Dietary Guidelines and Optimum Vaccine to Withstand Corona Virus in Libya: Nutritional-Based Survey

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Abstract

The aim of this work was to study potential age and gender difference in adult vaccinated Libyan individuals, and it is to spot the dietary guidelines and the optimum vaccine with fewer side effects to withstand corona virus. 200 Libyan adult vaccinated individuals (100 males and 100 females) aged 20-65 years old were randomly selected for a nutritional questionnaire regarding diet study from 1 February to 1 August, 2021 in Derna city at eastern Libya. Participants were not suffered from health problems. The questions were focused on participant’s dietary status during corona crisis including eating fast foods, drinking water, eating vitamin C, high fibers, zinc and proteins rich foods. Also, the study was achieved on 989 Libyan vaccinated individuals and had side effects (537 men and 452 women) aged from 20 to 75 years from east, west, south and central regions of Libya from 1 September, 2020 to 1 September, 2021. The used vaccines were AstraZeneca, Sputnik V, Sinopharm, Pfizer and Novavax. The information about the appearance of side effects of vaccinated people was obtained from doctors and nursing staff from several hospitals at different regions in Libya. Women had higher interest in eating healthy foods than men as a way to fight corona virus, but they tended to be more negative than men in their attitudes about corona virus crisis with a percentage of 22%, 12%, respectively. There is a statistically significant (P = 0.013) between women and men according to consuming healthy diet. Corona virus vaccines cause side effect for both men and women aged 60 years and above, but old men more effected than old women. This is because women may mostly care about having healthy nutrition. The best vaccine gives leaser side effects is Novavax vaccine followed by Pfizer vaccine.

Introduction

Corona virus or COVID-19 is the largest pandemic airborne disease on the earth directs to a severe acute respiratory disorder. The corona virus sickness causes serious viral pneumonia lead to loss of taste and smell and significant respiratory disappointment. [1, 2, 3] This airborne disease affect the survival of individuals in the world and it has been the chief source of death in non-industrial countries. [1, 4] The human respiratory system offer natural protection, such as the mucous membrane and cilia in the lining of the airways, which hold up virus from sticking to cell surfaces and facilitate their expulsion by sneezing or coughing, but smoking, air pollution, bad nutrition, weak vaccine damage those potentials. Moreover, human body infected by a corona virus rapidly ejects or kills it by releasing phagocytes that kill or destroy virus. This guard system to protect against corona called immune system. [5] Good nutritional diet with appropriate vaccine can protect the immune system from corona virus pandemic and maintain the strength of the immune system. [6,7] Nutritional condition of individuals is influenced by numerous factors including age, sex, health status, life style [6] and type of vaccine. Throughout corona virus pandemic, nutritional condition has been utilized as a gauge of resilience.
toward destabilization. Choosing the appropriate vaccine that produces the least side effect and plan the optimum vitamins A, B12, B6, C and E rich diet consider the best way to improve health and fight against the viral corona infection. [6,7] The positively change in eating patterns, sleeping habits and physical activity promote the strong immune system and develop optimum health. No diet or food supplement can prevent corona. Only vitamin C can protect human body against viral infection. Thus, food rich vitamin C is one of the best ways to progress the immune system from corona viral infection invasion. “The daily recommended allowance of vitamin C is 90 mg/d for men and 75 mg/d for women”. In the corona virus situation, it is needed to be aware of the definite types of food and vaccine those can progress the human immune system with the aim of fight corona virus. [6, 8]. World Health Organization (WHO) implied that beside good nutrition to fight corona virus, active vaccines that work over a specified time period with no negative side effects is required. [9] In addition, viral vector vaccines generate physically powerful immune responses with long-term protection. But, these vaccines may also lead to serious difficulties, such as thrombosis. [10] In comparison, inactivated vaccines are safe for human immune system regularly encourage a weaker immune response than vector-based viral vaccines. [11, 12] This study aimed to know potential age and gender difference in adult vaccinated Libyan people, and it is to identify the dietary guidelines and the optimum vaccine with fewer side effects to withstand corona virus.

Materials and Methods
Nutritional-Based Survey Study

Approximately, 200 Libyan adult vaccinated individuals (100 males and 100 females were randomly selected for a nutritional questionnaire regarding diet study during six months from 1 February to 1 August, 2021 in Derna city at eastern Libya. Participants did not suffer from health problems. This survey study supports public people to know the optimum nutritional foods beside their vaccinations for protecting from corona virus infection. A questionnaire-based diet was sent to all participants aged 20 to 65 years at their home. Questions were posed regarding which nutritional foods during current corona crisis the participants consumed. The questions were focused on dietary status concerns including eating fast foods or meals from restaurants, drinking water, eating vitamin C rich foods including oranges, kiwi, lemon, grapefruit, strawberries, eating high fibers rich foods including whole grains, raw vegetables and fruits, eating foods containing proteins such as milk, fish, sea foods and tree nuts, taking zinc rich foods including avocados, meat, poultry and chocolates, as well types of foods they mostly consumed. Also, questions focused on participant’s attitude about corona virus crisis.

Data Collection of Vaccinated Individuals

The present work was performed on 989 Libyan individuals who took vaccination against corona and had side effects (537 men and 452 women) aged from 20 to 75 years from east, west, south and central regions of Libya. The data collected in the period from 1 September, 2020 to 1 September, 2021. Participants were not suffered from health problems. The used vaccines were AstraZeneca, Sputnik V, Sinopharm, Novava and Pfizer. The information about the appearance of side effects on people who took the corona virus vaccination was obtained from doctors and nursing staff from different hospitals at several regions in Libya. Doctors and nursing staff were asked about types of vaccines used, the safest vaccines with fewer side effects, the most resistant age group and the most age group had a high death rate.

Statistical Data Analysis

Descriptive statistics were performed using SPSS Statistics Software Program (version 20, Inc., Chicago, Illinois, USA). The Pearson Chi-Square test was used to assess the significance of the association between vaccinated participants depending on their healthy diet and vaccine’s side effects according to age and gender. In all tests, α <0.05 was regarded statistically significant. All confidence intervals (CIs) were calculated at the 95% level of statistical significance. Graphs and percentage formulas of patients diagnosed with chronic diseases and infected with corona virus were calculated using Microsoft office excel 2020 program.

Results and Discussion
Nutritional Status Study and Vaccinated Individuals

Data of 200 vaccinated individuals (100 males and 100 females aged from 20 to 65 years were performed for a nutritional survey study throughout 180 days to lend a hand of public people to know the optimum nutritional foods beside vaccines fight against corona virus infection. The participants agreed to interview them and answer questions related to their dietary status to recover corona infection. All 200 participants were more likely to drink at least 1 liter of water daily and they were consumed regularly Libyan traditional foods. Along with 100 interviewed men who vaccinated against corona virus, 38 men were consumed mostly fast foods or meals from restaurants, whereas 34 men were had an interest in eating foods rich in vitamin C and high fibers, especially during the period of high infection among general public. Also, 17 men were mainly consumed foods containing proteins, while 11 men were mainly consumed zinc rich foods (Figure 1). One of the significant finding in this effort, men more likely prefer eating fast foods than foods rich in vitamin C, high fibers,
zinc and proteins. A prior study implied that men prefer consuming processed fast foods. [15] However, a previous study documented that foods rich in vitamin C were the best nutrition to fight corona. [6, 8]

- Consume fresh fruits or their juices every day such as oranges, apples, guavas, strawberries, banana, and grape and cantaloupe melon.
- Have fresh vegetables such as garlic, ginger, lime, green peppers, broccoli, beans and legumes.
- Consume whole grains, un processed nuts, oats, wheat and brown rise.
- Have red meat twice per week, poultry 3 times weekly and fish or eggs twice time per week.
- Drink valuable amount of water daily.
- Have milk and milk products every day.
- Wash fruits and vegetable earlier than eating.
- Keep cooked food away from raw food to prevent contamination.
- Use different chopping boards for fruits, vegetables and meat to prevent cross contamination.

**Figure 1: Percentage of Dietary Status of Men (n = 100).**

In comparison, all women in this study were had powerfully interest in consuming foods rich in vitamin C, proteins and zinc and they did not prefer eating fast foods or meals from restaurants, in particular during the period of high infection among universal public. This point to those women had higher interest in eating healthy foods than men as a way to fight corona virus. A previous study documented that women had superior knowledge to pick out diet healthiness and diet avoidance than men. [15] There is a statistically significant (P = 0.013) between women and men according to consuming healthy diet. Among interviewed men and women, women tended to be more negative than men in their attitudes with a percentage of 22 %, 12%, respectively. This similar to an earlier research explained that females tended to have depressing thoughts about corona virus crisis than males. In general, more than third of people worries about the healthiness of their nutritional diet and females were more anxious over having bad nutrition. [15] Researchers in the earlier period gave details about correct nutrition may affect positively on health during corona’s outbreak. [1] Vitamin C rich diet such as oranges, kiwi, lemon, grapefruit, strawberries considers the most excellent approach to get better health and fight against the viral corona infection. [6,7] Furthermore, high-fibers rich foods such as whole grains, raw vegetables and fruits, foods containing proteins such as milk, fish, sea foods, tree nuts and selenium and zinc rich foods may stimulate antioxidants and anti-inflammation formation to guard from corona virus. [1, 6] Additionally, a proper healthy diet can encourage immune system to resist corona virus. [1] As a dietary agenda in line with present guidelines to fight corona virus and enhance the stronger immune system, public people should follow these tips: [1, 6, 15]

This effort included data on approximately 989 Libyan cases took vaccination against corona virus and had negative side effects. Participants were not suffered from health problems. The vaccine types include AstraZeneca, Sputnik V, Sinopharm, Novava and Pfizer vaccine. 989 cases were from different regions of Libya including 652 (65.9%) cases from the west, 166 (16.8%) cases from the east, 144 (14.6) cases from the central and 27 (2.7%) cases from the south. Of 989 cases, there were 537 men (54%) and 452 women (46%) from east, west, south and central regions of Libya. Among 989 cases, there were 982 cases (99.3%) from Libya and 7 cases (0.7%) from foreign countries. There were statistically significant difference (P = 0.045) between men and women took vaccinations against corona. The cases took vaccination aged from 20 to 75 years. There were 229 old men (23.2%) and 178 old women (17.9%) had negative side effects from corona vaccination. Data found that the side effects of vaccination increased with age in order that, the cases aged 60 years old and above were more negatively affected by vaccination than other age groups (Figure 2). Old men were more likely 5.3% have side effects from corona virus vaccination than old women. There was no significant difference (P = 0.399) between old men and women to have side effects from corona vaccination. This indicates that corona vaccine may cause side effects for both men and women aged 60 years and above, but old men more effected than old women. This is because women may care about having healthy nutrition. [15] However, nutritional situation is influenced by age, sex, health status, life style [6] and type of vaccine. A prior study implied that people
aged 60 years old and over were the most affected by the severity of the vaccine. [13]

**Optimum Vaccine**

The significant finding in this work that vaccinations caused many side effects including a headache, bleeding, fatigue, muscle pain, cough, diarrhea, swelling etc. Among 989 cases, there were 720 cases (72.8%) were complained of headache and fatigue followed by 650 cases were suffered from muscle pain and 620 cases were had nausea and joint pain. This indicates that taking the vaccinations may lead to some health complications. This similar to a previous study reported that some symptoms may emerge after taking the vaccines. [12] These side effects arranged from mild to server symptoms. [10, 12] Practically, in this study, 955 cases (96.5%) had mild side effects after taking the vaccination, while 34 cases (3.4%) had serious symptoms. In addition, the present effort offered that the majority symptoms and side effects were from AstraZeneca vaccine (58%), whilst the Novavax vaccine gave the least side effects (1%) followed by Pfizer vaccine provided (2%) (Figure 3). As well, the percentage of side effects of Sputnik V vaccine was 30%, whereas the percentage of side effects of the Sinopharm vaccine was 9%. This point to that Novavax vaccine and followed by Pfizer vaccine have a lesser amount of negative effect than other vaccinations. This is for the reason that Chinese vaccine such as Pfizer holds a dead virus, consequently the side effects are mild with a little rise in a temperature and do not exceed the sensing of pain at the position of the needle. [14]

**Conclusion**

Food rich in vitamin C, zinc, high fibers and proteins considers the most excellent approach to get better health and fight against the viral corona infection. Among 200 Libyan vaccinated participants of nutritional-based survey, women had superior information to choose diet healthiness than men, but they tended to be more negative than men in their attitudes about corona crisis. Among 989 Libyan vaccinated participants, corona virus vaccines cause side effect for both men and women aged 60 years and above, but old men more effected than old women. This is because women may care about having healthy nutrition. The best vaccine gives less side effects is Novavax vaccine followed by Pfizer vaccine.

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**References**


**Figure 2:** Age Groups and Gender of Individuals Took Corona Virus Vaccinations (n =989).

**Figure 3:** Percentage of The Side Effects of Vaccines.


