster?, 2021) and human-made disasters like Wars and ammunition used in them, terrorist attack, pollution, misuse of technology etc. O'Reilly, N. (2016). (with Mark Schaller, 2021)

After suffering from a disaster, there will be an observant change in thoughts, feelings, psychological traits and moral values, leading to a behavioural change. The ties of health and behaviour correlation are not as straightforward as we think. Protective measures against disease and a healthy environment save the immune system from overwork and mental stress (Bharti, 2021).

In response to the disaster, Cohen (Cohen, C., & S., 1987) identified four phases: firstly, the person faces sudden shock, severe emotional wave, "why me?", fear and numbness immediately after facing

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disaster. Secondly, the adaptation phase is normally around a week to months when rehabilitation activities start. In this time period, a person is deviant from fragile, restless, super active and has nightmares to lethargic, angry, easily irritated, bored, and nauseous (Green B. L., 1990), sick of everything and in a state of denial. Thirdly, the time period of this phase can be around a year or so in which help from the society does not turn up according to the expectations. The person feels left over in agony and starts to think as an individual. Fourthly, the reconstruction phase is spread over years in which the victim reviews and reconstructs a new belief system and gets the necessities of life for a new start.

Primary victims (suffered in any way, e.g. physical, mental, social, etc.), family and friends of victims, first responders (eyewitnesses) and support providers (e.g. rescue workers, doctors, law enforcement agencies) are at great risk. Fear factor will increase immediately among those who have already suffered from some other trauma, job insecurity, increase in tax, over-exhausted local infrastructure, etc. (Ursano, McCaughey, & Fullerton, 1994).

Social environment also has a deep impact on humans in a positive (family or group support and effective counselling) and negative way (mood swings or unhealthy behaviour, use of unhealthy diet causing obesity or other diseases, cigarettes and alcohol). Sometimes, it becomes difficult to say, 'Does stress make people sick, or does illness produce stress?' or is it simply a Lack of willpower? (National Academy of Sciences, 2001)

A clear change in biological (adrenaline and cortisol) and psychological (post-traumatic stress disorder, fight back or flee) is most likely expected because facing a disaster is far beyond human expectations and experience. People's reactions to calamity are also variable as their resilience and willpower vary, as do the treatments. (Sheik, 2018) Psychologically, severe distress, anxiety, state of fear, depression, partial impairment, the threat of infection, sympathy gaining, reassurance of help, extra preventive measures, total denial, refusal to contact, avoidance of helping the infected, and numbness are noticeable problems. (Taylor S., 2019)

Infectious Diseases (I.D.s) and Natural Disasters

The study of human behaviour during I.D.s becomes very important in understanding the reason for the spread, the development of control mechanisms and the various effects of the disease. Scientists have developed many mathematical models to measure the effects of I.D. on human behaviour by gathering data from individuals. (Funk, Salathé, & Jansen, 2018) I.D.s cause a sudden upsurge in mortality rate due to a specific communicable disease on a community, local or global scale. (What is a disaster?, 2021) These I.D.s have the ability to emerge and re-emerge from different communities and places with the passage of time. (Washer, 2010) (Fauci, 2017)

According to (Qiu, 2017), a disease is a pandemic if and only if it satisfies the following parameters: geographical coverage, origin, new or variations of the pre-existing disease, high death rate, communicable, less immunity in Public, and ability to transform.

Many authors pointed out various social factors in I.D.s spread, e.g. urbanization and mass migrations, industrial and technological revolutions (Washer, 2010), increase in population, mixture of ethnicities, opening of local and global trade routes, tourism, wars, religious gathering and, Lack of basic health and hygiene along with incompetent health systems become the major source of the spread (Taylor, 2020) (Qiu, 2017).

The quarantine technique is a valuable addition to decreasing I.D.s. With the advancements in the technical, technological and medical fields (development of new medical equipment, techniques and the invention of vaccines) in the 19th and 20th centuries, the early prediction system made us capable of taking preventive measures and the death toll became far less than the expectation. Life expectancy has increased, and humanity has gotten rid of infant deaths, droughts, and plagues to some extent. (Taylor, 2020)

During IDs, disinformation, uncertainty, a sense of urgency, misperceptions, a state of panic, fear and guilt, rumours, conspiracy theories, and disbelief in authorities are quite obvious. I.D.s break the social fabric of society and give birth to elevated trends of dissatisfaction, suicide, depression, anxiety, domestic violence, marital distress and divorce ratio (Ting, Yong, Tan, & Yap, 2021), isolation, closure of markets



and schools, quarantine and social distancing. Migrants, minorities, and the poor also suffer immensely due to Lack of communication, unawareness of support systems, language barriers, and discrimination by the people and government policies, etc. To avoid unrest in society, proper communication (repeated clear instructions by the authorities, quick response to choirs), transparent preventive measures (medical preparations and availability of vaccines, health and hygiene methods), and trust development are necessary (Taylor S., [2019](#)).

I.D.s overburden the ability of every section, from hospitals to funerals. (Bourdelaïs, [2020](#)) Recent archaeology has discovered dense burial sites. (Hays, [2005](#)) It has the ability to even change funeral practices, ceremonies, religious activities, cultural events, and art (Rittershaus & Kathrin, [2021](#)). Famous historians have documented the human misery in I.D.s and natural disasters as:

Thucydides described the Plague of Athens from 430 B.C. - 420 B.C.: (Thucydides, [2017](#))

For having no houses but dwelling at that time of the year in stifling booths, the mortality was now without all form, and dying men lay tumbling one upon another in the streets.... For when one had made a funeral pile, another getting before him would throw on his dead and give it fire. And when one was in burning, another would come and, having cast thereon him whom he carried, go his way again. (p. 89-100)

Procopius expressed the Plague of Justinian from 541 A.D.- 750 A.D. as: (Quinlan, [2020](#))

And it came thusly ... at first, those who met these creatures tried to turn them aside by uttering the holiest of names and exorcising they were dying constantly. But later on, they were unwilling to even listen to their friends when they called them, and they shut themselves up in their rooms and pretended not to hear, although the doors were being beaten down, fearing that he who was calling was one of the spirits. (p. 31)

Boccaccio wrote regarding the Black Death from 1350- 1400: (Quinlan, [2020](#))

It was by no means rare for more than one of these [funeral boards] to be seen with two or three bodies upon it at a time. Many were seen to contain a husband and wife, two or three brothers and sisters, a father and son, and times without number, it happened that two priests would be on their way to bury someone, only to find bearers carrying three or four additional biers would fall in behind them. (p. 59)

Haiti Earthquake Of 1770 (Westlake, [2018](#)):

The 8.0 magnitude earthquake struck at 7.45 pm on 3rd June; the result was catastrophic. One village, Croix des Bouquets, was struck so hard it sank below sea level. A tsunami also hit the island shortly afterthe aftermath that followed claimed far more. The collapse of Port-au-Prince enabled thousands of slaves to escape captivity, throwing the entire region into chaos. over 15,000 people would die of starvation. It would prove to be the most terrible natural phenomenon to strike the region until almost 250 years later. (p. 10)

In 2010, Haiti was struck by another mighty earthquake with a magnitude of 7.0, causing 100000 casualties, 3.5 million affected people, and 52 aftershocks.

In the East Africa drought (2010), 13 million people were affected, and 100,000 died (Westlake, [2018](#)).

Although torrential rains later destroyed many temporary houses. The event was a steep learning curve, with agencies and governments getting a stark reminder of the deadly effects of famine and drought if left unchecked. It's predicted that climate change could result in repeated droughts in the region, so future-proofing the countries was imperative. (p. 39)

Cyclone Nargis (2008): This left 138,000 casualties, 2.4 million affected people, and 50,000 farming lands destroyed forever (Westlake, [2018](#)).

Aung grasped a tree, his wife at his waist. Buffeted and bruised, she was stolen by the storm. Their children? 80,000 in the wider area were confirmed dead or simply vanished. It is estimated there were more than 100,000 people in Aung's weary line. Some were entire families who had each other but were homeless; others were mothers whose children had been swept from the breasts. Infants stood wide-eyed

and barefooted on the road as the television and newspaper cameras pressed into their faces or scouted for bodies. (p. 16)

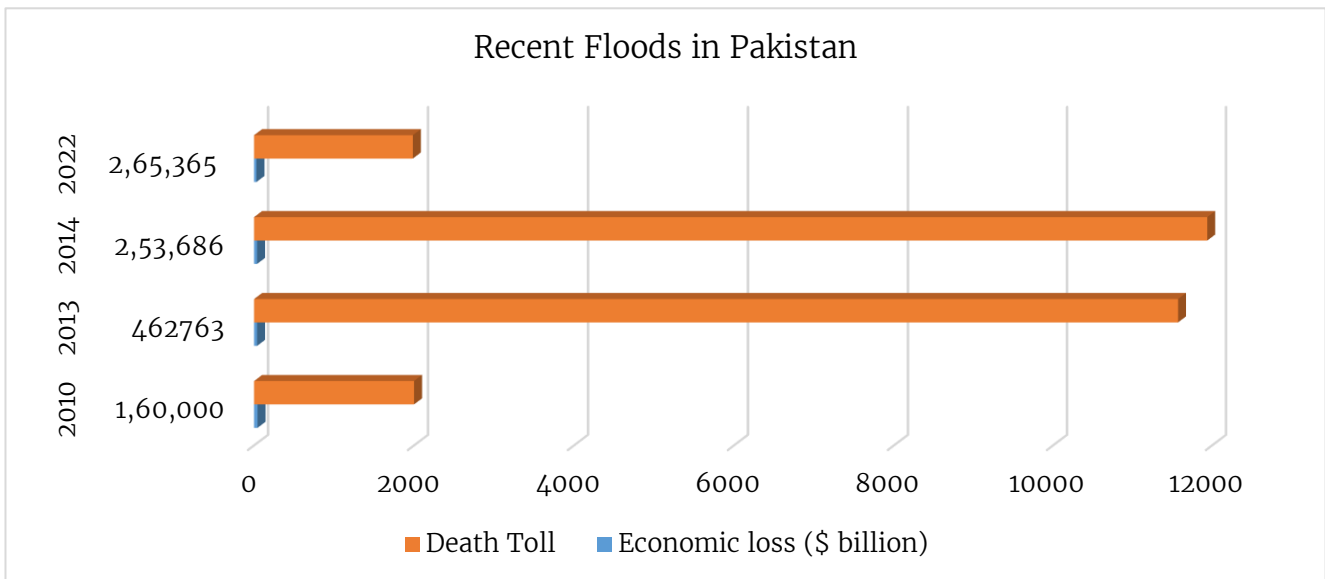
Pakistan and Natural Disasters

Pakistan is one of the countries most affected by climate change in the world. Other than facing many issues, Pakistan is a victim of natural disasters like floods, earthquakes, fires, etc., due to its geographical landscape. Poverty, Lack of resources, mismanagement and corruption worsen the effect of natural disasters and cause millions to suffer. Floods and earthquakes are the regular features that result in not only loss of life, property, livestock and wealth but also the displacement of masses.

Floods

One of the major symptoms of climate change is an immense rise in temperature that results in high perception, heavy Monsoon rains, melting of glaciers, etc., that further worsens with inadequate cleansing of rivers, canals, reservoirs and other seasonal water courses and tributaries.

In recent years, Pakistan faced the worst floods in 2010 (1,60,000 km², estimated economic loss of \$43 billion, death toll of approximately 2,000 people) (Ministry Of Water And Power, Annual Flood Report 2010, 2010) (Metych, 2023), 2013 (4,62,763 km², estimated economic loss of \$ 37.554 billion, death toll of 11,572 people approximately) (Ministry Of Water And Power, Annual Flood Report 2013, 2013) (Shaikh M.S. U. Eskander, 2022), 2014 (2,53,686 km², estimated economic loss of \$38 billion, death toll of 11,939 people approximately) (Ministry Of Water And Power, Annual Flood Report 2014, 2014) and 2022 (2,65,365 km², estimated economic loss of \$30 billion, approximate death toll 1985 approximately) (Survey, 2023) (Bank, 2022) (J. S. Nanditha, 2023) as well as made million and millions displaced.



Earthquakes

Pakistan is located at the intersection of 3 tectonic plates 'The Indian, Eurasian and Arabian Sea plates'. (Farhana Sarwar, 2016) Pakistan Meteorological Department (PMD) is responsible for monitoring and generating warning alerts regarding tsunamis and earthquakes. To cover the tertiary, including Azad Jammu & Kashmir, other than twenty remote earthquake monitoring stations, parallel programs are also running to closely monitor fault and local earthquakes. (National Seismic Monitoring Centre, 23) According to the study, Pakistan has been divided into '14 seismogenic zones' among which 3, 4, 6, 10 and 13, including densely populated cities (Islamabad, Karachi, Quetta, Peshawar, Gawadar, Pasni, Ziarat, and Kalat), are fairly active.



In recent years, Pakistan faced various earthquakes (2005, 7.6 Magnitude, life loss of 73,000 with 3.3 million displaced), (2011, 7.2 Magnitude), (2013, 7.7, 6.8 Magnitude, life loss of 847 leaving thousands displaced). (WorldData.info, 23)

COVID-19

In 2019, the Coronavirus's first case was reported in China and spread throughout the globe, causing 6,957,647 deaths and 699,783,027 infected cases. (odometer, 2023) According to the World Health Organization, Pakistan has faced 1,580,631 confirmed Corona cases, with a death toll of 30,656. (WHO, Pakistan, 2023) It not only hit the global economy but also severely damaged third-world countries. Medium-sized, small, and micro enterprises were deeply affected during the lockdowns in Pakistan. (Mohsin Shafi, 2022) (Erum Shahid, 2022) GDP declined from 3.3 to .47 during the pandemic. Multiple issues like socio-economic crises, mental-physical health, degradation of the educational system and food scarcity surged. (Finance Division, 2021)

Locust Attack

Pakistan, along with 50 other countries, faced a severe desert Locust Attack in 2020 along with COVID-19, which endangered food security. (Riffat Sultana, 2021) Parts of Iran and Pakistan were their hatchery due to the wet winter season. According to the Food and Agriculture Organization (FAO), the estimated loss was about \$1.3bn and destroyed 25% of Winter/Summer-Swon crops throughout the country. (Pole, 2023) Being a poor and densely populated country, the National Locust Control Center of Pakistan, with the help of global cooperation, should adopt preemptive policies to establish mechanisms of regular internal and external monitoring of breeding grounds, rigorous staff training, and the latest required equipment to control and reduce such outbreaks. (Muhammad Usman, 2022) (Pervaz, 2021)

Impact on human Behaviour

Infectious diseases and natural disasters can induce a range of emotional and behavioural responses in people. There are several factors that have a deep impact on human behaviour. Media in all forms (print, digital, and social media) has taken a vital (positive and negative) role in society due to its coverage through the internet. False media reporting gives room to rumours and conspiracy theories and upsurges a wave of fear and insurgence globally. Further, children easily become victims because of their low comprehension level (López et al., 2005), (Bonanno, Brewin, Kaniasty, & Greca, 2010). It is essential to stay informed from reliable sources only (Taking Care of Your Emotional Health, 2021).

Religion plays a comprehensive role in recovery due to counselling mechanisms and grief assistance. Due to uncertain circumstances, rumours and conspiracy theories create hype in the chaos. Social distancing and quarantine help reduce the spread of I.D.s, but people are lonely and detached from society. Funeral and memorial rituals were changed. Irrational decision-making, superstitious attitude, self-medication and alternate medicine, use of home remedies and turning to faith healers and quacks magicians were observed at their peak. Brutal behaviour regarding animals, infected and sick people, PTSD, triggering of mental disorder, mood swings, and feelings of detachment.: vaccination and vaccination approach

With the passage of time, anger emerges, and many people with low income get involved in rioting, looting, exploitation and destruction of property, and many consider it an adventure. Search for the responsible inadequate response and mismanagement surges. Businessmen start black-marketing.

Art in all forms takes the colour of its surroundings, which can be seen in all ages of human history (Rittershaus & Kathrin, 2021). The reasons behind these diverse psychological reactions require a deep understanding of motivational roots and vulnerability factors.

There are many perspectives attached to viewing a disaster; e.g., post-modernists consider it to be a great opportunity for social change rather than a calamity (Quarantelli, 1998). Many consider it as a political opportunity to take novel initiatives (Birkland, 1997). It also becomes the start of a blame game and scapegoating instead of actually finding the guilty (Allinson, 1993). The construction of new beliefs and disbelief starts from "the world is the safest place" to "why everything bad always happened to me"

(López et al., 2005). Many religious events throughout the world became the reason the coronavirus pandemic spread, which raised thoughts like "religion as a cure" vs. "religion as a curse" (Ting, Yong, Tan, & Yap, 2021). Ting's case study and Tan's research give proof that religion and spirituality play a vital role in the improvement of healthy physical, mental and emotional living by providing better response power to deal with "life stressors". (Tan, Musa, & Su, 2021)

Conclusion

The speed and sternness of chaos leave humanity hopeless and helpless for a long period of time. The impact of disasters and I.D. disruption influences social, economic, cultural, and political health for a long period of time, other than physical and psychological health. The psychological trail is likely larger than the medical trail because rekindling normal or new experiences become reminder of past shocking event.

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