

## Evaluation of preliminary response to Coronavirus Vaccination among the residents of the Tarhuna region

Ali Guma Azbida, Wafa Mohammad Ali and Faraj Kamis Sagar

Faculty of Medical Technology, Azzytona University.

### الملخص:

ركزت هذه الدراسة على الاستجابة الأولية للقاح فيروس كورونا بين سكان منطقة ترهونة، حيث بلغ إجمالي السكان المتلقين للجرعة الأولى من لقاح كورونا 1604 حتى نهاية فترة هذه الدراسة، وتم التحصين في سبع عيادات على النحو التالي: ترهونة المدينة 557 ، سيدي الصيد 254 ، الخضراء 193 ، الداون 199 ، سوق الأحد 219 ، عقبة بن نافع 87 ، سوق الجمعة 95، وأظهرت النتائج أن نسبة الأشخاص الذين تم تطعيمهم ضد Covid-19 تمثل 0.69% من إجمالي سكان المنطقة. في نفس الاتجاه، كان التركيز الأعظم على كبار السن لتلقي لقاح Covid-19، حيث كان عدد من تلقى اللقاح من الفئة العمرية العمر < 50 1260 بنسبة 78.55% من إجمالي المحصنين في هذه الفترة، وشهد شهر مايو أعلى عدد من الملقحين (1464) بنسبة 91.27%، وقد كان اللقاح الصيني (Sinovac) هو الأعلى استخداماً بين اللقاحات الأخرى، انتهت هذه الدراسة بمجموعة من الحقائق حول الاستجابة للقاح Covid-19 في مديرية ترهونة، مثل عدم رغبة المواطنين في التطعيم في البداية. وأوصت الدراسة بضرورة إجراء مزيد من البحوث حول أسباب تأخر الناس في تلقي التطعيم ضد فيروس كورونا ، والتركيز على نشر الوعي الصحي بين أفراد المجتمع والالتزام بمعايير السلامة.

### Abstract:

This study focused on the initial response to the Coronavirus vaccine among the residents of Tarhuna region, where the total population that received the first dose of the Corona vaccine reached 1604 until the end of this study period, vaccination was carried out in seven polyclinics as follows: Tarhuna City 557, Sidi Al-sayd 254, Alkhadra 193, Aldawwn 199, Suq Alahad 219, Okba ben nafie 87, and Suq Aljuma 95. The results showed that the proportion of people vaccinated against Covid-19 represented 0.69% of the total population of the

region, in the same direction, the greatest focus has been on the elderly to receive the covid-19 vaccine, where the number of people who received the vaccine from the age group >50 1260 by 78.55% of the total vaccinated in this period. The month of May had the highest number of vaccinated people (1464) with a rate of 91.27%. The Chinese vaccine (Sinovac) was the highest in use among other vaccines. This study ended with a set of facts about the response to the Covid-19 vaccine in the Tarhuna district, such as the unwillingness of citizens to get vaccinated at the beginning. The study recommended the need to conduct more research on the reasons for people's delay in receiving immunization against the Coronavirus, also focusing on spreading health awareness among members of society and adhering to safety standards.

**Keywords:** *vaccine; coronavirus; polyclinic.*

### **Introduction:**

In fact of the matter, up to the 7th of April 2021, there have been 2.89 million recorded deaths and 133 million confirmed cases with COVID-19. (CSSE, 2020).

Virus transmission and mortality have been reduced since the pandemic began through a series of measures, including personal precautions along with social distancing, protective face masks, general hygiene especially hands, and limiting interpersonal contact with outdoor environments; great attention for trying to spot people infected with the virus; and governments non-medical protective processes, which include university and workplace closures, bans on public gatherings, and travel restrictions. (Hale T et al. 2021, Hasell J et al. 2020, Zhou F et al. 2020).

Vaccination is one of the most important measures that have been focused on to confront the Corona pandemic. Many traditional vaccines use whole viruses to induce the immune response, there are two main approaches, live attenuated vaccines, which use a weakened form of the virus that can still replicate without causing infection, and inactivated vaccines, which use viruses whose genetic material has been destroyed so they cannot replicate (**WHO, 2020**).

The COVID-19 Immunization Statistical registry provides an aggregated public international registry of administered vaccinations. It covers the entire period from December 13, 2020, the date of publication of the first vaccination

statistics, the data set includes 169 international locations. (Mathieu E et al, 2021).

In Libya, the first shipment of COVID-19 vaccine arrived in April 2021, limited vaccine distribution was initially observed. At the end of April, 575200 doses of the vaccine were available of which 175200 were purchased by COVAX, more than 240000 doses of the vaccine were administered. Migrant and refugee registration for immunization began in June, with some 62000 people identified as priority. (OCHA, 2021). Therefore, this study aimed to assess the preliminary response to receiving COVID-19 vaccine among residents of Tarhuna region.

### **Materials and methods:**

#### **Data collection:**

The data of this study were collected from the archives of seven polyclinics of the Tarhuna region (Tarhuna City, Sidi Al-sayd, Alkhadra, Aldawwn, Suq Alahad, Okba ben nafie, and Suq Aljuma) the data included: age, gender, vaccine type, and date of vaccination.

#### **Study sample and duration:**

The sample of this study consists of 1604 participants who were received the first Covid-19 vaccine dose from the period of April 1st to June 30th 2021.

#### **Statistical analysis:**

Data were analyzed using a Statistical Package for Social Science (SPSS) version 20.0. Quantitative data were expressed as mean  $\pm$  standard deviation and percentage (%).

### **Results:**

In the current study, 1604 participants were distributed among the seven polyclinics in Tarhuna region as follows: Tarhuna City 557, Sidi Al-sayd 254, Alkhadra 193, Aldawwn 199, Suq Alahad 219, Okba ben nafie 87, and Suq Aljuma 95. All participants in this study received a single dose of the Covid-19 vaccine, the results of this study showed that the ratio of Covid-19 vaccination in the Tarhuna region was 0.69% of the total population, as elucidates in table (1).

Table (1) shows the total population & corona recorded cases and Vaccination.

Total population of Tarhuna	231651
Total corona recorded cases	1341 (.058 % )
Total vaccinated population	1604 (0.69%)

Figures (1&2) shows the distribution of the study sample and mean age in female and male. The vaccinated participants were 18-99 years, female were 734(46%) with mean age of (60.81 ± 15. 02) while male were 870(54%) with main age of (60.14±15.50). there are no significant differences.

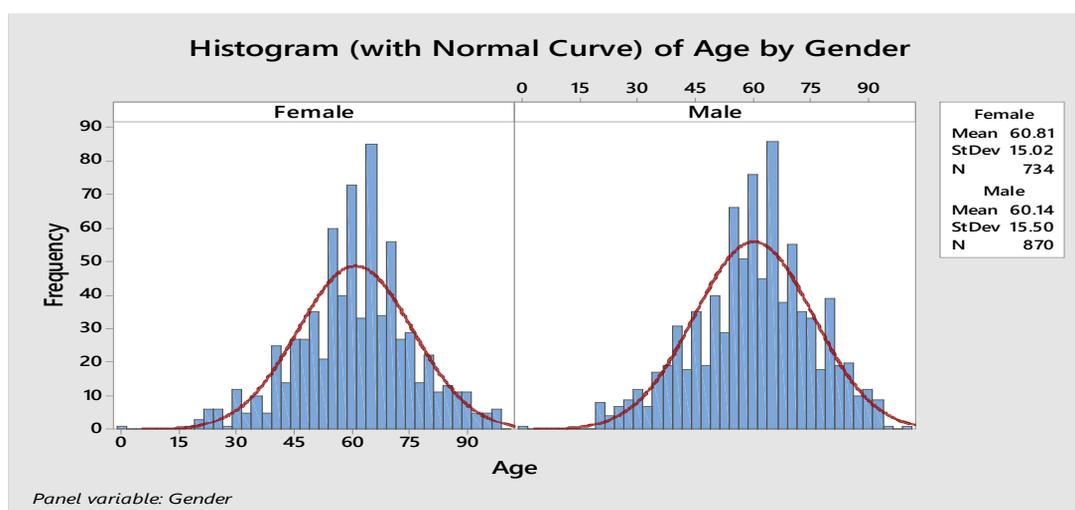


Figure (1) shows the distribution of study sample according to mean age in female and male.

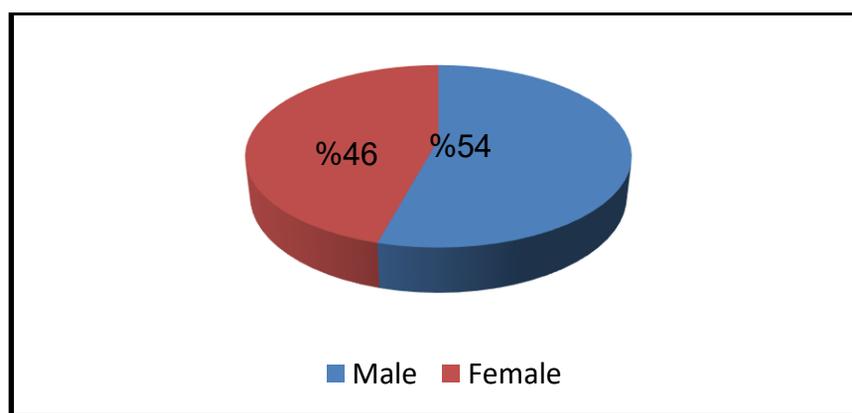


Figure (2) the percentage of females and males who participated in this study

To recognize the more responsive age group to receive covid-19 vaccine, participants were divided into three age groups as follows, 18-33, 34-49, and >50

years: the number of each age group were, 81(5.05%), 263(16.40%), and 1260 (78.55%) respectively. as appeared in Figure 3.

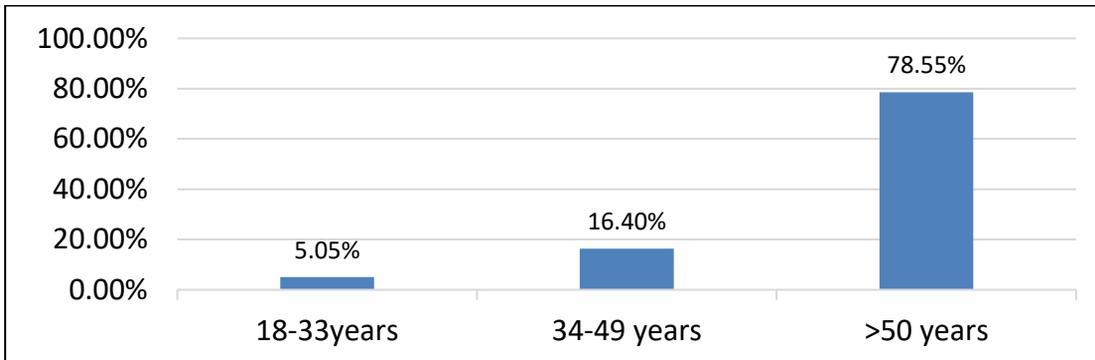


Figure (3) shows the percentage of participants based on age.

As shown in Figure 4, this study included 7 out of 11 polyclinics in the Tarhuna region, it was noted that the number of people who received the vaccine in Tarhuna City polyclinic was higher than any of the other polyclinics, (as it reached 34.73%), "this may be due to the fact that the greater concentration of the population in the city center" followed by Sidi El-Sayed polyclinic with a percentage of 15.84%.

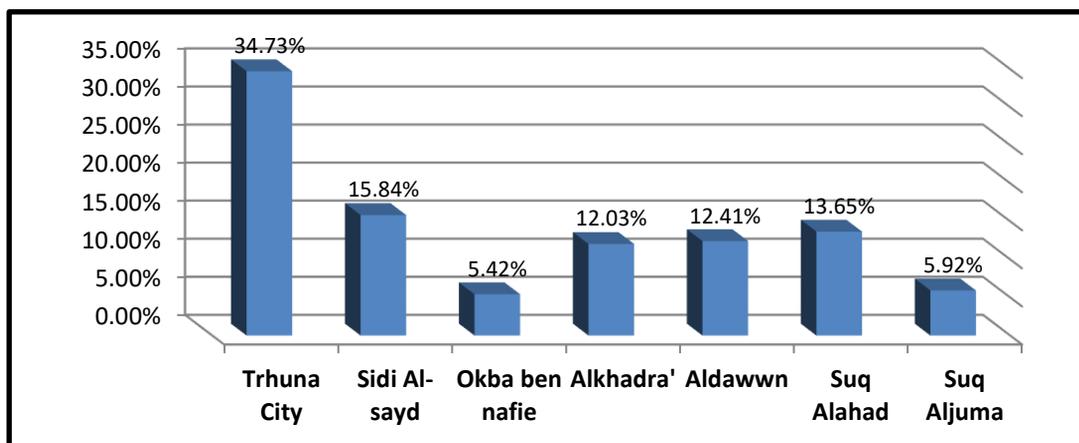


Figure (4) distribution of sample between polyclinics (care centers).

The results of the current study showed that the rate of use of the Chinese vaccine (Sinovac) was the highest among other vaccines (78.43%) and the lowest used was sputnik (9.98%), due to the country's import of large quantities of Sinovac vaccine compared to other vaccines. As elucidated in Figure (5).

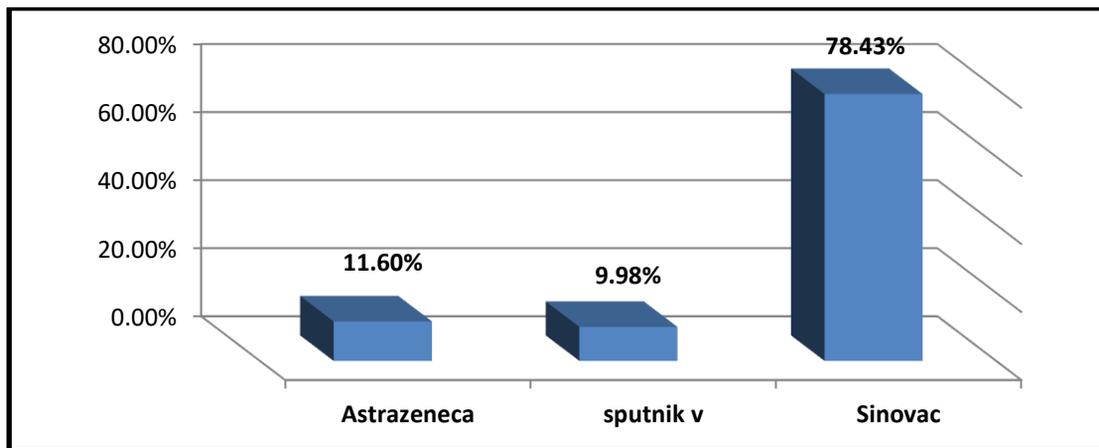


Figure (5) types of used COVID-19 vaccines.

Table (2) in this study, demonstrate the number of those who received the vaccine in each municipal branch of Tarhuna compared to the number of residents in each municipal branch, where the response was faster in Sidi Al-Sayd, and Suq Alahad.

Table No. (2) Shows the number of residents in each municipal branch of Tarhuna.

District	Trhuna City	Sidi Al-sayd	Alkhadra	Aldawwn	Suq Alahad	Suq Aljum
N. Population	77854	20617	24012	24115	14156	16596
N. Vaccinated	557	341	193	199	219	95
% . Vaccinated	0.72%	1.65%	0.80%	0.83%	1.55%	0.57%

Figure (7) Explains the time of taking the vaccine by residents; April 66 people 4.11% & May 1464 (91.27%), and June 74 (4.61%).

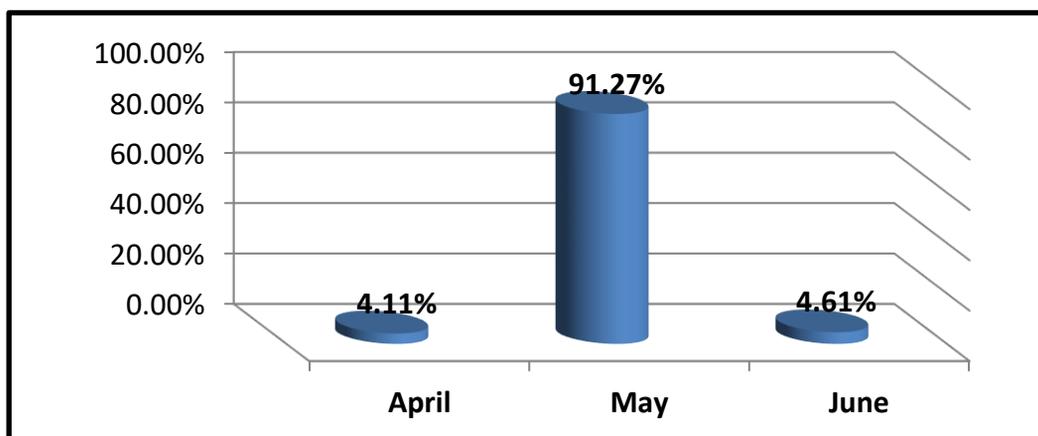


Figure. (7) Shows the time period to take the vaccine.

**Discussion:**

Tarhuna population reaches 231364000, there are 7 polyclinics that provide vaccination services against the Coronavirus. The number of those who received the first dose of the vaccine in the period from the 1st of April to the end of June 2021 was 1604, most of them were elderly “78.55%”. The results of this study showed that the rate of vaccination against Coronavirus among the Tarhuna population was 0.69%, this ratio is considered low, and this may be due to the government's delay in providing the vaccination as well as the lack of health awareness along with concerns about the unclear side effects of the vaccine.

The ages of those vaccinated against Coronavirus in the current study period ranged from 18 to 99 years, of whom 734 (46%) were female with a mean age of  $(60.81 \pm 15.02)$  while the males were 870 (54 with a mean age of  $(60.14 \pm 15.50)$ .

The ages of those vaccinated against Coronavirus in the current study period ranged from 18 to 99 years, of whom 734 (46%) were female with a mean age of  $(60.81 \pm 15.02)$  while the males were 870 (54 with a mean age of  $(60.14 \pm 15.50)$ ). Libya has followed the protocols of the World Health Organization regarding immunization against Coronavirus (WHO 2020), so priority has been given to vaccinating the elderly, people with chronic diseases, and medical personnel. (Draft landscape of COVID-19 candidate vaccines 2020), in this context, this study showed that 78.55% of those who took the vaccine were over 50 years, The current study was conducted on seven out of eleven polyclinics in Tarhuna, the important observation is that the Tarhuna city polyclinic reported a higher rate in vaccination than the rest of the polyclinics by 34.73%, (this may be due to the great concentration of the population in the city center), followed by the Sidi El-Sayed polyclinic by 15.84%.

The current study showed that the Chinese Sinovac vaccine was more used by citizens than other vaccines, which may be due to the importing a large amount of this vaccine by the Libyan government, compared to other vaccines, as well as to its evaluation and its licenses.

When studying the proportion of receiving the Coronavirus vaccine in each municipal branch in Tarhuna compared to the number of residents of this branch, the results of this study showed that the municipal branch of Sidi Al-Sayd and the municipal branch of Suq Alahad were the highest compared to the rest of the

municipal branches, the reason for this may be attributed to the social and cultural structure of the population.

Eventually, the results of this study showed that the distribution of those who received the coronavirus vaccine in the Tarhuna region at the current study period was as follows; April, 66 (4.11%), May 1464 (91.27%), and June 74 (4.61%); as the population's demand for vaccination was low at April and June, and this may be attributed to two main reasons, in April, there was a prevalent fear from the vaccine, as there was a great belief among the population that it is unsafe and may lead to death, while in June the reason may be due to a shortage of vaccine stocks in the region.

### **Conclusion:**

This study concluded various facts about coverage and response to the Coronavirus vaccine in Tarhuna district, where it was noted that the population was unwilling or receptive to vaccination at the beginning of April, this is due to a number of factors, including the scarcity of vaccines, fear of the negative effects of the vaccine, and a lack of health awareness of the need to receive vaccinations.

In this work, the various vaccine sources available in Libya were studied to find out the differences between them and the extent of citizens' acceptance of them.

### **Recommendations:**

At the end of this work, the researchers recommend that:

- The necessity of compulsory vaccination against the Coronavirus, especially among the elderly or those who are accompanied by chronic diseases.
- Emphasizing the importance of health education among community members,
- Adhering to safety standards and preventive measures against the Coronavirus,
- Finally pay more attention to such studies due to their medical importance.

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