

A Peep into 'FEAR'

Naresh Kumar^{1*}

ABSTRACT

A basic human instinct fear is the most dreaded emotion which we all want to avoid. Rightly said by Herman Melville "Ignorance is the parent of Fear". Fear mostly stems out of ignorance, we are ignorant about what happens after we die so we fear death, we are ignorant about what is lurking behind the darkness and we fear the darkness. Fear has many facets. In this paper, we take a peep into fear and try to understand what is meant by fear, how it evolved over the ages as a basic instinct in humans, what are various types of fear, what changes are caused in the body and brain when we are in grip of fear and shall also look at positive aspects of fear. Fear is the basic factor to arouse survival instinct in humans and this survival instinct has made us survive while many species have become extinct.

Keywords: *Fear, Impact of fear on body and brain, fear to survive, survival instinct, Phobias, Obsessive Compulsive Disorders (OCD)*

Fear is the most dreaded word; rather it is the most feared word. We get shivers when we get fear- not only our mind is affected but our body too. Fear is not what we would like to be in. Given a choice, we would rather not have this emotion be confronted ever!

Why do we have fear?

It is said that ignorance breeds fear. We are ignorant about what happens when we die- so we are afraid of death. We are ignorant about what is lurking behind darkness so we are afraid of the darkness! We do not know what would happen to us if we get in the grip of the Corona virus-so we are afraid of Corona! We are ignorant about the result of exams which we recently undertook, especially if we had not studied for the whole year and so we have fear of failing in the exam. But if you are a good student then since you are ignorant about the result, you have fear of missing 1st division or missing distinction! We are ignorant about whether ghosts exist so we are afraid of being confronted with ghosts and spirits. We are ignorant about our future so we fear the future.

Ignorance about the outcome of an event makes us apprehensive and we face fear. Some emotions resemble fear. Apprehension is very close to fear. Apprehension, like fear, also arises due to ignorance. In fact, apprehension is the starting point for fear. Fear starts with apprehension, rather, fear is an escalated form of apprehension. I am apprehensive about

¹Independent Researcher, Vadodara, India

*Corresponding Author

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A Peep into 'FEAR'

how my spouse will react to learning my folly and fear starts building! I am apprehensive about the answer which I wrote against a tricky question in my exam and fear starts building up. When in dilemma, apprehension of choosing the wrong option triggers fear. Apprehension precedes fear. Ignorance precedes apprehension.

The above paragraphs give us some idea about fear but it is not exhaustive.

Through this paper we shall have a peep into many aspects connected with fear—we shall try to understand what the word 'fear' means, how it gets triggered, what happens in our brain and body when we are gripped with fear, how did fear evolve over the ages, what are different types of fear, is fear a negative emotion or does it have positive implications, and so on ...

Let us take a journey into fear!!

Meaning of 'Fear'

The Oxford Dictionary says that fear is an unpleasant emotion caused by the threat of danger. True!! When faced with danger, an apprehension builds up as to what would happen next and the ignorance about the outcome escalates the apprehension which leads to fear. It supports our assertion at the beginning of the paper that ignorance breeds fear and that escalation of apprehension results in fear.

Wikipedia¹ elaborates on the meaning of fear:

"Fear is an intensely unpleasant emotion in response to perceiving or recognizing danger or threat. Fear causes physiological changes that may produce behavioral reactions such as mounting an aggressive response or fleeing the threat. Fear in human beings may occur in response to a certain stimulus occurring in the present, or in anticipation or expectation of a future threat perceived as a risk to oneself. The fear response arises from the perception of danger leading to a confrontation with or escapes from/avoiding the threat (also known as the fight-or-flight response), which in extreme cases of fear (horror and terror) can be a freeze response or paralysis.

In humans and other animals, fear is modulated by the process of cognition and learning. Thus, fear is judged as rational or appropriate and irrational or inappropriate. Irrational fear is called a phobia.

Fear is closely related to emotion anxiety, which occurs as the result of threats that are perceived to be uncontrollable or unavoidable. The fear response serves survival by engendering appropriate behavioral responses, so it has been preserved throughout evolution."

The above explanation adds a few more aspects to the definition as provided by the Oxford dictionary. Fear indeed is an unpleasant emotion caused by the threat of danger but it associates with another emotion i.e., *anxiety* resulting out of uncontrollable and unavoidable threat. Apprehension and anxiety when gets escalated these result in fear which is due to ignorance about the outcome of the threat.

Another manifestation is that this very emotion was the basic reason for the survival of mankind. Fear evokes fight/ flight / freeze action. Fight reaction leads to survival instinct in humans. Mankind evolved from the primitive era to the current modern era due to emotion of fear which raised the survival instinct which made their thinking capability to find out ways to fight to eliminate the threat or to flight if unable to combat the threat. This survival instinct

A Peep into 'FEAR'

consequent to fear has kept the frail humans surviving whereas many powerful species (like dinosaurs) have gone extinct.

Another dimension added to the oxford dictionary's meaning of fear is that fear could be rational as well as irrational. Rational fear is the emotion of fear that each human depicts in the same manner when confronted with a specific threat, e.g., each person trembles with fear when confronted with dangerous animals like a lion/ tiger. Whereas irrational fear is an illogical fear experienced by a few. The irrational fear is triggered by something which is a threat to the concerned person but not viewed as a threat by others. For example- some people have fear of height. They can't look down from a hillock into the valley below or cannot look down from the terrace of a Skyscraper building, whereas for a normal person these are no cause for fear. Irrational fears are called **phobias**. More about phobia later when we discuss types of fears.

Ralph Adolphs² speaks about fear-

“At the outset, we need an operational definition of “fear”. The fear is an intervening variable between sets of context-dependent stimuli and suites of behavioral response. The functional definition of ‘Fear’ could be: It can be defined as an emotion being caused by particular patterns of threat-related stimuli, and in turn causing particular patterns of adaptive behaviors to avoid or cope with that threat.”

Adolph talks about fear causing adaptive behaviors to avoid or cope with the threat--- As discussed in the above paragraph, this is what is called "Survival Instinct".

The threat is the common factor in all definitions of 'fear' as discussed so far. Confrontation with a threat evokes emotion that could be rational or irrational and leads humans to the behavior of dealing with threat either by combating against it or avoiding it (**Fight or flight**) –the behavior is tantamount to the **survival instinct**.

Paul Ekman Group³ talks about what is fear---

Fear is one of the seven universal emotions experienced by everyone around the world. Fear arises with the threat of harm, either physical, emotional, or psychological, real or imagined. While traditionally considered a “negative” emotion, fear actually serves an important role in keeping us safe as it mobilizes us to cope with potential danger. The universal trigger for fear is the threat of harm, real or imagined. This threat can be for our physical, emotional or psychological well-being. While there are certain things that trigger fear in most of us, we can learn to become afraid of nearly anything.”

The author adds to our knowledge about fear by calling it a negative emotion but also has a positive role to safeguard us, in other words, he is also hinting about the "Survival Instinct" triggered by fear.

Having learned the definition and meaning of fear, now we move on to the background history of fear and observe how this emotion evolved to keep alive mankind due to resultant survival instinct.

Fear through ages

Elaine Dundon⁴ takes us on a journey through the primitive times when fear was from natural phenomena like a storm, lightning, floods, etc... She elaborates on fear: -

A Peep into 'FEAR'

“Thousands of years ago, in the land we now call Greece, the people lived in fear. Unable to understand the natural phenomena that surrounded them in daily life, such as storms, the seasons, or childbirth, they invented elaborate stories of supernatural gods and goddesses to help calm their fears. Zeus became the king of the gods, responsible for the sky, weather, thunder, lightning, as well as law and order; Poseidon became the god of the sea; Hades, the god of the dead and the underworld; Hera, the goddess of marriage and childbirth; Hestia, the goddess of hearth and home; Demeter, the goddess of agriculture and the harvest; and so on. The Greeks believed the gods and goddesses would protect them from harm, ensure bountiful harvests, and make their lives a little easier.

Soon the Greeks began to live in fear of the gods, thinking that if they angered the gods, the gods would use their powers to punish them. The Greeks tried to appease the gods through offerings, prayers, rituals, and festivals. Over time, however, encouraged by the Greek philosophers, the Greeks began to ask more questions about their world. By discussing and thinking about the patterns they observed that were occurring naturally in their surroundings, their fear of the world, and of the gods, began to diminish. The Greek word, Phobos, from which phobia is derived, means fear. A phobia is a fear or intense dislike for something. Many of the words used to describe our fears have been derived from the Greek language. For example, "Agoraphobia" is derived from the Greek word agora, meaning "marketplace," and is the fear of being in the open market or being outside, "Xenophobia" is derived from the Greek word Xenos, meaning "stranger," and is the fear of strangers or things that are foreign. Interestingly, "Ergophobia" is derived from the Greek word ergon, meaning "work," and is the fear of work!

We find from above that ignorance breeds fear but mankind has a survival instinct backed by the thinking capacity which has made it survive. The thinking capability made it possible to understand the natural phenomena scientifically and find means to combat it and once the secrets were known, the fear vanished. Greek were the ones who coined the word Phobos from which phobia was derived which signifies irrational fear. More about phobia when we discuss types of fear.

On the history of fear, Garrett Ray Harriman⁶ further adds Greek contribution: *-Fear and anxiety have long theoretical histories. Today, medical and psychological science agree that fear and anxiety are emotional states accompanied by very specific bodily sensations. But fear has fascinated many minds throughout history, and many explanations were given to rationalize fear's origin and purpose.*

Ancient Greeks

The ancient Greek philosophers had many ideas and explanations for the origins, mechanisms, and outcomes of fear and anxiety. Though their scientific and medical knowledge was limited, it is still fascinating to learn how inclusively they thought about fear.

***Aristotle felt that fear was the opposite of confidence.** To him, the world was reducible to pairs of opposites, (hot and cold, wet and dry). It was also from his school of thought that we associate great men with those who suffer through fear and anxiety. Great men and women are the ones who overcome fear's effects. The cure for fear was to act in virtuous ways, including being courageous. Much in contrast to today's mantras, Aristotle did not advocate the pursuit of "fearlessness." To be fearless was a sign of true "imbalance" of the opposite life pairs discussed earlier. It was considered crazy to not fear the gods and the all-consuming influence they had on the environment.*

A Peep into 'FEAR'

Aristotle believed fear worked in the body via body heat and blood. An angry person's blood, for instance, was said to radiate away from their heart and cause their angry behaviors and thoughts. Fear was the opposite: blood contracted toward the heart, making the body cold and leading to many of the physical symptoms (trembling, sweating, urinating) that very fearful people experience.

***Epicurus** was another great fear thinker for his time. Unlike Aristotle, he believed that it was best to avoid and predict fear, not overcome it through virtuous acts. This perspective came from his view that life was composed of tiny particles (atoms) and that the configurations of these atoms in a person's body and soul led to unbalanced irreducible.*

He felt that the mind, body, and soul were all composed of these atomic sheets, which was why fearful thoughts and acts could both feel so painful. He advocated that fearful people's best chance at avoiding fear altogether was to adopt this atomic viewpoint and thus take their fear away from the power of the gods.

***Galen**, another Greek thinker, also agreed with the Aristotelean idea of "balances" of opposite elements controlling thoughts and feelings. The goal of existence was to try to reach the ideal "balance" of all these elements to live a fulfilling inner and outer life. To Galen, in cases of extreme fear and anxiety, these balances were so off-kilter that some people suffered fears of imaginary things. He was also very curious about explaining the physical symptoms of fear in terms of these extreme imbalances. For instance, he felt trembling was caused by bearing too heavy of an emotional burden."*

Thus, we see that Greeks contributed a lot to fear. As we observed in the preceding paragraphs, the word phobia came out of Greek words and Greek thinkers and philosophers had contributed their thoughts to explain the fear. While Aristotle maintained that fear was the opposite of **Confidence** and he did not propagate the idea of becoming fearless. He said that fear worked in the body via body heat and blood and as per him, the fear made blood contract towards the heart, making the body cold and leading to many of the physical symptoms (trembling, sweating, urinating) that very fearful people experience. The symptoms of fear even today resemble what Aristotle told at his time.

Thomas McGregor⁵ adds on to fear as follows: -"***Fear has been kind to humans---*** *Evolutionarily speaking, fear has been kind to humans. Many species were less fortunate and are now long gone due to a lack of appropriate fear. For example, when humans arrived on Australia's shores roughly 50,000 years ago, the animals living there were not afraid. Gigantic marsupials, much bigger and stronger than humans, would have spotted groups of unusual, bald, apes moseying around and thought nothing of it. It didn't take long before nearly all these larger species were hunted into extinction by man – easy pickings due to their lack of fear. By contrast, our fear has kept us alive to this day.*

Homo sapiens (or human) eating a Diprotodon (the largest marsupial to ever live) – These 3-ton animals became extinct shortly after humans reached Australia. Had they developed adequate fear of humans (and tourists), they might have survived."

Indeed, fear does generate survival instinct in humans and through ages, humans have survived because of the emotion of fear which made them use their gifted capability of thinking which made them discover ways to combat fear and survive. If people didn't feel fear, they wouldn't be able to protect themselves from legitimate threats. In ancient times

A Peep into 'FEAR'

men and women were regularly faced with situations where action could lead them to death and fear was a vital response to physical and emotional danger but today situation is not that precarious but still, some people develop extreme fight-flight-or freeze responses to specific objects or scenarios. If such bouts of fear happen persistently, the person is said to go beyond fear to phobia.

Phobia is extreme fear which is also irrational sometimes.

Psychology Today⁷ describes phobia as a distinct fear or anxiety about a certain object or situation, exposure to which consistently provokes fear or causes distress in the sufferer. The fear experienced is almost always disproportionate to the true danger the object or event poses, and people with specific phobias generally know there is no real reason to be afraid and that their behavior is not logical. However, they cannot avoid their reaction.

Phobias fall into five broad categories:

- Fears of animals, such as fear of dogs (cynophobia), spiders (arachnophobia), or bugs (insectophobia or entomophobia). These fears, known as zoophobias, also include the fear of bats (chiroptophobia) and of snakes or lizards (herpetophobia).
- Fears of the natural environment, such as a fear of heights (acrophobia) or of storms. These phobias also include fear of fire (pyrophobia) and fear of the dark (nyctophobia).
- Fears related to blood (*hemophobia*), injury, and injection, such as a fear of needles (trypanophobia) or medical procedures including dentistry (*dentophobia*).
- Situational fears, such as a fear of flying (aerophobia), a fear of *public speaking* (*glossophobia*), or a fear of riding in elevators, which is itself a type of fear of closed spaces (*claustrophobia*).
- Others, such as a fear of vomiting or choking.

The phobias mostly result in obsessive-compulsive behavior called OCD (Obsessive-Compulsive- Disorder)—when faced with a bout of phobia, the person is compelled to go through a seemingly unnatural behavior to temporarily overcome the fear of phobia. For example, a person with snake phobia feels a sense of contamination on the sight of a snake or on even hearing about a snake and has to go through a ritual of cleaning with water his/her body and also cleaning of surrounding areas to get rid of contamination—the ‘cleaning’ is the “Obsessive-Compulsive Behavior”.

OCD has been troubling people from ancient times. Evidence shows numerous examples of OCD-type symptoms in the lives of figures throughout the ages. Prominent personalities are known to suffer from this malady. To name a few: -

***Martin Luther** (1483–1546) a German priest and professor of theology who initiated the Protestant Reformation suffered from OCD. He frequently had feelings of 'fleshly lust, wrath, hatred, or envy against any brother' which constantly 'vexed' him and would not leave no matter how hard he tried to block them from his mind. He also experienced periods of "blasphemous" thoughts that left him confused and disturbed and were tormented by urges to curse God and Jesus. (Source- <https://www.ocduk.org/ocd/history-of-ocd/martin-luther/>)*

***Charles Darwin** (1809–1882), the eminent scientist, naturalist, geologist, and biologist best known for his contributions to the science of evolution was profoundly affected by the way his mother died, quickly and inexplicably, which of course could have had an effect on Darwin, and played a part in potential OCD and anxiety later in life.*

A Peep into 'FEAR'

Darwin wrote about various obsessional thoughts and how he could not get away from them. In a letter to a friend he wrote, 'I could not sleep and whatever I did in the day haunted me at night with vivid and most wearing repetition'. The thoughts, as he himself put it, were of 'horrid spectacle' including thoughts that his children would inherit his kind of illness and to stop them he would try 'closing his eyes firmly', but they would not go away, which could potentially be considered OCD thoughts. (Source-<https://www.ocduk.org/ocd/history-of-ocd/charles-darwin/>)

***Nikola Tesla (1856–1943)**, an electrical engineer, mechanical engineer, physicist, and futurist who is best known for his contributions to the design of the modern alternating current (AC) electricity supply system suffered from OCD. Tesla started showing symptoms of OCD around 1917 when he became obsessed with the number three. When taking his daily swim at the public pool, he always swam 33 laps, but if he lost count, he said he couldn't leave, and instead had to start over from zero. He often had an urge to circle a city block three times before entering a building. When leaving a building he had to turn right only and walk around the entire block before becoming "free" and being able to leave.*

He also became obsessed with germs, he polished every dining implement he used to perfection, demanded three folded cloth napkins beside his plate at every meal using 18 napkins. He also stayed in a hotel room with a number divisible by three (he lived the last ten years of his life in suite 3327 on the 33rd floor of the New Yorker Hotel).

His lifelong celibacy and tendency to seclude himself could have been OCD-related too, although Tesla himself is claimed to have said this enhanced concentration on his various experiments. (Source: <https://www.ocduk.org/ocd/history-of-ocd/nikola-tesla/>)

***Katharine Hepburn (1907–2003)** the American actress, and one of Hollywood's leading ladies for more than 60 years seems to suffer from OCD.*

Although there is no real evidence to suggest that she had OCD, Mr. Hughes was once reported to have said "that, for a woman who takes 18 showers a day, she was in no position to ridicule his obsessions!" which seems to have been enough for many to comment she suffered from Obsessive-Compulsive- Disorder. (Source- <https://www.ocduk.org/ocd/history-of-ocd/katharine-hepburn/>)

As we observe eminent people from over a few centuries have suffered from OCD. Like fear, OCD also is observed from ancient times, it was called differently then and the term OCD is of recent origin. Let us have a brief peep into the history of OCD.

History of OCD

A UK based organization OCD-UK⁸ gives an account of the history of OCD: -The incidence of Obsessive-Compulsive- Disorder (OCD) or Obsessive-Compulsive Neurosis as it was once known, is a relatively common disorder and can be traced historically, cross-culturally, and across a broad social spectrum and does not appear to restrict itself to any specific group of individuals. On the contrary, evidence shows numerous examples of OCD-type symptoms in the lives of figures throughout the ages.

Of course, the name OCD did not come into being until the 20th century, but before that, the earlier references to symptoms we would now call Obsessive-Compulsive-Disorder were surprisingly called **Scrupulosity**.

A Peep into 'FEAR'

Digging into literature it is found that through the 14th and 18th centuries, obsessional fears around religion were commonplace. So, around this time, the above new word *Scrupulosity* came into being to identify obsessions and compulsions. Later in the seventeenth century, obsessions and compulsions were also described as symptoms of melancholy.

The term 'scruples', in a religious context, meant obsessive concern with one's own sins and compulsive performance of religious devotion, the term is actually derived from the Latin 'scrupulum', a sharp stone, implying a stabbing pain on the conscience. The use of the term *scrupulosity* (now known as OCD) dates back from the past few centuries, with several historical and religious figures suffering from doubts of sin, and expressing their obsessional suffering.

If we look at the chronological history of OCD, the known literature dates back from the year 1363 onwards when *Jean Charlier de Gerson (1363–1429)*, the French scholar, educator, reformer, and Chancellor of the University of Paris was concerned with scrupulosity. It's suggested he warned against the negative effects of too much scrupulosity. We have the subsequent account of scrupulosity dating back to the 1430s when the German theologian *Johannes Nider (1380–1438)* wrote what could have been scrupulosity in *Consolation of a Timorous Conscience* where he presented scrupulosity as a potentially lethal affliction that could generate the life-threatening sin of despair, in which he described a nun from Nuremberg named *Kunegond* who was in constant fear that her confession was insufficient. This inordinate fear that she had committed a mortal sin, compounded by excessive fasts, not only caused her confessors to be concerned for her sanity but actually delivered her to death's door.

Another to make possible early descriptions of OCD was the Church of England cleric *Jeremy Taylor (1613–1667)* who in 1660 wrote: "of those persons who dare not eat for fear of gluttony; when they are married, they are afraid to do their duty, for fear it is secretly an indulgence to the flesh and yet they dare not omit it for fear they should be unjust."

John Locke (1632–1704) was a philosopher and physician who was widely regarded as one of the most influential enlightenment thinkers and in 1678 it's reported that he drafted a letter on the subject of scrupulosity. In one of his letters he wrote, "I cannot imagine that God, who has compassion upon our weakness and knows how we are made, would put poor men, nay, the best of men, those that seek him with sincerity and truth, under almost an absolute necessity of sinning perpetually against him, which will almost inevitably follow if there be no latitude at all allowed as in the occurrences of our lives."

One of the first known public presentations of what we now call OCD happened in 1691 when *John Moore (1646–1714)*, the bishop of Norwich (later Bishop of Ely) preached before Queen Mary II on "religious melancholy" describing good moral worshippers who are tormented by "naughty and sometimes blasphemous thoughts" despite all their efforts to stifle and suppress them. He describes the scrupulous as having a "fear, that what they do, is so defective and unfit to be presented unto God, that he will not accept it naughty, and sometimes blasphemous thoughts, start in their minds, while they are exercised in the worship of God, despite all their endeavours to stifle and suppress them, the more they struggle with them, the more they increase."

In most of the above thoughts, scrupulosity had only religious overtones and was not considered a medical problem. However, in some of the earlier writings, there is a

A Peep into 'FEAR'

discussion about how doctors used bloodletting (also called phlebotomy) to treat bad thoughts. This widely used technique of the age involved draining blood from the patient in an effort to adjust the bodily 'humors'. Ancient origins believed certain human moods, emotions and behaviours were caused by an excess or lack of body fluids (called "humors"): blood, yellow bile, black bile, and phlegm.

As time moved on, physicians of the *1700s and 1800s* described more types of behaviours including washing, checking, obsessive fear of syphilis, aggressive and sexual obsessions, but fewer religious obsessions were reported than in earlier centuries.

Modern concepts of OCD began to evolve in the nineteenth century, when theories like faculty psychology, phrenology, and mesmerism were popular and when 'neuroses' implied a neuropathological condition.

Obsessions, in which insight was preserved, were gradually distinguished from delusions, in which it was not. Compulsions were distinguished from impulses which included various forms of paroxysmal, stereotyped, and irresistible behaviour. Influential physicians disagreed about whether the source of OCD lay in disorders of the will, the emotions, or the intellect.

In his **1838** psychiatric textbook, the famous French psychiatrist *Jean Etienne Dominique Esquirol (1772–1840)* described OCD as a form of monomania or partial insanity. Monomania is a term used to describe psychiatric conditions where the focus of pathology is in one specific area of dysfunction but the rest of the personality and intellect remain intact. French psychiatrists abandoned the concept of monomania in the **1850s**. They attempted to understand obsessions and compulsions within various broad categories we now identify as conditions such as phobias, panic disorder, agoraphobia, hypochondriasis, manic behaviour, and even some forms of epilepsy.

Another French psychiatrist, *Henri Dagonet (1823–1902)* considered compulsions to be a kind of impulse and OCD a form of 'folie impulsive' (impulsive insanity). In this illness, violent, irresistible impulses overcame the will and manifested in obsessions or compulsions. He described the phenomenon as follows: "the more one tries to discard an idea, the more it becomes imposed upon the mind, the more one tries to get rid of an emotion or tendency, the more energetic it becomes."

By the end of the 19th century and early 20th century, concepts of heredity and degeneration were taking hold in a number of institutions, partly as a result of the discovery of genetic principles by Gregor Mendel.

The French psychiatrist *Valentin Magnan (1835–1916)* considered OCD a "folie des degeneres" (psychosis of degeneration), indicating cerebral pathology due to defective heredity. Since abulia, or the lack of will or initiative, is seen in neurological states (such as strokes), and a disorder or failure of will was seen as part of the obsessive clinical picture, the argument could be made that OCD is a degenerative disorder of the brain and (based on the family studies), of hereditary origin. This concept of neurodegeneration did little to reduce the stigma associated with mental illness in general, but to those already secretive and hypersensitive because of their obsessive and compulsive behaviours, this was an additional reason to hide their disease, and perhaps why into the end of the 20th century OCD was still considered 'the secret illness'.

A Peep into 'FEAR'

In the last quarter of the nineteenth century, the diagnostic category, neurasthenia (a term that was first used at least as early as 1829 to label a mechanical weakness of the nerves), engulfed OCD along with numerous other disorders, but as the twentieth century opened, both *Pierre Janet (1859–1947)* and *Sigmund Freud (1856–1939)* isolated OCD from neurasthenia.

Sigmund Freud, the Austrian founder of psychoanalysis, gradually evolved a conceptualization of OCD that influenced and then drew upon his ideas of mental structure, mental energies, and defense mechanisms. In Freud's view, the patient's mind responded maladaptively to conflicts between unacceptable, unconscious sexual or aggressive id impulses and the demands of conscience and reality. He believed obsessive-compulsive behaviour is linked to unconscious conflicts manifested as symptoms of the illness. Conflict develops between the desires and subsequent actions of the conscious and unconscious minds. OCD sufferers, frequently "compelled" to carry out actions giving only temporary relief from anxiety, still "know" it is ridiculous or embarrassing to do so.

Freud's theories about such matters continued to be fairly well-accepted up to the 1960 and 1970s. In the **1970s** behavioural psychology and later cognitive psychology (both discussed more on the cause of OCD page) began to overcome the Freudian theory and other ideas still floating around at that time, to become the main models for understanding OCD that remain so to this day.

OCD, the behavioural disorder arising out of fear or phobia is still a subject that is open to further research.

So much so for the history of fear and the history of OCD.

We now move on to types of human fear and then shall take on the effect of fear on the human body and brain.

Types of Human Fear

Fear can be broadly classified into two types: -

- Normal Fear
- Phobia or Abnormal fear

We shall look into the subtypes of each of the above two fears in the following paragraphs
Normal fears—These are the fears felt by normal persons in threatening situations, e.g. if someone threatens to kill you with a knife, or when you are confronted with a poisonous snake or are left to fend yourself in front of a tiger, or if you fall in the water and do not know swimming – you have fear of drowning and so on...

Normal fear can be sub-grouped into Primal Fear and Rational Fear

Primal Fear-Primal fear is defined as an innate fear that is programmed into our brains. These are fears like arachnophobia (fear of spiders) or ophidiophobia (fear of snakes). They are natural fears because of human evolution. A human that was afraid of snakes was less likely to be bitten by one than the human that wasn't, therefore humans with a healthy fear had a higher survival rate. (Source: - <https://escapegames.ca/three-types-of-fear/>)

Rational Fear-Rational fears occur where there is a real, imminent threat. If someone is brandishing a knife at you, the fear of being stabbed is a rational fear. Fear of death is rational. On a less extreme note, losing a child in a very crowded venue is a rational fear.

A Peep into 'FEAR'

You will not find an escape game that uses rational fear to scare you, because that would mean you are in genuine danger. (Source: - <https://escapegames.ca/three-types-of-fear/>)

Phobia/ Abnormal fear

Under this category come exaggerated irrational fears which mostly lead to queer behaviour in the people who get these fears. It is also considered a mental illness,

Cherry Kendra⁹ gives details about phobias found in some humans: -

“The American Psychiatric Association (APA) identifies three different categories of phobias:

- **social phobias,**
- **agoraphobia, and**
- **specific phobias--** When people talk about having a phobia of a specific object such as snakes, spiders, or needles, they are referring to a specific phobia.

Social Phobia- Social phobia, also called Social Anxiety Disorder, is a long-term and overwhelming fear of social situations.

It's a fear that does not go away and affects everyday activities, self-confidence, relationships, and work or school life.

Many people occasionally worry about social situations, but someone with social anxiety feels overly worried before, during, and after them.

You may have social anxiety if you:

- worry about everyday activities, such as meeting strangers, starting conversations, speaking on the phone, working, or shopping
- avoid or worry a lot about social activities, such as group conversations, eating with company and parties
- always worry about doing something you think is embarrassing, such as blushing, sweating, or appearing incompetent
- find it difficult to do things when others are watching – you may feel like you're being watched and judged all the time
- fear being criticized, avoid eye contact or have low self-esteem
- often have symptoms like feeling sick, sweating, trembling, or a pounding heartbeat (palpitations)
- have panic attacks, where you have an overwhelming sense of fear and anxiety, usually only for a few minutes

Many people with social anxiety also have other mental health issues, such as depression, generalized anxiety disorder, or panic disorder. (Source: <https://www.nhs.uk/mental-health/conditions/social-anxiety/>)

Agoraphobia - Agoraphobia is an anxiety disorder often precipitated by the fear of having a panic attack in a setting from which there are no easy means of escape. As a result, sufferers of agoraphobia may avoid public and/or unfamiliar places. Agoraphobia arises from an internal anxiety condition that has become so intense that the suffering individual fears going anywhere or doing anything where these feelings of panic have repeatedly occurred before.

A Peep into 'FEAR'

Agoraphobia can come on suddenly or develop gradually, typically developing between the ages of 18 and 35. Symptoms include: strong feelings of panic, dread, terror, and horror recognizing that the anxiety is overblown, yet not being able to "talk yourself out of it" rapid heartbeat, shortness of breath, trembling, and an overwhelming urge to flee the situation - all physical reactions associated with extreme fear going to great lengths to avoid the situation that causes fear. (Source: - <https://www.disabled-world.com/definitions/phobias.php#s>)

Specific phobias- Fear of particular objects or situations that immediately results in anxiety and can sometimes lead to panic attacks. The Specific phobia may be further subdivided into five categories: animal type, natural environment type, situational type, blood-injection-injury type, and others. (<https://www.disabled-world.com/definitions/phobias.php#s>)

Some examples of specific phobias are

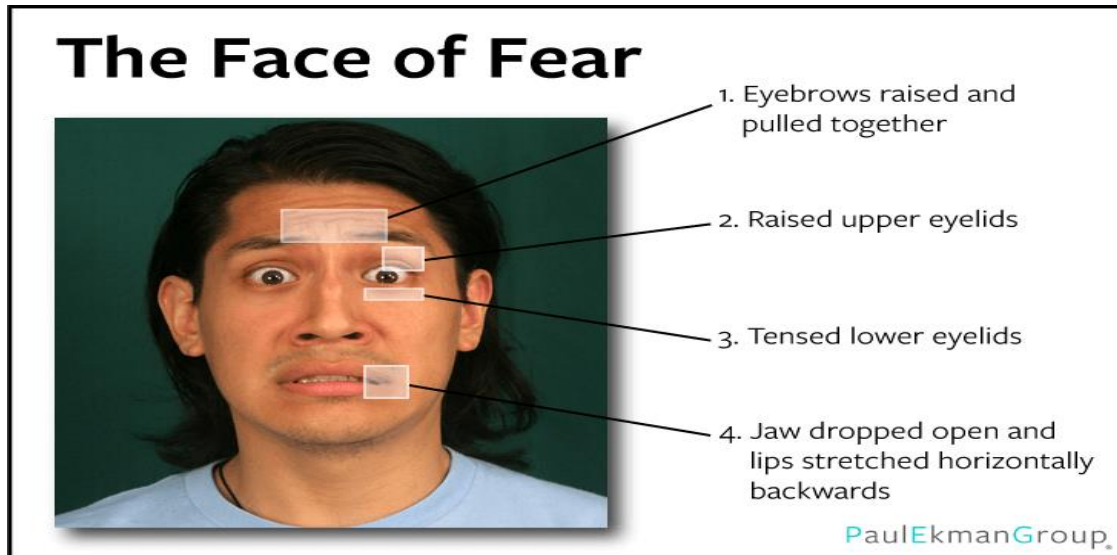
- **Melissophobia** - fear of bees- Fear of bees or bee stings, is a common fear among people.
- **Aquaphobia, Hydrophobia** - Aquaphobia is an abnormal and persistent fear of water. They may avoid such activities as boating and swimming, or they may avoid swimming in the deep ocean despite having mastered basic swimming skills. Medical professionals indicate that aquaphobia may manifest itself in a person through their specific experiences or due to biological factors.
- **Aviophobia, Aviatophobia** - Fear of flying is a fear of being on a plane while in flight. It is also sometimes referred to as aerophobia. Fear of flying may be a distinct phobia in itself, or it may be an indirect manifestation of one or more other phobias, such as **claustrophobia** (a fear of enclosed spaces) or **acrophobia** (a fear of heights).
- **Glossophobia** - Glossophobia or speech anxiety is the fear of public speaking. It is believed to be the single most common phobia affecting 75% of the population.
- **Ornithophobia** - fear of birds. Ornithophobia is a type of specific phobia, an abnormal, irrational fear of birds.
- **Herpetophobia** - The fear of reptiles, amphibians, or other similar animals.

and so on... The list can be endless as irrational fear can develop against any object or a situation.

We have so far understood the meaning of fear, peeped through its history, and also had a look at the history of phobias and OCD and have seen different types of fears phobias, now we shall see the status of our body and brain while experiencing fear.

Impact of fear on our body and brain

Fear is an emotion that we all experience- our heartbeat increases and we sweat and sometimes we find our body frozen in grip of fear. A lot of changes happen in our body and a lot of activities happen in our brain when we are undergoing fear. Our face is the most expressive part of our body depicting changes in our facial parts when we are frightened. Paul Ekman Group³ gives a pictorial view of fear emotion on face showing how our body reacts when confronted with the emotion of fear:



Mostly all of us have widened eyes with raised upper eyelids and tensed lower eyelids and have open jaws, sweat appears on our forehead and over the whole body with heart-pounding at a faster speed when we are gripped with fear,

The author goes on to say, *“The facial expression of fear is often confused with surprise. While both expressions show distinctly raised eyebrows, a fear expression's eyebrows are straighter and more horizontal whereas in surprise they are raised and curved. The upper eyelid is also lifted higher in fear than in surprise, exposing more sclera (white of the eye). Finally, the lips are tensed and stretched in fear but more open and slacker in surprise.”*

Tim Newman¹⁰ has more to say on changes happening in body and brain when fear engulfs us—

Bodily changes--People often refer to the physiological changes that occur when a person experiences fear as the fight-or-flight response. Overall, as the name suggests, the changes prepare the subject to either fight or run.

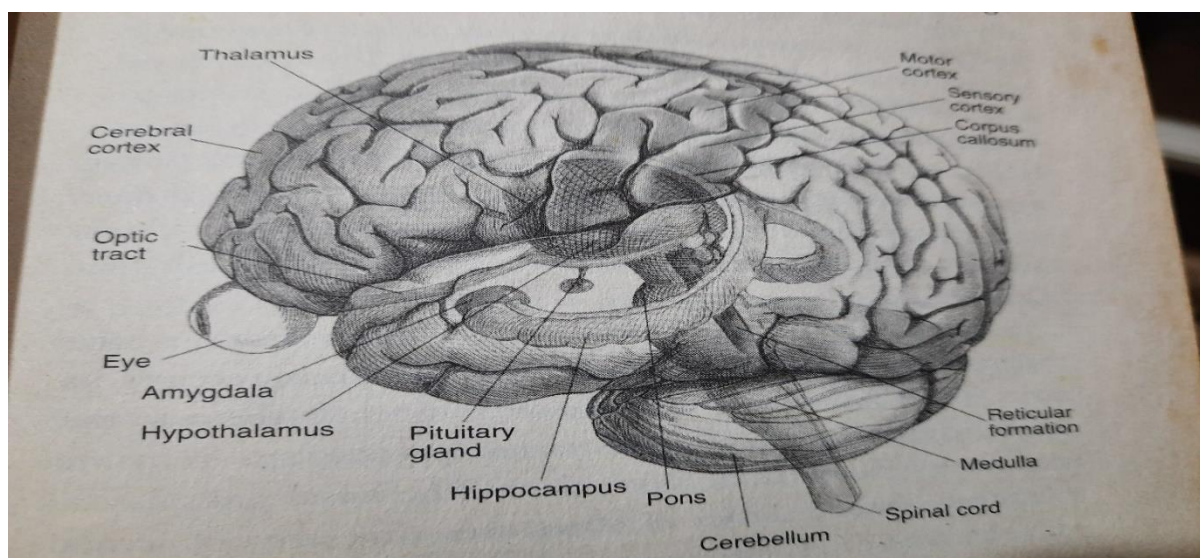
Breathing rate increases, heart rate follows suit, peripheral blood vessels — in the skin, for instance — constrict, central blood vessels around vital organs dilate to flood them with oxygen and nutrients, and muscles are pumped with blood, ready to react.

Muscles — *including those at the base of each hair* — *also become tighter, causing piloerection, which is colloquially called goosebumps. When a human's hair stands on end, it makes little difference to their appearance, but for more hirsute animals, it makes them seem larger and more formidable.*

Metabolically, levels of glucose in the blood spike, providing a ready store of energy if the need for action arises. Similarly, levels of calcium and white blood cells in the bloodstream see an increase.

Brain changes triggered by Fear--Brain is walnut size jelly-like organ situated in our skull. It is the most wonderful machine on this earth which is beyond comparison. It is the machine that governs the functional actions of our body. All emotions are reflected with huge activities in brain cells/nerves and parts of the brain

A Peep into 'FEAR'



Figure—showing internal parts of our brain activated with fear

Amygdala is the vital part of the brain which gets triggered during fear. Tim Newman¹⁰ says that the fight-or-flight response begins in the **amygdala**, which is an almond-shaped bundle of neurons that forms part of the limbic system. It plays an important role in the processing of emotions, including fear. The amygdala signals the hypothalamus, which then activates the pituitary gland. The pituitary gland is where the nervous system meets the endocrine, or hormone, system.

The pituitary gland then secretes **adrenocorticotrophic hormone (ACTH)** into the blood. At this time, the sympathetic nervous system — a division of the nervous system responsible for the fight-or-flight response — gives the adrenal gland a nudge, encouraging it to squirt a dose of **epinephrine**, also known as **adrenaline**, and other **catecholamines** into the bloodstream.

The body also releases **cortisol** in response to **ACTH**, which brings about the rise in blood pressure, blood sugar, and white blood cells. Circulating cortisol turns fatty acids into energy, ready for the muscles to use, should the need arise.

Catecholamine hormones, including epinephrine and norepinephrine, prepare muscles for violent action.

These hormones can also:

- boost activity in the heart and lungs
- reduce activity in the stomach and intestines, which explains the feeling of “butterflies” in the stomach
- inhibit the production of tears and salivation, explaining the dry mouth that comes with a fright
- dilate the pupils
- produce tunnel vision
- reduce hearing

Both the hippocampus — a brain region that is heavily involved in memory — and the prefrontal cortex, which aids high-level decision making, also help control the fear response.

A Peep into 'FEAR'

They help us understand whether our fear response is real and justified or whether we might have overreacted somewhat.

If the hippocampus and prefrontal cortex decide that the fear response is exaggerated, they can dial it back and dampen the amygdala's activity. This partly explains why people enjoy watching scary movies; their sensible "thinking brain" can overpower the primal parts of the brain's automated fear response.

So, we get to experience the rush of fear before our more reasonable brain centres dampen it down.

Thus, we see how our body and brain function when confronted with fear and there is a built-in mechanism to react and overcome the changes which were triggered with fear.

Before concluding the paper, I wish to add that while fear is taken as an unpleasant emotion, still people find it entertaining when they get a kick from fear which serves as an entertaining feature to them, why else do people go and watch horror movies or go bumpy horrifying roller-coaster rides.

We shall be concluding the paper after observing the positive aspects of Fear. Survival instinct is no doubt a positive side of Fear which has made the human race survive whereas stronger and bigger species have become extinct.

The positive side of Fear—Undoubtedly Fear is a negative and unpleasant emotion that we would like to avoid. Who would like to remember the tremble and shiver feeling when confronted with fear? Fear leaves a numb feeling and the mind gets into shock. All these are negative and dark sides of fear which get associated with it. No sensible person would like to be trapped in a fearful situation as it leaves a shuddering memory imprinted in our minds. You will laugh at me when I say that fear has positive aspects also. Every cloud has a silver lining, so does the cloud of fear. In many ways, fear serves a positive purpose in our lives. Strange but true!

Let us examine positive aspects linked to fear-

- ***Fear instils survival instinct in us*** -We have frequently talked in the above paragraphs about fear being responsible for creating survival instinct in us which has made us the most powerful species which is still throbbing with life while many species have become extinct. Needless to say, this is the strongest positive aspect of Fear. When confronted with fear, we as humans start building defence mechanisms to conquer the fear. We have seen how the body and brain work hard to make us act in defence. Thinking power makes us devise ways and means to overcome the causes behind fear and we conquer it. How else we would have conquered the fear caused by the dreaded Corona which swept the world. We were petrified to see our near dear ones passing away when Corona took them in its claws. Fear of Corona made us remain indoors and kept us at a distance from other humans. The fear prompted our scientists to research into the cause behind Corona and soon we discovered vaccines that protected us from getting extinct as a race.

This is not the first time that fear resulted in instilling Survival Instinct in us; whenever we were faced with a calamity, we found a way out through the survival instinct. This is the reason we have survived whereas dinosaurs and species like that vanished from the earth.

A Peep into 'FEAR'

The evolution of survival instinct is the most vital positive side of fear

- ***Fear helps us in evolving stronger-*** We build on our strength when we are able to find out a way to conquer fear. We emerged stronger than animals stronger than us by conquering the fear of other animals by finding out ways to outsmart them. Elephants were made to fall in ditches covered with dry leaves and grass, we have been able to cage lions and tigers who can be seen in cages in zoos. Fear has helped us become stronger.

- ***Fear can be a great motivator-*** Generally fear puts us in fight/flight/ freeze mode. When fear puts us in fight mode, we not only think and find a way to conquer the fear but it also serves as a great motivator.

I will just narrate an episode from my life to prove the point-- *Having passed out of secondary school when I entered college life, it was altogether a new world. The strict parental control loosened and I got into a world full of young men and women of my age who had grown in physique but had not grown mentally to become a grown-up matured adult. The freedom allowed us to remain away from home for longer periods with no questions asked. This led me astray and I got engaged in actions that gave me more enjoyment by bunking classes and enjoying movies in a cinema theatre. Till I moved out of school, I had not gone to any cinema theatre. I enjoyed thoroughly the first year of my college life. But when exams approached, I was scared whether I will fail.*

No one in my family had ever failed. The fear kept on growing and on the day of the result. The fear was becoming a monster giving me nightmares to imagine situations that would surface up in case I failed. I would die of shame as none of my brothers and sister had ever failed. I felt that I am going to bring disgrace to my family. The fear produced a sensation of guilt and made me repent why I did not study properly and was leading me towards suicidal thoughts—I just could not face my family with failure in exam. Fear had engulfed me and it was telling upon my health. The fear was so profound that it did not wither away even when I found my name in the list of students who had passed the exam.

I did not want this sense of fear ever come back again and it proved to me to be a great motivator and changed my life in the second year of college. I abstained from bunking classes and was mostly found in the college library after the classes were over or during vacant periods when other students were having a good time in the college canteen. The fear made me become addicted to my studies. The motivation that the fear provided changed my life and in my second year (which was not college internal exam as was 1st year-it was university exam), I stood third in the whole university scoring over 88% marks; and since then, there was no looking back- I was destined to be meritorious and excelled in all future fields that I ventured into.

I strongly believe that Fear is an excellent motivator!

- ***Fear could be a source of pleasant fun-*** Normally fear is always unpleasant and people tend to avoid it. But some people get a *kick* arising out of fear- How else roller coaster rides would become popular and people throng to take these rides. The rides instill fear as it takes us high and we get a kick out of this fear which is great fun. Horror movies attract moviegoers as it gives them thrilling moments of fear which they enjoy.

A Peep into 'FEAR'

- ***Fear could be a great moderator to keep us on the right path:*** - As parents, we have, on several occasions, guided our children by instilling fear in them so that they do not take the wrong path. Governments do so by imposing penalties-the fear of fines keeps you to follow traffic rules, fear of law keeps you abiding by laws of society, and so on... Fear is a good means to guide people to the correct path and prevent them to go astray.
- ***Fear helps us overachieve.*** An article in Brightsideme.com¹¹ asserts that There's a psychological state known as ***Cronos syndrome***, which is when people are afraid that they will be replaced by someone else in any sphere of their life, whether it be related to work, a relationship, or family. Psychologists claim that in moderate doses, this fear can help us prosper in our lives, and without such fear, many of us would feel a decline in our private or professional lives. When we're sure no one will replace us, we become relaxed about things we have and start getting lazy in our relationships and at work.

CONCLUSION

'Fear' has been there for ages as it is a basic instinct. In this paper, we have taken a peep into several facets of fear. Fear is there to stay and, ironically, an act of bravery of facing and overcoming fear is taken as a virtue whereas it is just a basic component of our survival instinct and we have to learn to live with it and harness the positive fruits it can give.

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A Peep into 'FEAR'

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Conflict of Interest

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