

People, Immunity and Nutrition: A Categorization

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Abstract:- A strong immune system is essential for maintaining good health and protecting the body against various infections and diseases. It helps the body fight off infections and reduce the risk of contracting illnesses such as the flu, colds, and other viral or bacterial infections. A body recovers faster from illnesses when the immune system is strong. It can also help individuals maintain good health and prevent chronic illnesses, leading to a better quality of life. Having a strong immune system is crucial for maintaining good health and preventing illness, leading to a better quality of life and reduced healthcare costs. The factors that can influence the strength of the human immune system are age, genetics, proper sleep, regular exercising, environment, medications and importantly intake and purchase of nutritional supplements.

To maintain overall good health and prevent illness and viral infections, It is important to prioritize immunity and make changes in lifestyle to maintain a healthy immune system. A categorization of people has been proposed based on the distinctive behaviors they show towards their immune system. The presented categorization is done based on the behavior that people may exhibit in response to their perception towards immunity and healthy body.

Keywords:- Immunity; Nutrition; Categorization; COVID-19; Pandemic; Immunity Aware; Immunity Vigilant; Immunity Conscious; Immunity Ignorant.

I. INTRODUCTION

The global population is growing rapidly and people are living longer and at the same time the living environment has changed substantially. This calls for a careful support towards human health and well-being, especially the immunity. The concerns regarding immunity have grown among people since the outbreak of COVID-19 pandemic which resulted in more than 3 million cases across the world in that duration in earlier years because of compromised immunity [1]. Human immune system plays a crucial role in maintaining good health. A strong immune system ensures a healthy mind along with a healthy body. The significance of having a strong immune system has increased post COVID. Since then, over a period of time when the environment is experiencing a different COVID strain every now and then, maintaining an adequate immunity has become more significant than ever. The stronger and sturdier the immune system is, the lower is the probability of an individual falling sick [2].

People are constantly exposed to harmful viruses capable of infecting the body due to negligence in day-to-day routine activities. Human immune system, which is a network of internal complex system and pathways in the body, has the ability to protect it against these harmful microbes as well as potential infections. The immune system is always active, examining for any threats and its activity is enhanced when the body gets infected. It takes immediate action against these microbes and viruses to perform necessary actions to control after recognizing the potential harm. This controlling mechanism is associated with actively regulating the metabolism which may require more absorption of energy. This energy and essential regulatory components are consequently derived from the diet. Hence an adequate diet comprises of a variety of nutrients which are considered to be the vital requirement of immune system to operate favorably. Without an effective immune system, the human body have no other way to fight against harmful entrants from the outside or harmful changes taking place inside the body. The human immune system acts as the body's first line of defense gifted since the time of birth. The first line of immune system consists of physical barriers such as skin, stomach acid, and mucosal lining present in the respiratory tract. All these prevent harmful materials from entering the body. If at all the viruses enter, this defense line fights against them and safeguards the human body from viruses, bacteria, and antigens [3].

A tough immune system is needed to fight against viruses, and if this weapon-guard system runs smoothly, the effect of germs and infections does not come to a notice. In case, it stops working or gets weaker to fight particularly aggressive germs, then an individual becomes ill. In addition, any alien virus that the human body has never encountered, also has the potency to make the body weak and results into illness. The immune system of human body recognizes harmful substances from the environment, neutralizes these substances, else fight these disease causing germs and remove them [3]. Immunity comprises of all the mechanisms and responses by the host to defend itself against bacteria, viruses or parasites [4]. Good nutrition helps build the immune system which is able to respond appropriately to the changes in the environment. It is sensible for individuals to consume sufficient amounts of essential nutrients to support their immune system to deal with pathogens in case they are infected [5].

II. WAYS TO BUILD IMMUNITY

In view of the foregoing, every individual needs to build a solid immune system. Some of the most commonly known ways of building a robust immune system are imbibing good habits, drinking enough water and staying hydrated, regular exercising, effective management of stress, getting sufficient hours of quality sleep, and eating nutritional supplements [6]. Intake of nourishing nutrition plays an important role in preparing the body for any environmental changes, infections and unexpected virus attacks. Following a specific dietary patterns may help the body to deal with any microbial attacks and excess inflammation, but it is unlikely that individual foods offer special protection. The response of body's immune system is built on the presence of a wide range of nutrients. Examples of nutrients that have been identified as critical for the growth and function of immune cells include vitamin C, vitamin D, zinc, calcium, potassium, magnesium, selenium, iron, and protein including the amino acid glutamine [7, 8]. They are found in a variety of plant and animal foods. Intake of different nutrients has a different benefit though people also consume multivitamins to cover the deficiency of various vitamins in the body [9]. Deficiency of even a single nutrient can alter the body's immune response. Animal studies have found that deficiencies in zinc, selenium, iron, copper, folic acid, and vitamins A, B6, C, D, and E can alter immune responses [10].

III. FACTORS AFFECTING IMMUNITY

Regular intake of nutrients may help the human body develop a tough line of immune system. As such, there are many factors which may alter the strength of the system despite of additional supplements, some of them which play a significant role are as follows:

- **Age:** With age, the strength of immune system decreases as the internal organs become less efficient due to deficiency in micronutrients. The body's capacity to fight against infections also decreases because of declining immune function.
- **Presence of toxins:** The presence of dust particles in the environment hampers the normal functioning and regular activity of immune system
- **Weight:** Excess weight can add to proneness towards diseases. More weight is due to more accumulation of fat in body. Fat tissues produces a chemical called adipocytokines that can promote inflammatory processes harmful for human body [11]. More fat in body leads to obesity as well which is considered as an individual factor for weakening in functioning of white blood cells [12].
- **Diet:** Lack of nutrients and adequate proteins may lead to impaired immune system, which affects the activity of the body functioning. This may impact the production of required number of immune cells.
- **Stress:** A stressful life may lead to a weaker body functioning. High pressure and burnout may suppress the functioning of immune cells.
- **Sleep and Rest:** Sleep is the restoration time for the body during which a type of cytokine is released that fights infections. Taking too little sleep may result in generating

less amount of these cytokines and other cells which improves immune system.

IV. PERCEPTION OF PEOPLE TOWARDS IMMUNITY

The perception of people towards immunity has undergone significant changes in recent years, especially with the COVID-19 pandemic. Having a lasting immunity has become now more important than ever, and people are increasingly concerned about maintaining a healthy immune system. People have become more aware of the importance of adequate diet and healthy lifestyle in maintaining a tough immune system. There is a growing trend towards natural and plant-based remedies, including foods and nutritional supplements that are believed to boost immunity. This includes foods that are high in vitamins, antioxidants, and other nutrients that support the immune system, such as fruits, vegetables, nuts, and seeds.

People are also increasingly interested in functional foods and essential nutrients that are believed to be specially designed to uplift immunity. These products may contain ingredients such as probiotics, prebiotics, vitamins, minerals, and herbs believed to boost the immune system. People are also interested in products that provide immune support for specific conditions, such as allergies or autoimmune disorders. The COVID-19 pandemic has also led to an increase in demand for immunity-boosting products, including nutritional supplements, vitamins, and functional foods. People seek out for products that they believe can help them with protection against illness and infection. The perception of people towards immunity has become more positive and proactive in recent years, with a greater focus on maintaining a healthy immune system through diet, lifestyle, and natural remedies [13].

V. CATEGORIES OF PEOPLE AND IMMUNITY

Immunity is the body's ability to defend itself against harmful pathogens like viruses, bacteria, and other foreign substances that can cause diseases. A sound immune system is crucial for maintaining good health and preventing infections.

Being aware of immunity means understanding how the immune system works and taking steps to keep it healthy. This includes practicing good hygiene, getting enough rest, eating a healthy diet supplementing it with quality nutrients, exercising regularly, and avoiding harmful substances like tobacco and excessive alcohol. It is also important to be aware of any medical conditions or medications that may affect one's immune system, and to work on it with the healthcare providers to manage these factors. People who are primarily aware of the possible factors that may impact their immune function adversely and take proactive steps to maintain a healthy immune system can be called "Immunity Aware" people.

"Immunity Vigilant" people are individuals who are particularly mindful of the potential threats to their immune system and take reactive actions to fight against infections and

disease. They may be especially concerned about exposure to infectious agents, such as bacteria and viruses, and take extra precautions to minimize their risk. Immunity vigilant people are highly dependent on routine consumption of essential nutrients, super foods or health supplements ranging from ayurvedic, herbal or home-made concoctions. The regular intake of alternative forms of medicaments is the evidence of their alertly watchfulness towards their health.

“Immunity Conscious” people are individuals who are specifically sensible to build a strong immune system and take corrective actions to fight against illness. They may be immensely concerned about seasonal infections, flu and viruses and their cognizance makes them follow doctor’s recommendations to avoid seasonal diseases. Immunity conscious people may adopt behaviors such as avoiding crowded places during flu season, sanitizing and washing their hands frequently, avoiding close contact with unhealthy individuals, regularly disinfecting surfaces at their home or workplace, and wearing protective gears such as gloves or masks whenever they particularly feel vulnerable. These individuals may also be more likely to follow medical recommendations and may take immune-boosting supplements or other products which are source of required nutrients to strengthen their immune system.

The last category of people are those individuals who either do not have sufficient knowledge about maintaining a healthy immune system or do not prioritize their immune system over other life expectations. They may not understand the importance of preventative measures to avoid illness and disease. These people can be categorized as “Immunity Ignorant” people. Such type of people may engage in unhealthy routine regimen, such as poor diet, lack of exercise, inadequate sleep, and do not believe in spending on or consuming any health-based products, nutritional supplements or super foods to build immunity. They may also ignore recommendations for spending on maintaining good health or fail to take precautions to prevent the spread of illness.

VI. CONCLUSION

Immunity is crucial for maintaining good health and fighting off a number of diseases. A good immune system is responsible for protecting the body from harmful pathogens such as viruses, bacteria, and other microorganisms. A strong immune system can help prevent infections, reduce the severity of illnesses, and promote faster recovery. There are many factors that can influence the strength of human immune system, including the lifestyle choices such as balanced diet, intake of holistic and healthy nutrition, exercise, purchase and consumption of additional supplements. Additionally, getting vaccinated against infectious diseases is an important way to boost immunity and protect against harmful ailments. A weak immune system can lead to various health problems, including frequent infections, slow healing, and chronic diseases such as autoimmune disorders. It is important to prioritize immunity and take steps to maintain a healthy immune system in order to prevent illness and disease and maintain overall good health.

A categorization of people has been proposed based on the distinctive behaviors they show towards their immune system. Some are highly circumspect for the changes in environment while some pay the required attention to boost their immune system to fight against any viral threats and infections. There are people who keep up their immune system sufficiently built up by following a healthy daily routine that they do not have to worry about any environmental variations while some people do not give much consideration towards boosting immunity. The presented categorization is done based on the behavior that people may exhibit in response to their perception towards immunity and healthy body.

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