



Awareness on Role of Immunity Boosting Foods and Physical Activity on Health (Post-Corona Pandemic)

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ABSTRACT:BACKGROUND:Effect of corona virus on the dietary habits and physical activity of a group of population is clearly asked in the form of a well organized questionnaire. Awareness of population on the food that can boost immunity is dealt.

OBJECTIVE:This study is done to draw the importance of food and exercise on health of a person. It mainly deals with foods that can boost immunity and sharpen the defence mechanism in our body. We investigated the relationship between awareness of immunity boosting food and lifestyle modifications pre and post corona pandemic in a group of population in Andhra Pradesh and Telangana, a relative healthy Indian cohort.

Method:The analysis used data from 311 young individuals of age group between 18 years and above belonging to healthcare and non healthcare professions in Andhra Pradesh and Telangana states of India.

Results:35.4% to 53.1% population tend to experience a change in their appetite in recent times and nearly 46% claimed that Covid-19 did effect their diet pattern. Almost 53% population stated that they added some traditional dietary methods to their regular diet after the pandemic. 58.5 to 67.2 percent population had increased their fruits and vegetable servings recently. 13.5% population added dry fruits to their diet post corona outbreak. A good sum of people mentioned that vitamin C and Zinc supplements are used by them. 7.45% population recently came to know that vitamin C and D are important immunity boosters. 42.4% are still using kadha (a traditional home remedy drink for cold and cough made with clove, peppercorn, ginger and tulasi leaves). 58.2 percent population made efforts to research and know about immunity boosting foods that can sharpen their immunity. People tend to consume less from restaurants and take less processed food as a part of their shift to a more concerned lifestyle. Most of them did yoga, exercise and consumed good quality

food with immunity boosters to stay fight and healthy during lock down. Majority of the population claimed that their diet habits moderately changed after pandemic. 88.7 percent of the population prefer to maintain consistency in consuming good quality diet and do some physical activity daily to stay healthy and avoid many diseases that linked to obesity. Maximum percent of the population felt it extremely important to change their dietary habits and adapt to consuming food with enriched nutrition.

Conclusion:It is of greater importance to enlighten ourselves and others about what we consume and what we do to stay healthy. Good health and a better immunity status of an individual can help one combat major invaders that invade our body and try to destroy it. In my study, majority of population tend to show a difference in their lifestyle after corona pandemic. The population I choose, also prefer to maintain consistency in the lifestyle that helped them reach their health goals

This study investigated the knowledge of immunity boosting foods and lifestyle modifications of a group of individuals. In accordance with our hypothesis, we demonstrated that immunity boosting foods can help one reach to a good health which can help them fight against various pathogens. Proper physical exercise can help every individual stay fit and helps one not to be prey of any diseases for which obesity is a risk factor. Furthermore, we concentrated about how corona outbreak influenced people to adapt to a lifestyle which is healthy.

The striking feature of the analyses is about the effort people put through dietary and lifestyle modifications to stay strong during an outbreak. This study also dealt with the aims of a group to reach desired health status.

I. INTRODUCTION:

Throughout centuries, food has been recognized as important for human beings in health and disease. The history of man to a large extent has been a struggle to obtain food. Consuming food



of high nutritional status enables us to grow well and enjoy good health. Nutritional status of an individual is influenced by the adequacy of food intake both in terms of quality and quantity and also by the physical health of the individual.

Corona virus has impacted communities around the world to an extent where people became very conscious about what they eat and how hygienic they are. People around the world took various steps to stay healthy during the outbreak. Throughout the world people took various preventive measures like washing hands, wearing mask, staying away from sick people and taking good nutritious foods, which helped many go a long way in reducing risk from various bacteria, viruses and other pathogens.

In addition there is evidence that nutrition and other lifestyle measures influence immune strength and susceptibility to infectious diseases. Whether these measures do or do not influence susceptibility to Covid-19 or its clinical course is not yet known. However, there is every reason to put what we do know about foods and immune defenses to use and fight this outbreak which may take a long run to disappear.

Eating a low fat, plant-based diet may help give the immune system a boost. The immune system relies on white blood cells that produce antibodies to combat bacteria, viruses and other invaders. Studies have shown that limiting dietary fat helps strengthen immune defenses. Researches also show that oil may impair WBC function and that high fat diets may alter the gut microbial that aid immunity.

Fiber can lower BMI, which is linked to improve immunity. A plant based diets effective for weight loss, because they are rich in fiber, which help fill you up, without adding extra calories. A plant based diet has also been shown to reduce inflammatory biomarkers.

Studies have shown that fruits and vegetables provide nutrients like beta-carotene, vitamin C, vitamin E that can boost immune function. Because many vegetables, fruits and other plant based foods are rich in antioxidants, they help reduce oxidative stress.

Dietary antioxidants are substances which are both nutrients and non-nutrients. These antioxidants reduce the adverse effects of reactive oxygen species (ROS) and nitrogen species which are generated during physiological or pathological conditions and result in oxidative damage. Literature is replete with evidence that ageing and several other diet related chronic disorders are due to chronic exposure to reactive oxygen species. There are several endogenous and exogenous

sources of reactive oxygen species, which play an important role in diseases such as cardiovascular, cancer, cataract, diabetes, neuro-degenerative disorders and age-related masculopathy. Further, researches in this field has highlighted the mechanistic details about the role of antioxidants in mitigating the damage. It is well established that vegetables, fruits, legumes, spices, cereals, beverages such as tea and wine are excellent sources of antioxidants. Hence, adding foods with antioxidants to ones own diet proved to be advantageous.

Beta carotene is a powerful antioxidant that can reduce inflammation and boost immune function by increasing disease-fighting cells in the body. Excellent sources include sweet potatoes, carrots, green leafy vegetables.

Vitamin C is a potent antioxidant and has a major role in tissue oxidation. It is needed for formation of collagen, which accounts for 25% of total body protein. Vitamin C facilitates in the absorption of iron from vegetable foods. It inhibits nitrosamine formation by the intestinal mucosa. Other claims such as prevention of common cold and protection against infections are not substantiated. Sources of vitamin C include red pepper, oranges, strawberries, broccoli, mangoes, lemons and other fruits and vegetables.

Vitamin E which is also an antioxidant helps to destroy free radicals and support body's natural immune responses. Vitamin E sources include vegetable oils, egg yolk, butter, nuts, seeds, spinach, broccoli. The current estimate of vitamin E requirement is about 0.8mg/g of essential fatty acids.

Researches show that Vitamin D supplementation may reduce the risk of viral infections, including respiratory tract infections by reducing production of pro-inflammatory compounds in the body. Increased vitamin D in the blood has been linked to prevention of other chronic diseases including tuberculosis, hepatitis and cardiovascular diseases. Food sources of vitamin D include fortified cereals, plant based milks and supplements, fish liver oils, animal fat.

Iron is of great importance to human nutrition. Lack of iron directly effects immune system; it diminishes the number of T-cells and the production of antibodies. The central function of iron is oxygen transport and cell respiration. Cereals, green leafy vegetables, legumes, nuts, oilseeds, jiggery, and dried fruits.

Zinc is a mineral that can help boost WBCs, which defend against invaders. It is a vital component of WBC. Zinc deficiency often makes one more susceptible to flu, cold and other viral



infections. It is advisable to take zinc supplementation, especially for older people. Sources include nuts, pumpkin, sesame seeds, beans and lentils.

Foods like elderberry, turmeric and garlic have shown to be very effective immune boosters. Elderberries are full of nutrients including minerals like phosphorous, potassium, iron, copper and vitamins, such as vitamin A,B and C, proteins and dietary fibre. Elderberries have antibacterial and antiviral qualities which help fight cold and influenza. The bright yellow spice, Turmeric, contains a compound called curcumin, which boosts the immune function. Garlic has powerful anti-inflammatory and anti-viral properties which enhance body immunity.

The Ministry of AYUSH has recommended the following self-care guidelines as preventive measures and to boost immunity with special reference to respiratory health.

1. Drink warm water throughout the day.
2. Practice Meditation, Yogasana and Pranayama.
3. Increase the intake of turmeric.
4. Drink herbal tea or decoction of Holy basil, Cinnamon, Black pepper, Ginger and Raisin.
5. Avoid sugar and replace it with jiggery if needed.
6. Apply Ghee (clarified butter), Sesame oil, or Coconut oil in both the nostrils to keep the nostrils clean
7. Inhale steam with Mint leaves and Caraway seeds

Staying physically fit and having proper sleep add on to good health of a person. Regular physical activity like exercise and yoga helps reduce risk of heart attack, helps manage weight, lowers blood cholesterol, lowers the risk of type 2 diabetes and some cancers, lowers blood pressure and helps a person have stronger bones, muscles and joints and lowers risk of developing osteoporosis. No proper exercise leads to obesity which is indeed a major risk factor to many diseases. Sleep plays a major role in physical and mental health. For example, sleep is involved in healing and repair of your heart and blood vessels.

Various studies have been established to describe the importance of immunity boosting foods which are immensely important to stay healthy. Some studies have mentioned about how supplementations can help a person increase his or her immunity.

In this study, we sought to investigate the variation in knowledge of a population about immunity boosting foods and various lifestyle modifications pre and post-pandemic. People of age group between 15 years to 40 years from Andhra

Pradesh and Telangana states in India are selected for study. We hypothesized how knowledge of immunity boosters in a population and better lifestyle modifications can help them fight many disease causing invaders. A questionnaire about awareness of immunity boosting foods and lifestyle modifications are collected, and also what percent of the population are aiming to end up with good nutritional status is calculated.

II. METHODS

STUDY DESIGN AND SUBJECT SELECTION

"Awareness of immunity boosting foods and lifestyle modifications post corona pandemic outbreak" questionnaire which included medical history, knowledge of immunity enhancing foods, physical activity, lifestyle modifications, aims to attain good health and demographic information are collected.

The following exclusions were implemented:

Age <15 years and >40 years, invalid responses corresponding to unanswered pages or sections of the questionnaire

EXPOSURE VARIABLES

Study participants were asked to give information regarding their knowledge of immunity boosting foods pre and post pandemic and they are also questioned about their lifestyle modifications post corona outbreak. They are asked to answer questions about their aims and efforts that they did put and are going to put for a healthy life.

LIFESTYLE AND SOCIODEMOGRAPHIC COVARIATE DATA

Sociodemographic and lifestyle factors were assessed with the use of questionnaire at baseline and included age, sex, locality in Andhra Pradesh or Telangana states in India.

III. RESULTS

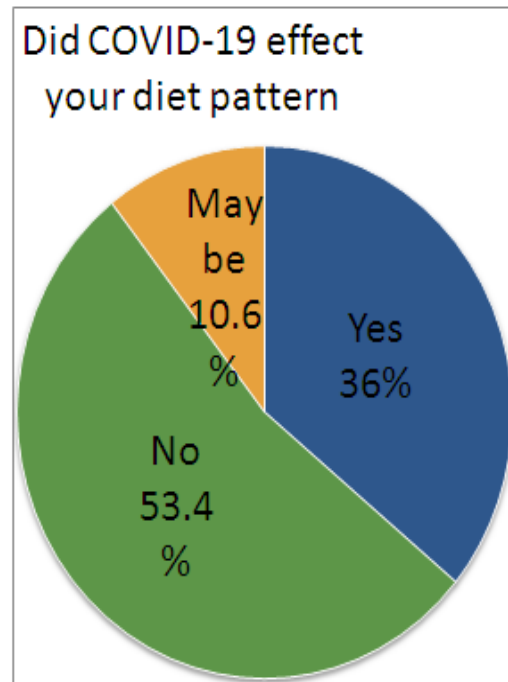
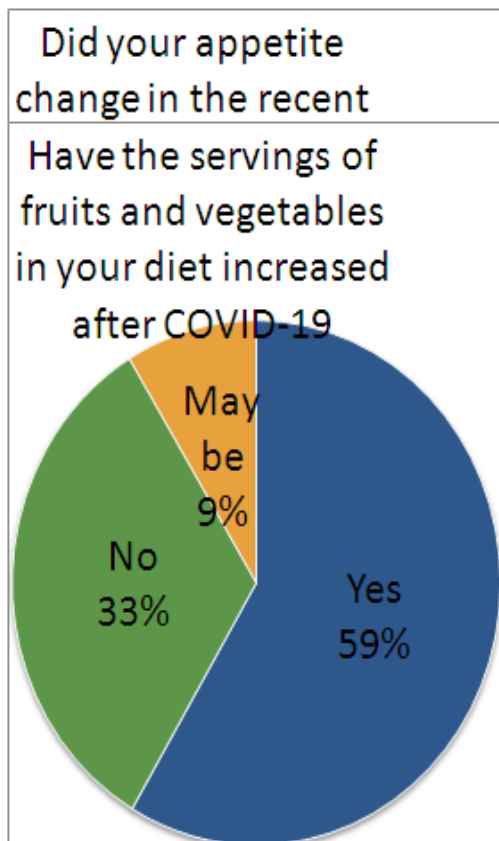
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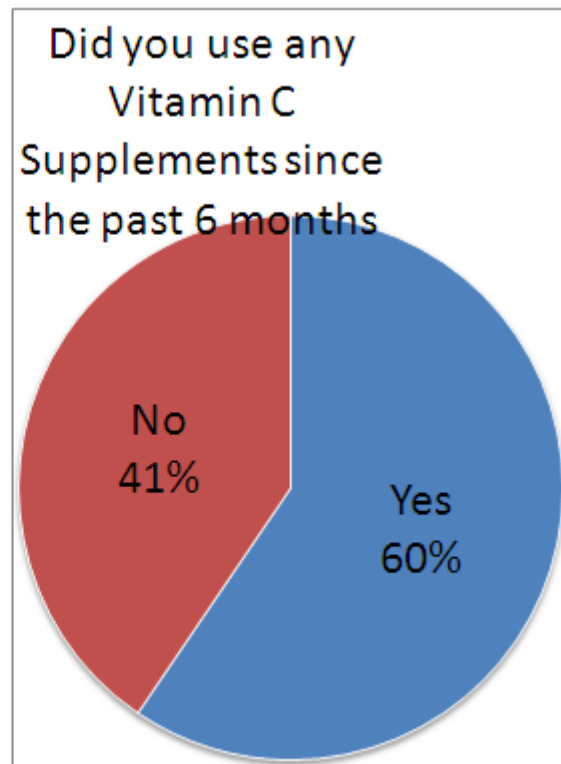
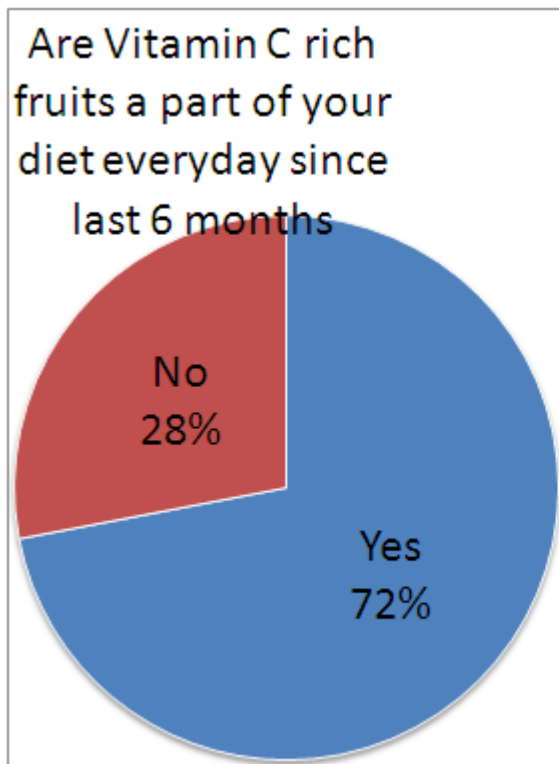
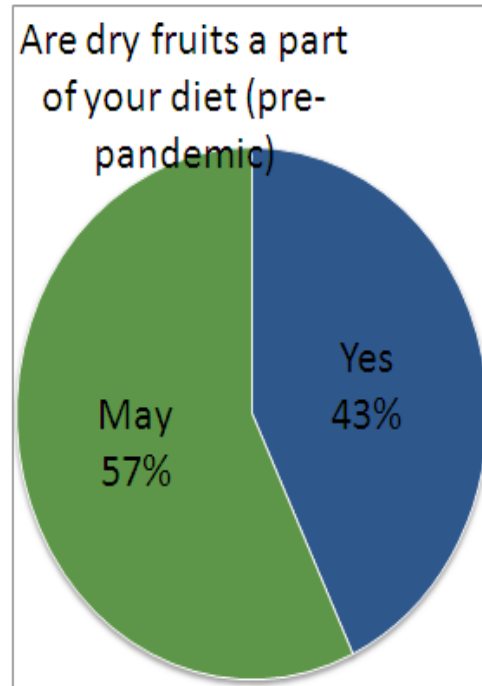
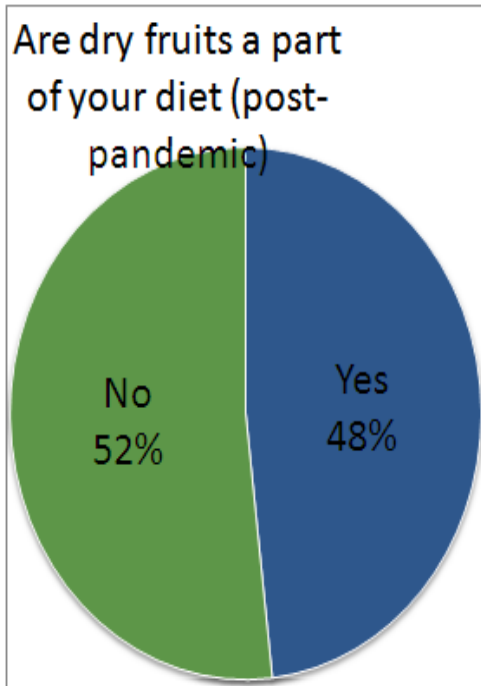


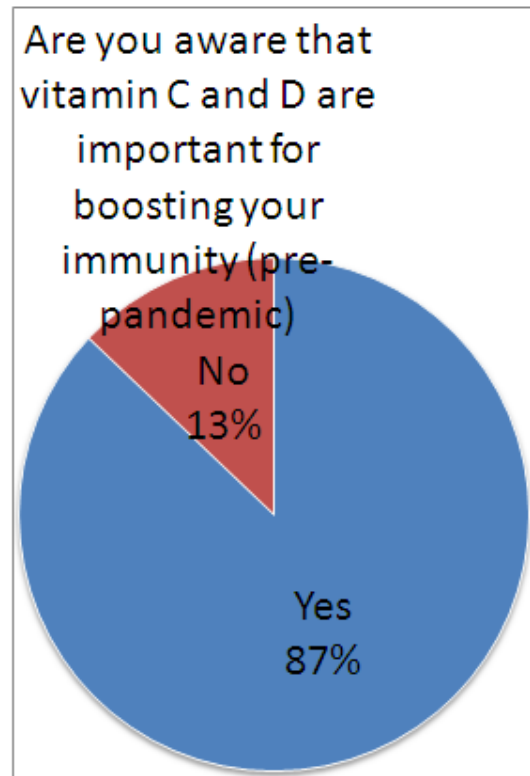
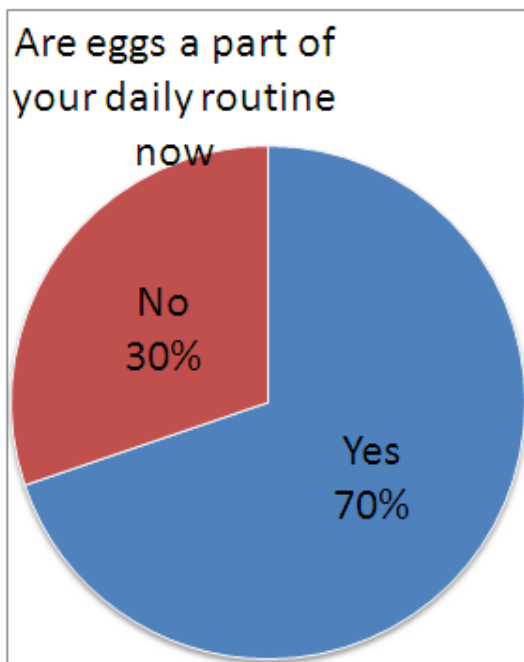
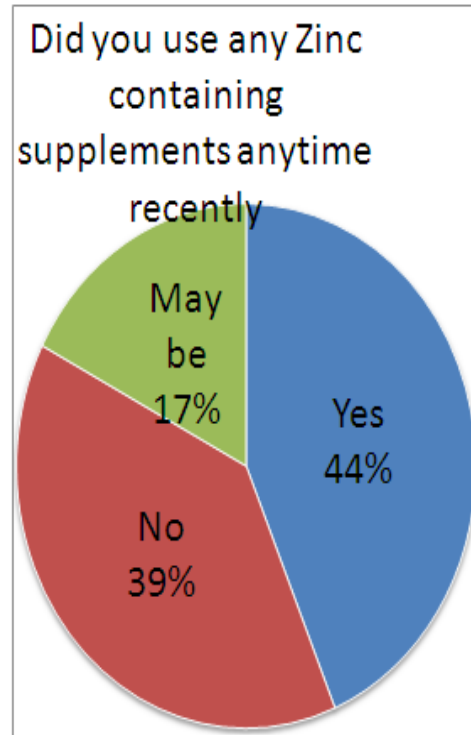
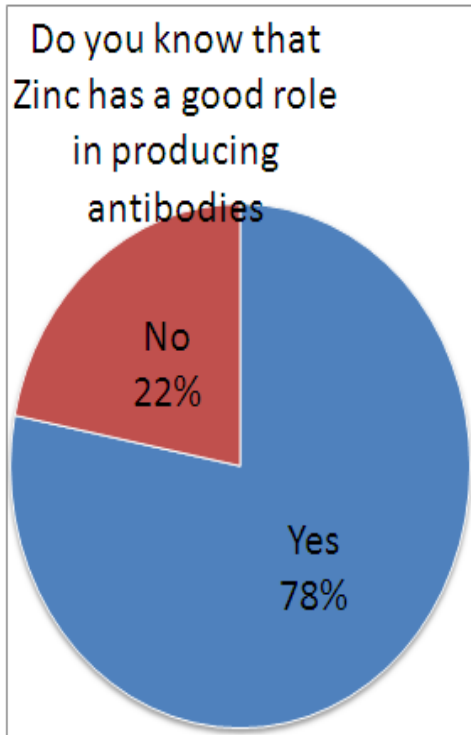
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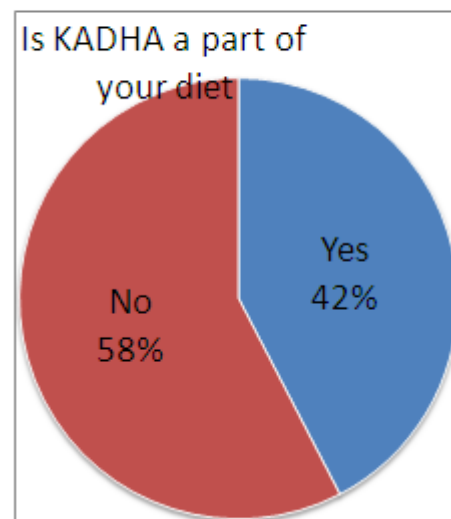
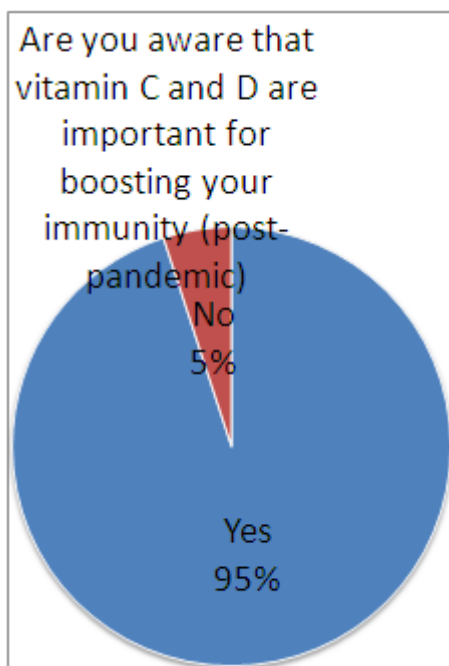
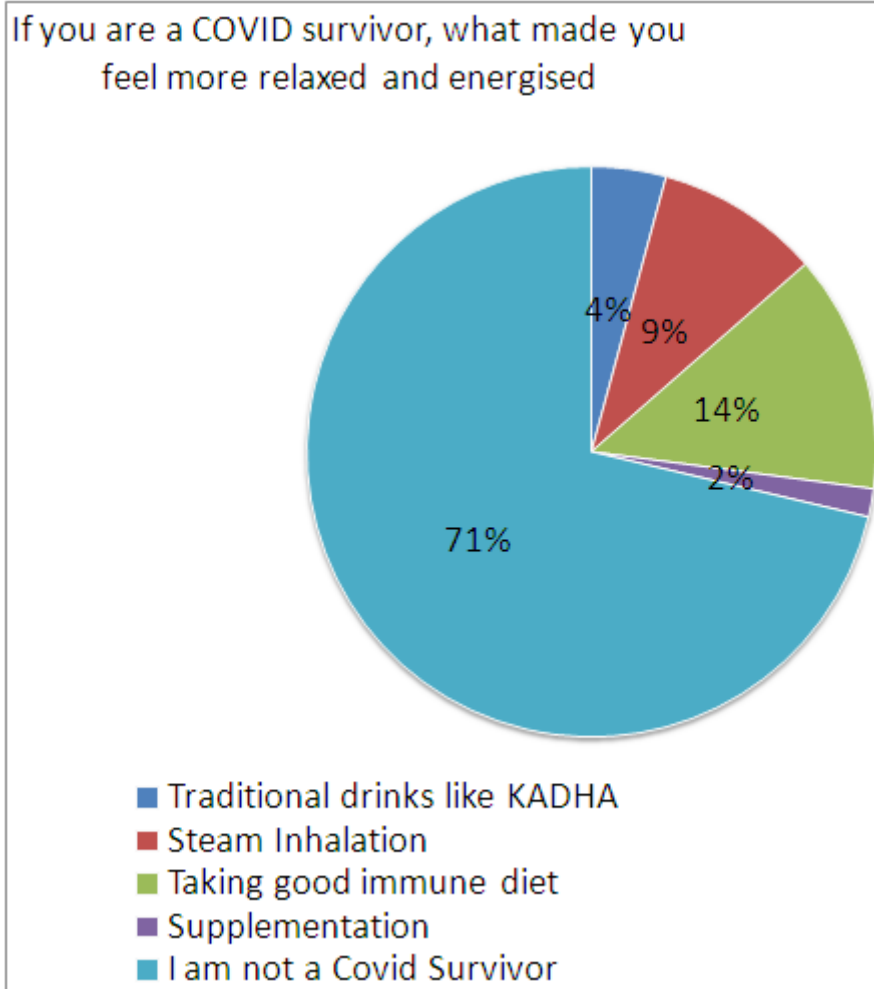
extremely important to change their dietary habits and adapt to consuming food with enriched nutrition.

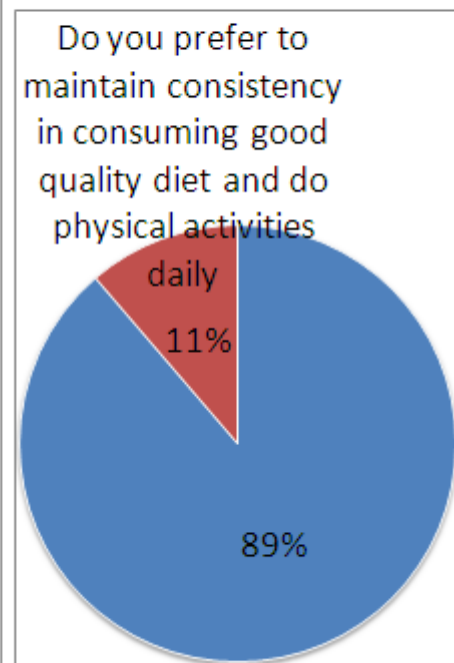
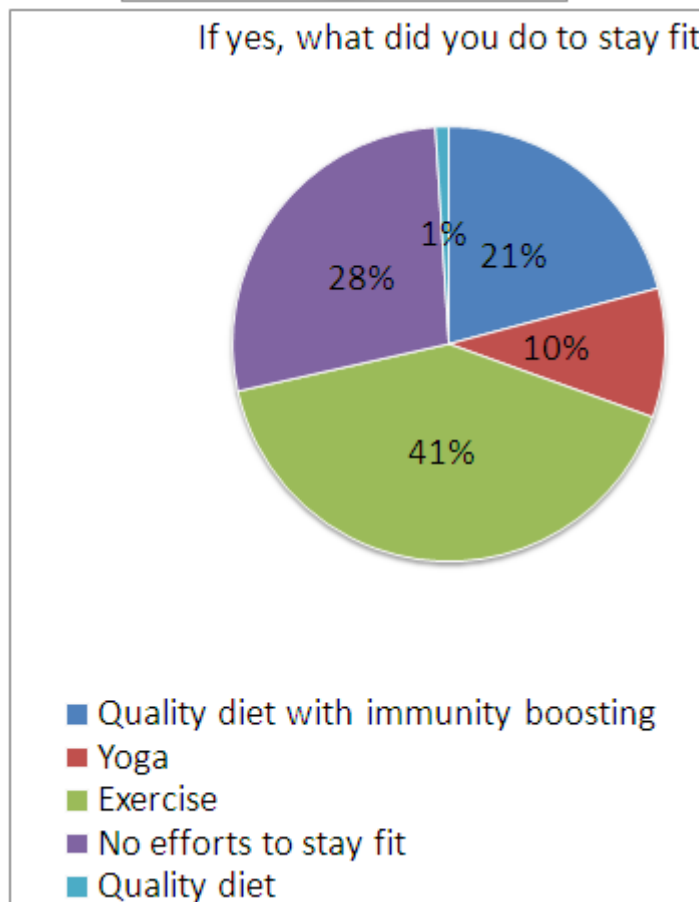
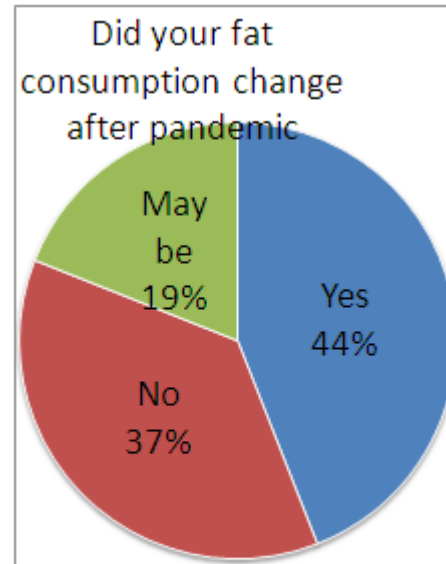
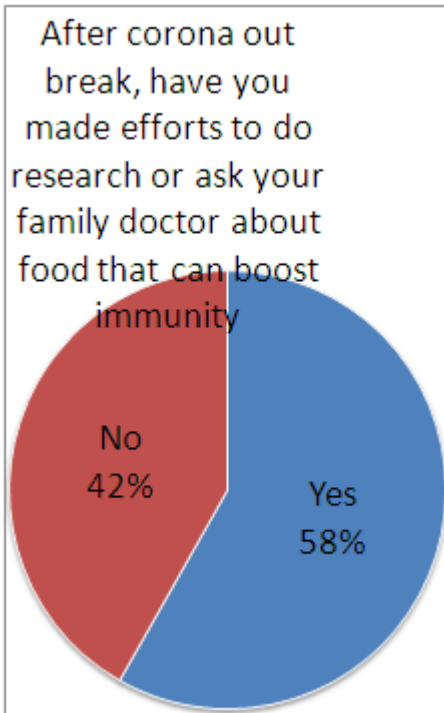
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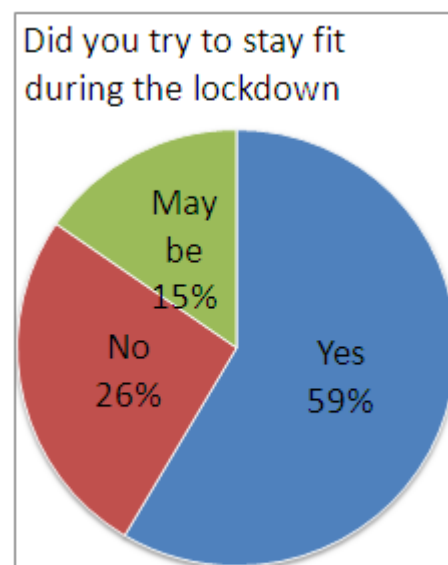
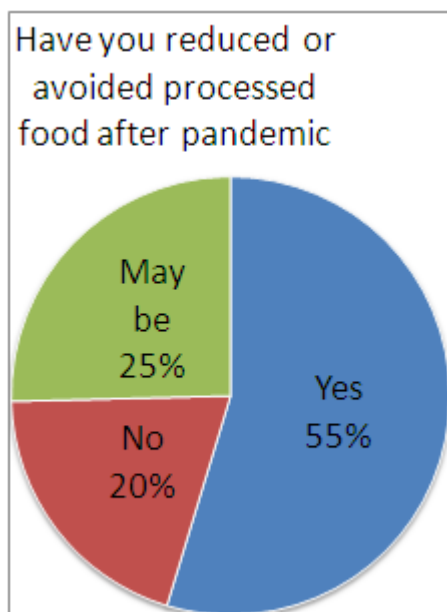
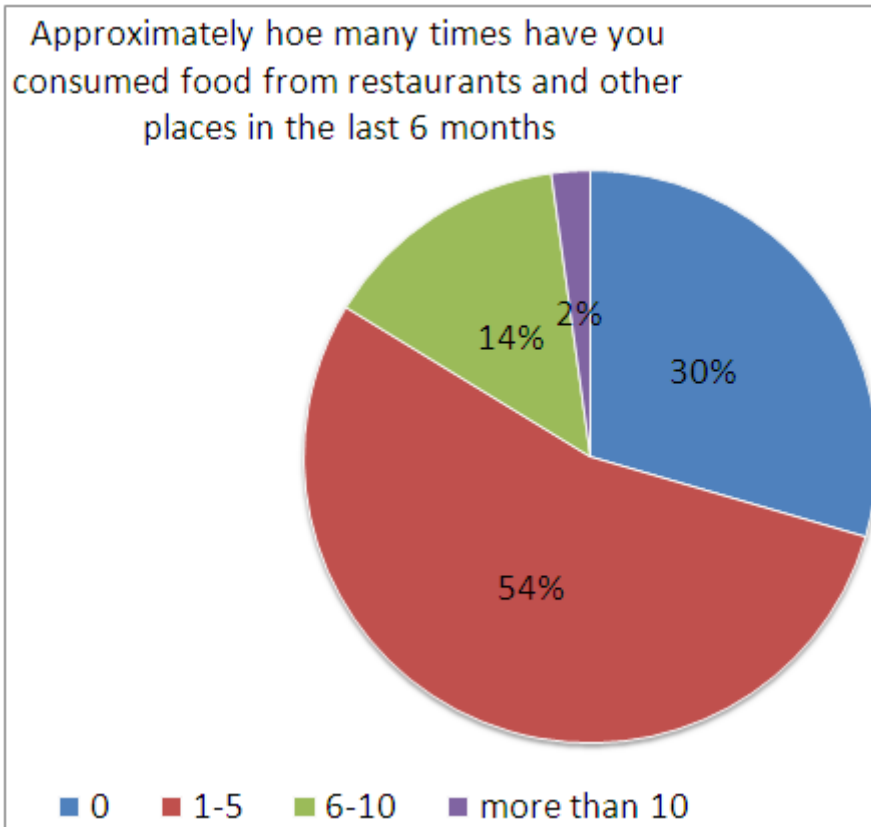


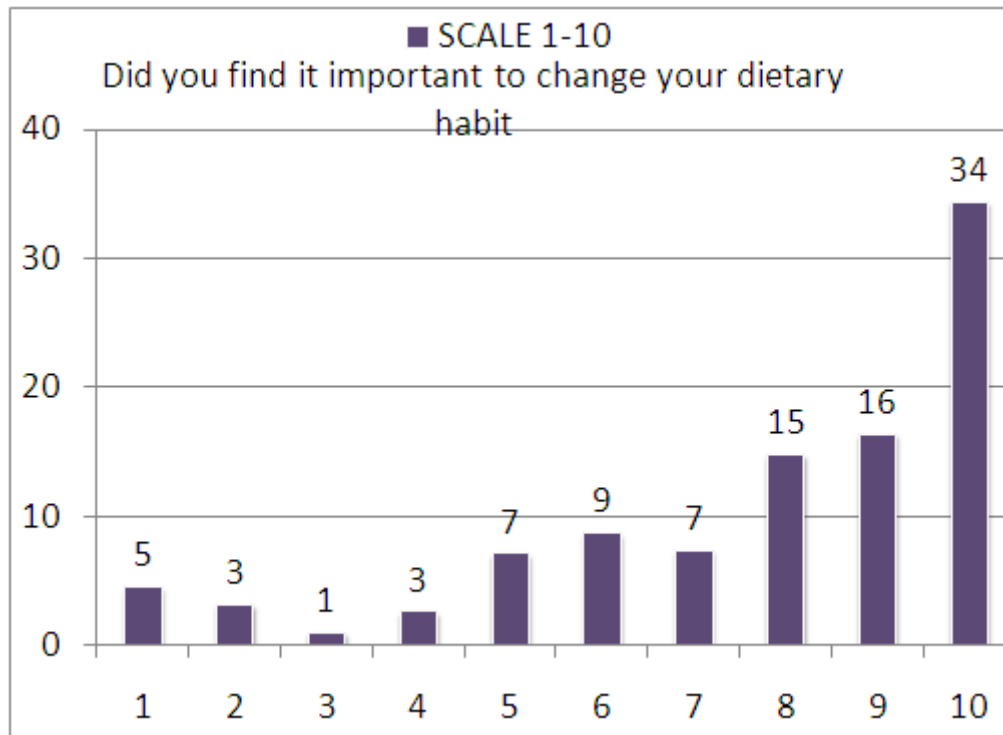












IV. DISCUSSION

PRINCIPAL FINDINGS

This study investigated the knowledge of immunity boosting foods and lifestyle modifications of a group of individuals. In accordance with our hypothesis, we demonstrated that immunity boosting foods can help one reach to a good health which can help them fight against various pathogens. Proper physical exercise can help every individual stay fit and helps one not to be prey of any diseases for which obesity is a risk factor. Furthermore, we concentrated about how corona outbreak influenced people to adapt to a lifestyle which is healthy.

The striking feature of the analyses is about the effort people put through dietary and lifestyle modifications to stay strong during an outbreak. This study also dealt with the aims of a group to reach desired health status.

STRENGTHS AND WEAKNESSES

This study has several strengths. It aims for bettering lifestyle by adapting to healthy food habits focusing mainly on the immunity boosting foods and physical activity. This study has fair number of participants of different age groups and different professional background..

Not much variability in locality is considered, which is a major drawback. Present health status of individuals is not asked.

ACKNOWLEDGEMENTS

The author responsibilities were as follows: designed and conducted the research and wrote the paper and analyzed the data had primary responsibility for the final content.

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<https://docs.google.com/forms/d/1GHZJE6CFJzC7YWSEgWuYJXywfuz6cqX6h4FhUW1-Gdc/edit?gxids=7757#responses>