Experience of Vaccinated Nurses with COVID-19 Vaccination - Does Age Make a Difference - Cross-Sectional Study

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Abstract

Background: The nurses are among the front lines of exposure to the COVID-19 pandemic and have been identified as a priority target group that needs to receive COVID-19 vaccines. However, the evaluation of their experience with COVID-19 Vaccination and the relationship between their experience and their age to receive the vaccine still matters in the prevalence of COVID-19 vaccines especially among nurses due to their experience after receiving the vaccine and their age. **So the study was aimed** to evaluate the experience of vaccinated nurses with COVID-19 vaccination and find out the relationship between the experience of vaccinated nurses with COVID-19 vaccination and their age. **Design:** A cross-sectional descriptive research design. **Setting:** The study was applied in Al Salam International Hospital and Al Mabarrah Hospital in Port Said city. **Subjects**: This study was covered all vaccinated nurses (96) working in an intensive care unit (ICU), an emergency care department, female and male internal medicine, surgery departments, orthopedic surgery, oncology surgery department, Selathemia blood diseases department, Theater Room, blood bank department in Al Salam International Hospital and Al Mabarrah Hospital. **The data was collected using 1 tool**; the "Structured questionnaire sheet" which is consisted of 42 questions related to socio-demographic characteristics, and experience of vaccinated nurses with COVID-19 vaccination after the first dose. **Results**: This study indicated that there is not any statistically significant relationship between nurses' age and nurses' experiences with COVID-19 vaccination after the first dose of vaccination concerning side effects affected on general health status, symptoms or side effects at site injection of vaccination, and self-care regarding relieving symptoms or side effects resulted from vaccination except in one item related to nurses' feeling of redness at the injection site where P-value less than 0.05. **Conclusion:** It can be concluded from the results of the present study that there are side effects after receiving the COVID-19 vaccine which can be controlled by self-care without going to the physician. There is a minor negative impact on general health status after receiving the first dose of COVID-19 vaccination, but it is not serious adverse events and there is no relationship between nurses' experience and their age. **Recommendations**: Evaluation of impact of second dose of COVID-19 vaccines on the nurses' health status, and development and implementation of continuous evaluation concerning vaccinated nurses and physicians in all hospitals after the second dose at Port Said City.

Keywords: experience, nurses, COVID-19 vaccination, cross-sectional study.

Introduction

Corona-virus disease 2019 (COVID-19)pandemic is a serious public health emergency, it is especially deadly in at-risk communities and communities where health care providers are inadequately prepared to manage infection COVID-19 is caused by corona-virus 2 (SARS-CoV-2). Since the first case was reported from Wuhan, China, the Chinese government has taken emergency measures to control the outbreak. The Chinese government took initial steps in diagnosing and treating the COVID-19 pandemic. The outbreak of the COVID-19 in Wuhan, China, has spread globally, since the World Health Organization (WHO) declared it a COVID-19 pandemic on March 11, 2020 **(Lu, et al.,2020, Li, et al.,2020, Gorbalenya, et al.,2020, Chen, et al.,2020, and Huang, et al., 2020).**

Immunization is a crucial preventive approach against COVID-19 that can stop this epidemic. The COVID-19 pandemic has significant mortality and morbidity. WHO reported that 20,730,456 cases of COVID-19 were confirmed, involving 751,154 cases of deaths on 14 August 2020 worldwide. 200000 from approximately 7 million people have been diagnosed with COVID-19 in September 2020 that stated by the US. Hence the vaccines against COVID-19 could save lives to stop the

spread of the virus, and reduce the mortality rate from COVID-19 especially among priority groups such as older patients and Healthcare professionals (HCP)**(Napolitano, et al., 2019, World Health Organization, 2021).**

The risk of SARS-CoV-2 exposure and SARS-CoV-2 spread is most common among Healthcare professionals which have therefore been considered as a priority group in receiving COVID-19 vaccination campaign strategies. Healthcare professionals can be protected by receiving COVID-19 vaccination from contracting COVID-19. Some side effects may be presented in Healthcare professionals, which are ordinary and usual signs of the body that will build the protection. Healthcare professionals' ability may be influenced by side effects of COVID-19 immunization which affected the doing of the nurses' daily living activities. However, the side effects of the COVID-19 vaccine should disappear within a few days. A few nurses did not have side effects **(Shekhar, et al., 2021, and Funk & Tyson, 2020).**

The side effects are considered serious that seem to cause long-term health issues which are profoundly improbable after any vaccine, including the COVID-19 immunization. Immunization checking has truly appeared that side effects for the most part occur within six weeks of receiving an immunization dose. For this reason, the Food and Drug Administration(FDA) has required that each authorized COVID-19 immunization be examined for a minimum of two months (eight weeks) after the second dose **(Chen, et al., 2020, and Di Resta, 2021).**

A COVID-19 vaccine can cause mild side effects after the first or second dose, the most common side effects on the arm where nurse got the shot such as Pain, Redness, and Swelling, while the side effects throughout the rest of the body are Tiredness, Headache, Muscle pain, Chills, Fever, Joint pain, Nausea and vomiting, Feeling unwell, Swollen lymph nodes. The receiver's vaccine will be monitored for 15 minutes after acquiring a COVID-19 vaccine to see if you have an allergic reaction. Most side effects leave in a few days. Side effects after the second dose might be more aggravated. Many people have no side effects. A COVID-19 vaccine may cause side effects corresponding to signs and symptoms of COVID-19. If nurses have been exposed to COVID-19 and develop symptoms more than 3 days after acquiring vaccinated or the symptoms last more than two days, self-isolate and acquire tested **(Shruti, et al.2021, and Ahmed, et al., 2021)**

The nurses are considered Healthcare professionals so the nurses are among the first group to get an immunization. Therefore it is imperative to consider their experience of vaccinated nurses with COVID-19 vaccination which is the way better to address their experience including their suffering, side effects, and benefits of immunization especially after the first dose of COVID-19 immunization **(Williams, 2021)**. Since well-being nurses are the first concerns to get the second dose of immunizations. Their concerns about the safety of these immunizations must be tended to as early as Conceivable **(Xiao, et al., 2020, and Gagneux-Brunon, et al., 2021).** Immunization is central to controlling COVID-19. Its success relies on having safe and successful immunizations and also on levels of uptake by the public over time. Tending to questions of population and nurses as Healthcare Professionals concerning the level of adequacy, soundness of acknowledgment, and sub-population variety inadequacy are basic. This makes a difference to experience the second dose of vaccination coverage by a safe and effective immunization universally would be an extraordinary accomplishment **(Christie, et al., 2021, and Paul, et. al., 2021).**

The major obstruction to receiving the second dose for COVID -19 vaccine is the adverse reaction of immunization. If nurses had an adverse reaction from the first dose, the nurse will refuse the second dose from their previous experiences and their suffering from receiving the first dose **(Julie, et al., 2021)**. Based on the previously mentioned statements because immunization is crucial for the nurses and its side effects, their experience and benefits for nurses to prevent spread infection from nurse to patients and from patients to nurses and their experience after receiving immunization may be difficult. Hence, this study aimed to evaluate the experience of vaccinated nurses with covid-19 vaccination,

and find out the relationship between the experience of vaccinated nurses with COVID-19 vaccination and their age.

Significance of the Study:

Immunizing agent acceptance has been declining in later years. Despite the encouraging early findings of the corona-virus immunization trials, Achieving herd immunity needs a great deal of uptake. Many studies presented scenarios of varying vaccine efficacy, minor side effects, and Severe reactions of a sample of the US population. Vaccine acceptance improved when it was more effective thereafter 70%. Respondents were not affected by the possibility of minor Side effects, such as arm pain or fever that lasts 24 hours. Vaccine acceptance was lower when the probability of serious adverse reactions was 1/100,000 as opposed to 1/million or 1/ 100 million. Repetition showed that the results were greatly Unchanged after the public announcement of vaccines It was 95% effective(**Kaplan & Milstein,2021**). In Egypt, from 2020 to 2021, there have been 344,907 confirmed cases of COVID-19 with 19,567 deaths, reported to WHO. As of 2021, a total of 33,667,594 vaccine doses have been administered (**WHO, 2021).**

Health care workers are at risk for severe acute respiratory syndrome coronavirus 2 infections. HCWs accounted for a significant proportion of Corona-virus infections and may experience particularly high infection incidence after unprotected exposure. Illness severity was lower than in non- HCWs. The previous studies concluded HCWs experience significant burdens from Corona-virus infections, including SARs-CoV-2 vaccination and infection control training are associated with decreased infection risk, and certain exposures are associated with increased risk. More than 22,000 Health Care Providers (HCPs) worldwide have already been infected **(WHO, 2019, Chou, et al., 2020)**. Every year, vaccines save millions of lives. Vaccines function by teaching and preparing the body's natural defense, the immune system, to recognize and combat the viruses and bacteria they are designed to combat. If the body is later exposed to those disease-causing microorganisms after vaccination, the body is ready to kill them right away. The world is in the midst of a COVID-19 pandemic. Receiving the COVID-19 vaccine is critical to maintaining nurses' health status, high-quality, effective, and efficient nursing care. Receiving the COVID-19 vaccine and evaluating the experience of vaccinated nurses has a significant impact, especially during the COVID-19 pandemic, on nurses' health status and the studies emphasized that several safe and effective vaccines prevent people from getting seriously ill or dying from COVID-19 **(Bao et al., 2020)**. Hence, the researcher carried out this study to evaluate the experience of vaccinated nurses with COVID-19 vaccination and find out the relationship between the experience of vaccinated nurses with COVID-19 vaccination and their age.

Aim of Study:

The study was aimed to evaluate the experience of vaccinated nurses with COVID-19 vaccination and find out the relationship between the experience of vaccinated nurses with COVID-19 vaccination and their age.

Problem Statement

There is an urgent need to evaluate the experience of vaccinated nurses with COVID-19 vaccination after getting the first dose with COVID-19 vaccination and Does age make a difference in their experience to express the most common reactions, mild or severe side effects, and benefits of vaccination on their health states and their life to be healthy from COVID-19 and side effects of COVID-19 vaccination.

Research questions:

How do nurses describe their experience after getting the first dose with COVID-19 vaccination?

Is there a significant statistical relationship between the experience of vaccinated nurses after first and their age?

Does age make a difference in their experience with COVID-19 vaccination after the first dose?

Hypothesis Research:

H1: There will be mild side effects of COVID-19 vaccines, and it will affect their

health status and the intention of nurses to receive a second dose of COVID-19 vaccines.

H2: There will be a relationship between the experience of nurses with COVID-19 vaccination after getting the first dose vaccination and their age.

Material and Methods:

Research Design:

The design of this study was a cross-sectional descriptive study done to evaluate the experience of vaccinated nurses with COVID-19 vaccination and find out the relationship between the experience of vaccinated nurses with COVID-19 vaccination and their age.

Setting:

The study was conducted in Comprehensive Health Insurance Hospitals at Port Said city (Al Salam International Hospital and Al Mabarrah Hospital). The study was carried out in an Intensive Care Unit (ICU), an Emergency Care Department, Female And Male Internal Medicine, Surgery Departments, Orthopedic Surgery, Oncology Surgery Department, Selathemia Blood Diseases Department, Theater Room, Blood Bank Department in Al Mabarrah Hospital and Al Salam International Hospital at Port Said City.

Subjects:

The population of this study consisted of all vaccinated nurses (96) who were recruited in the Al Mabarrah and Al Salam International Hospitals at Port Said City and got the first dose of COVID-19 vaccines.

The inclusion criteria for nurses were included:

- ❖ All nurses got the first dose.
- ❖ Agree to participate in the study.

The exclusion criteria included:

- ❖ Nurses got a second dose of COVID-19 vaccination.
- ❖ Refusal to participate.
- ❖ Incomplete or duplicate answers.
- ❖ No existence on duty at the time of the study.
- ❖ Nurses with a previous clinical diagnosis of COVID-19 were not Included.

Tool for data collection

The structured questionnaire sheet will be used in the study:- The researcher developed one tool based on the review of related literature to evaluate experience of vaccinated nurses with COVID-19 vaccination and find out the relationship between the experience of vaccinated nurses with COVID-19 vaccination and their age. It is comprised of two parts.

Part I: It included items related to socio-demographic characteristics of the vaccinated nurses such as age, sex, and health status.

Part II: It included 42 questions (multiple choice questions) related to the experience of nurses with COVID-19 vaccination after getting first dose vaccination as the following (benefits of vaccination, reaction and side effects of vaccination, adverse reaction of the vaccination, and self-care to relieve symptoms resulting from vaccination).

Validity of the tool:

The content validity of the tool was tested by a board of 9 experts in Medical-Surgical Nursing and professors specialized in the isolated hospitals and public health centers for infectious diseases and COVID-19 immunization to ensure that the questions were clear, relevant, applicable, understandable, and complete and appropriate modification was done accordingly. Content Validity Index (CVI) was 0.98.

Reliability of the tools:

Test-retest reliability was used. The internal consistency of the tools was calculated using Cronbach's alpha coefficients. Study tools revealed reliability at Cronbach's alpha $\alpha = 0.86$ for the tool

Pilot study:

The pilot study was carried out after finishing the development of the tool. It was carried out on 10 % of nurses working in an Intensive Care Unit (ICU), an Emergency Care Department, Female And Male Internal Medicine, Surgery Departments, Orthopedic Surgery, Oncology Surgery Department, Selathemia Blood Diseases Department, Theater Room, Blood Bank Department in Al

Mabarrah Hospital and Al Salam International Hospital to test the reliability and applicability of the tool of the study. The radical modifications were done based on the pilot study result.

Fieldwork:

Data Collection was over the period of three months from the beginning of March to the ending of May 2021.

- The questionnaire administration process was negotiated with the Matron to ensure that the study did not disrupt the normal daily routine of work for the nurses especially during work hours.
- The studied nurses were divided into 10 groups according to their departments
- The researcher interviewed nurses on an individual basis. At the end of their work, the researcher introduced the sheet to the nurse and asked them to complete it. Most of them spent about 20 to 30 minutes in the interview.
- The researcher attended the previously mentioned setting for collected data three days per week (from Saturday to Monday).
- The researcher informed the participants that the study was voluntary, they were allowed to refuse to participate and they had the right to withdraw from the study at any time, without giving any reason. Moreover, they were assured that their information would be confidential and used for research purposes only.

Administrative design:

The official letters obtained from the Dean of the faculty to the directors of each study setting to take cooperation and permission.

Ethical Considerations:

This research was approved by the Faculty of Nursing Ethics Committee,Permission to conduct the study was obtained from the responsible authorities after explaining its purpose. Data was obtained from every nurse getting vaccination prior to their inclusion in the study after explaining its importance and purpose. The researcher informed the nurses that the study was voluntary, they were allowed to refuse to participate and they had the right to withdraw from the study at any time, without giving any reason.

Statistical analysis

The collected data were arranged, tabulated, and statistically analyzed using SPSS software (Statistical Package for the Social Sciences, version 23, SPSS Inc. Chicago, IL, USA). For comparison between two groups using number and percent (frequency) was done using Chi-square test (c2). For comparison between more than two groups of non-parametric data, a p-value of the Kruskal-Wallis test was calculated. Significance was adopted at $p<0.05$ for statistically significant interpretation of results of tests of significance.

Results:

Table (1) showed the personal characteristics of the studied nurses. About less than half of studied nurses (42.7%) were in the age group from 28 years to less than 38 years , and about more than one third of studied nurses (39.7%) were 48 years to less than 58 years. While 8.3% of studied nurses were 18 years and less than 28 years, and 1.0% of the studied nurses were more than 58 year. About more than half of studied nurses (54.2%) were females while 45.8% of studied nurses were males. The majority of the studied nurses (87.5%) didn't have chronic diseases while 12.5% had chronic diseases where about half of them (6.3%, 6.3 %) had diabetes, and hypertension respectively, in addition, 11.5% of them had duration of the chronic disease from 1 year to 5 years, while 1.0% of them had duration of the chronic disease from 6 years to 10 years.

Table (2): demonstrated experience of vaccinated nurses with COVID-19 vaccination after first dose of vaccination concerning side effects affected on nurses' health status. About less than half of studied nurses (43.8%) have taken Astra-Zenca Vaccination , and about more than one third of studied nurses (30.2%) have taken Sinopharm Vaccination, while 26.0 % of the studied nurses have taking Sinobiotock Vaccination. About two-third of the studied nurses (68.7%) were coughing while 31.3% of the studied nurses weren't coughing after the vaccine. In addition, about more than half of the studied nurses (51.0%) had nasal discharge while 49.0 % of the studied nurses didn't have nasal discharge after the vaccine. Most of the studied nurses (75%) haven't felt rising body temperature while 25.0 % of the studied nurses have felt rising body temperature. About more than half of the studied nurses (54.2%) have felt chilling while 45.8% of the studied nurses haven't felt chilling

after the vaccine. Approximately more than two third of the studied nurses (67.7%) have felt headache while 32.3% of the studied nurses haven't felt headache after vaccine. Most of the studied nurses (72.9%) have felt joint pain while about one third of the studied nurses (27.1%) haven't felt joint pain after the vaccine. About more than half of the studied nurses (59.4%) have felt muscle pain while 40.6% of the studied nurses haven't felt muscle pain after the vaccine.

Table (3) illustrated the experience of vaccinated nurses with COVID-19 vaccination after the first dose of vaccination concerning symptoms or side effects occurred at site injection of vaccination. About two-third of the studied nurses (69.8%) haven't felt pain at the injection site while 30.2% of the studied nurses have felt pain at the injection site after the vaccine. Most of the studied nurses (80.2%) haven't felt axillary swelling or pain when pressing while 19.8 % of the studied nurses have felt axillary swelling or pain when pressing. The most of the studied nurses (82.3%) haven't felt tenderness at site of injection while 17.7% of the studied nurses have felt tenderness at the site of injection. The majority of the studied nurses (79.2%) haven't felt redness at the injection site while 20.8% of the studied nurses have felt redness at the injection site. Most of the studied nurses (77.1%) haven't felt itching at the injection site while 22.9% of the studied nurses have felt itching at injection site. About more than half of the studied nurses (52.1%) haven't felt warmth at the injection site while 47.9 % of the studied nurses have felt warmth at the injection site. Most of the studied nurses (72.9%) had severe symptoms and side effects, and 14.6% of the studied nurses had moderate symptoms, or side effects while 12.5% of the studied nurses had mild side effects . About one third of studied nurses (32.3%) had the days of side effects of the vaccine lasting From 5-7 days, and (26.0%, 25.0 %) of studied nurses had the days of side effects of the vaccine lasting From 1-2 days, and From 3-4 days respectively, while 16.7% of the studied nurses had the days of side effects of the vaccine lasting more than week.

Table 4 declared self care for relieving symptoms and side effects from vaccination. As regards to feeling safe after taking the first dose vaccine, the majority of the studied nurses were 84.4%. 79.2% of the studied nurses have taken the vaccine based on her or his-self decision , and the most of the studied nurses (84.4 %) said that the benefit of the vaccine was protection from COVID-19. Concerning an antipyretic and pain reliever such as Paracetamol or Adol, the majority of the studied nurses were 97.9%. As regards to drinking a lot of warm fluids when they are feeling tired 100%. The majority of the studied nurses (99.0%) did not go to the doctor or hospital when nurses were feeling symptoms or side effects resulting from the vaccine.

Table (5): showed the relationship between nurses' age and nurses' experiences with COVID-19 vaccination after the first dose of vaccination concerning side effects affected on general health status. The results indicated that there is no statistically significant relationship between nurses' age and nurses' experiences with COVID-19 vaccination after the first dose of vaccination concerning side effects affected on general health status where P-value more than 0.05.

Table (6): illustrated the relationship between nurses' age with nurses' experiences regarding symptoms or side effects at site injection of vaccination. There is statistically significant relationship between nurses' age and nurses' feeling of redness at injection site where χ^2= 9.858 at **p-value** 0.043* while there is no statistically significant relationship between nurses' age and nurses' experiences regarding symptoms at site injection of vaccination related to the rest of items where **P-value** more than 0.05 .

Table (7): demonstrated the relationship between nurses' age and nurses' self care regarding relieving symptoms or side effects resulted from vaccination . There is no statistically significant relationship between nurses' age and nurses' self care regarding relieving symptoms or side effects resulting from vaccination where P-value more than 0.05 .

Table (1): Personal Characteristics of the studied nurses (n=96).

Variable	Sample (n=96)	
	No	**%**
Age in Years		
18: <28	8	8.3
28 : <38	41	42.7
38 : <48	38	39.7
48 : <58	8	8.3
More than 58 year	1	1.0
Gender		
Male	44	45.8
Female	52	54.2
Did you have chronic diseases?		
No	84	87.5
Yes	12	12.5
What is a chronic disease?		
Diabetes	6	6.3
Hypertension	6	6.3
None	84	87.5
How many years have you had this chronic disease?		
1-5 years	11	11.5
6-10 years	1	1.0
None	84	87.5

Table (3): Experience of vaccinated nurses with COVID-19 vaccination after the first dose of vaccination concerning symptoms or side effects occurred at site injection of vaccination (n=96).

Variable	Sample (n=96)	
	No	**%**
What is the type of vaccine		
Astra-Zenca	42	43.8
Sinopharm	29	30.2
Sinobiotock	25	26.0
Was he/ she coughing?		
No	30	31.3
Yes	66	68.7
Having nasal discharge		
No	47	49.0
Yes	49	51.0
Did you feel the temperature rise?		
No	72	75.0
Yes	24	25.0
Did you feel chills?		
No	44	45.8
Yes	52	54.2
Did you feel a headache?		
No	31	32.3
Yes	65	67.7
Did you feel joint pain?		
No	26	27.1
Yes	70	72.9
Did you feel muscle pain?		
No	39	40.6
Yes	57	59.4

Table (3): Experience of vaccinated nurses with COVID-19 vaccination after the first dose of vaccination concerning symptoms or side effects occurred at site injection of vaccination (n=96).

Variable	Sample (n=96)	
	No	**%**
Did you feel pain at the injection site?		
No	67	69.8
Yes	29	30.2
Did you feel axillary swelling or pain when pressing?		
No	77	80.2
Yes	19	19.8
Did you feel tenderness at the site of injection?		
No	79	82.3
Yes	17	17.7
Did you feel redness at the injection site?		
No	76	79.2
Yes	20	20.8
Did you feel itching at the injection site?		
No	74	77.1
Yes	22	22.9
Did you feel injection site warmth?		
No	46	47.9
Yes	50	52.1
What is the degree of the symptoms which you feel after the vaccine?		
Mild	12	12.5
Moderate	14	14.6
Sever	70	72.9
How many days did the symptoms and side effects of the vaccine last?		
From 1-2 days	25	26.0
From 3-4 days	24	25.0
From 5-7 days	31	32.3
More than week	16	16.7
Did you need to go to the hospital to recover from symptoms caused by the vaccine?		
No	74	77.1
Yes	22	22.9

Table (4): Self-care for relieving symptoms and side effects from vaccination (n=96).

Variable	Sample (n=96)	
	No	**%**
Did you feel safe after taking the first dose?		
No	15	15.6
Yes	81	84.4
Why did you take the vaccine, wanting you or from the hospital?		
By myself decision	76	79.2
The hospital decision	20	20.8
What are the benefits of the first dose vaccination?		
Protection of COVID-19	81	84.4
I don't know	15	15.6
Did you use an antipyretic and pain reliever such as Paracetamol or Adol?		
No	2	2.1
Yes	94	97.9
Did you drink a lot of warm fluids while feeling tired?		
No	0	0
Yes	96	100
Did you go to the doctor or hospital when you were feeling symptoms or side effects resulting from the vaccine?		
No	95	99.0
Yes	1	1.0

Table (5): The relationship between nurses' age and nurses' experiences with COVID-19 vaccination after the first dose of vaccination concerning side effects affected on general health status.

Variable	18: <28 years(8)	28: <38 years (41)	38: <48 years (38)	48: <58 years (8)	More than 58 years (1)	χ^2	P
Was he coughing?							
No	12.5	29.3	36.8	37.5	0	χ^2= 2.537	0.638
Yes	87.5	70.7	63.2	62.5	100		
Having nasal discharge							
No	50.0	43.9	55.3	50.0	0	χ^2= 1.990	0.738
Yes	50.0	56.1	44.7	50.0	100		
Did you feel the temperature rise?							
No	87.5	73.2	78.9	62.5	0	χ^2= 4.722	0.317
Yes	12.5	26.8	21.1	37.5	100		
Did you feel chills?							
No	37.5	41.5	55.3	37.5	0	χ^2= 2.970	0.563
Yes	62.5	58.5	44.7	62.5	100		
Did you feel a headache?							
No	50.0	34.1	31.6	12.5	0	χ^2= 3.131	0.536
Yes	50.0	65.9	68.4	87.5	100		
Did you feel joint pain?							
No	37.5	26.8	23.7	37.5	0	χ^2= 1.474	0.831
Yes	62.5	73.2	76.3	62.5	100		
Did you feel muscle pain?							
No	50.0	34.1	44.7	34.1	0	χ^2= 2.247	0.690
Yes	50.0	65.9	55.3	65.9	100		

***Significant (P<0.05).** χ^2 Kruskal-Wallis test

Table (6) Relationship between nurses' age with nurses' experiences regarding symptoms at site injection of vaccination

Variable	18: <28 years(8)	28: <38 years (41)	38: <48 years (38)	48: <58 years (8)	More than 58 years (1)	χ^2	P
Did you feel pain at the injection site?							
No	37.5	73.2	73.7	75.0	0	χ^2= 6.865	0.143
Yes	62.5	26.8	26.3	25.0	100		
Did you feel axillary swelling?							
No	50.0	85.4	78.9	87.5	100	χ^2= 5.839	0.212
Yes	50.0	14.6	21.1	12.5	0		
Did you feel tenderness at the site of injection?							
No	75.0	82.9	84.2	75.0	100	χ^2= 0.906	0.924
Yes	25.0	17.1	15.8	25.0	0		
Did you feel redness at the injection site?							
No	37.5	85.4	81.6	75.0	100	χ^2= 9.858	0.043*
Yes	62.5	14.6	18.4	25.0	0		
Did you feel itching at the injection site?							
No	62.5	78.0	76.3	87.5	100	χ^2= 1.786	0.775
Yes	37.5	22.0	23.7	12.5	0		
Did you feel injection site warmth?							
No	25.0	46.3	52.6	62.5	0	χ^2= 1.474	0.831
Yes	75.0	53.7	47.4	37.5	100		
What is the extent of each symptom you feel after the vaccine?							
Mild	0	12.2	13.2	25.0	0	χ^2= 4.849	0.774
Moderate	25.0	12.2	18.4	0	0		
Sever	75.0	75.6	68.4	75.0	100		
How many days did the symptoms and side effects of the vaccine last?							
From 1-2 days	37.5	34.1	13.2	37.5	0	χ^2= 17.624	0.128
From 3-4 days	0	26.8	31.6	12.5	0		
From 5-7 days	25.0	31.7	36.8	25.0	0		
More than week	37.5	7.3	18.4	25.0	100		
Did you need to go to the hospital to recover from symptoms caused by the vaccine?							
No	62.5	85.4	76.3	62.5	0	χ^2= 6.895	0.142
Yes	37.5	14.6	23.7	37.5	100		

***Significant (P<0.05).** χ^2 Kruskal-Wallis test

Table (7): Relationship between nurse's age and nurses' self-care regarding relieving symptoms or side effects resulting from vaccination.

Variable	18: <28 years(8)	28: <38 years (41)	38: <48 years (38)	48: <58 years (8)	More than 58 years (1)	χ^2	P
Did you feel safe after taking the first dose?							
No	0	12.2	26.3	0	0	χ^2= 6.808	0.146
Yes	100	87.8	73.7	100	100		
Why did you take the vaccine, wanting you or from the hospital?							
By myself	100	85.4	63.2	100	100	χ^2= 11.334	0.023*
The hospital decision	0	14.6	36.8	0	0		
What are the benefits of the first dose vaccination?							
Corona protection	100	85.4	78.9	87.5	100	χ^2= 2.606	0.626
I don't know	0	14.6	21.1	12.5	0		
Did you use an antipyretic and pain reliever such as Paracetamol or Adol?							
No	0	2.4	2.6	0	0	χ^2= 0.443	0.979
Yes	100	97.6	97.4	100	100		
Did you drink a lot of warm fluids when feeling tired?							
No	0	0	0	0	0	#	#
Yes	100	100	100	100	100		
Did you go to the doctor or hospital when feeling symptoms resulting from the vaccine?							
No	100	97.6	100	100	100	χ^2= 1.356	0.852
Yes	0	2.4	0	0	0		

***Significant (P<0.05).** χ^2 Kruskal-Wallis test

(#) No statistics are computed because Did you drink a lot of warm fluids while feeling tired? is a constant.

Discussion:

Exposure of the Nurses to hazards of job that put nurses at risk of illness, injury, and even death in the circumstance of the COVID-19 consequence. Health workers are every person engaged in work actions whose primary intent is to improve health. This considers health service providers, such as doctors, nurses, public health professionals, midwives, lab-, health and medical and personal care workers, and non-medical technicians. A real-world analytic study of initial COVID-19 immunizing agent distribution to front-line hospital workers and community first respondents **(Shruti, et.al.2021, World Health Organization, 2021, Lovelace, et al., 2020)**. In addition, **Raine (2021)** concluded that vaccines are the best way to protect people from COVID-19 and have already saved thousands of lives. Everyone should continue to receive their vaccination when asked to do so unless specifically advised otherwise since the author recommended that the safety of COVID-19 vaccines is being continuously monitored. A rapid and continuous decline in both COVID-19 symptomatic and asymptomatic infections pursuing HCP immunization in an area experiencing high rates of COVID-19 sickness nationally in the 2020 to 2021 wintertime season **(Centers for Disease Control and Prevention, 2021)**. So the study aimed to evaluate the experience of vaccinated nurses with COVID-19 vaccination, and find out the relationship between the experience of vaccinated nurses after first and their age.

The results of the present study revealed that the majority of studied nurses were in the age group 28 years and less than 38 years, and most of the studied nurses were females. In addition, the majority of studied nurses hadn't chronic diseases while 12.5%of studied nurses had chronic diseases where 6.3%, 6.3% of them had Diabetes, and Hypertension respectively. These results may be due to 42.7 % of studied nurses being in the age group 28 years to less than 38 years younger nurses, 8.3% and 1.0% were from 48 years to less than 58 years, and more than 58 years respectively. Concerning 54.2% female of studied nurses may be due to the graduation of female nurses from nursing school and faculty starting from more than 30 years while nurses males graduated from only about 10 years at Port said City. This result was in agreement with **Stausmire, et al. (2021)** who reported that subjects had a mean age of 49.3 years, 72.5% were female (1201). Moreover, **Detoc, et.al. (2020)**found that The mean age was 37.22±13.1 years, and 760 (70.4%) were female, 320 (29.6%) male younger age groups (16–59 years old)

According to the findings of the present study, 43.8%,30.2%, and 26.0 % of studied nurses have taken Astra-Zenca Vaccination, Sinopharm Vaccination, Sinobiotock Vaccination respectively. These results might be due to the type of vaccine that was available for nurses at the time of immunization at Portsaid City. In this respect, **Bernal, et.al. (2021), and Baden, et.al.(2021)** reported that The three vaccines currently being administered in the UK—against CoV-19 AstraZeneca, Pfizer–BioNTech, (Moderna)—have been shown to reduce COVID-19 infections, hospitalizations, and deaths. The majority of subjects received the Moderna COVID-19 vaccination (81.9%) compared to Pfizer (18.1%). This was strictly due to the number of allocated doses and the type of vaccine available for distribution each week.

The results of the current study revealed that the experience of vaccinated nurses with COVID-19 vaccination after the first dose of vaccination concerning side effects affected on nurses' health status indicated that studied nurses had been asked about their experience related to side effects after getting vaccine where the study reported that 68.7% were coughing, and 51.0% had nasal discharge, 75% haven't felt rising of the body temperature, 54.2% have felt chilling, 67.7% have felt headache, 72.9% have felt joint pain, 59.4% have felt muscle pain, 69.8% haven't felt pain at the injection site, 80.2% haven't felt axillary swelling or pain when pressing, 82.3% haven't felt tenderness at the site of injection, 79.2% haven't felt redness at the injection site,77.1% haven't felt itching at the injection site, 52.1% haven't felt warmth at the injection site , Moreover, 72.9% had symptoms, and 32.3% had the days of side effects of the vaccine lasting From 5-7 days. In the same line, **Stausmire, et al. (2021)** stated that participants were asked to give the worst rating participants felt in the week after the vaccine. Overall, among the 1391 participants with dose 1, 5.5% (n = 77) had major or worst symptoms; and overall 29.8% (253 of 850) had major or worse symptoms with dose 2. The most common side effects after the second dose were: pain at the injection site (92.1% >2 hours, 78.9% >24 hours), fatigue (66.4%), body or muscle aches (64.6%), headache (60.8%), chills (58.5%), joint or bone pain (35.9%), fever 100 F or higher (29.9%), swelling at the injection site (26.5%), redness or rash at the injection site (17.3%), and drowsiness (16.5%). Side effect degrees were considerably higher at the second dose than the first dose. Notably, the chills rate increased by 43.0% (from 15.5% after the first dose to 58.5% after the second), body aches increased by 42.1%, fatigue 40.5%, and headache by 31.8%.

Corresponding to the findings of recently published studies **(El-Shitany et al., 2021, Hatmal et al., 2021)**, who ascertained that the frequency of adverse effects to the second shot of vaccine was slightly higher than to the first dose except for nausea (1.5% vs 1.1% [first vs second dose]), cough (1.1% vs 0.7%), allergy (1.1% vs 0.0%), abdominal pain (1.85% vs 1.5%), and back pain (4.1% vs 3.0%). This result could be due to the basis of immune system response. The immune system could make cytokines with an inflammatory effect on the blood vessels, muscles, and other tissues; it may also produce flu-like symptoms that last for days after vaccination **(Zhang et al., 2021)**. Moreover, **Schifferli, et.al. (2021)** commonly reported adverse events involved in injection site reactions, such as pain, tenderness, redness, and swelling, and non-serious systemic reactions, such as headache, myalgia, nausea, and fever. Reports of serious adverse events have been rare. In addition, Turkey, the survey of Riad and others among healthcare workers stated that injection site pain (41.5%), headache (18.7%), and fatigue (23.6%) were reported by more than 10% of the participants; this result was in agreement with the result for the Sinopharm COVID-19 vaccine **(Riad et al., 2021).**

Concerning results of the current study indicated that 84.4% felt safe after taking the first dose vaccine, and 79.2% have taken the vaccine based on their decision. These results may be due to 84.4 % of studied nurses having known that the main benefit of COVID-19 was the protection from COVID-19 according to the current study's result. This finding was in the same line with **Manning, et.al. (2021)** who found that more than half of the participants (57%) were ready to take the vaccine, and 84% of the ones willing to take the vaccine would commit to taking the second dose as well. In addition, 97.5% of them would report the side effects to the health institute if any side effects were experienced. However, the reason 60% of those were not willing to get the vaccine was due to uncertainty about the

vaccine's safety. This finding was in disagreement with **Verger (2021)** who emphasized that the acceptance of vaccination among Healthcare Workers is mandatory to minimize and reduce the chain of transmission of COVID-19, and The study carried out in the USA reported that HCWs were preparing to receive vaccination and the health organizations were delivering the safe and effective vaccine. The study revealed that low intention to receive vaccines against COVID-19 was mostly driven by vaccine safety concerns.

The result of the current study found that 97.9% took an antipyretic and pain reliever such as Paracetamol or Adol. It may be due to 100%,72.9%, 67.7%, and 59.4% of studied nurses feeling tired, joint pain, headache, and muscle pain respectively. As regards drinking a lot of warm fluids when they felt tired, it was 100%. Moreover, 99.0% weren't going to the doctor or hospital when nurses were feeling symptoms or side effects resulting from the vaccine that may be due to 87.5% of studied nurses haven't chronic diseases. These findings are in agreement with the **World Health Organization (2021)** has declared that taking painkillers such as paracetamol before getting the COVID-19 vaccine to avoid side effects is not recommended. This is because it is not notable how painkillers may affect how well the vaccine works. However, you may take paracetamol or other painkillers if the individual does develop side effects such as pain, fever, headache, or muscle aches after vaccination.

Moreover, **World Health Organization (2021)** has ascertained that if the individual experienced an immediate severe allergic reaction to a first dose of the COVID-19 vaccine, an individual should not receive additional doses of the vaccine. It's highly rare for severe health reactions to be directly caused by vaccines. The similarity of the current results to **Centers for disease prevention and control(2021)**where they have been determining assistive tips if you have pain or discomfort after receiving the vaccine, you can go to a physician about taking over-the-counter medications, such as ibuprofen or acetaminophen. To decrease pain and discomfort where you got the shot, and to reduce discomfort from fever, Drink plenty of fluids and dress lightly.

Concerning the relationship between nurses' age and nurses' experiences with COVID-19 vaccination after the first dose of vaccination concerning side effects affected on general health status, symptoms or side effects at site injection of vaccination, and self-care regarding relieving symptoms or side effects resulting from vaccination. The results indicated that there is no statistically significant relationship between nurses' age and nurses' experiences with COVID-19 vaccination after first dose of vaccination concerning side effects affected on general health status, symptoms or side effects at site injection of vaccination, and self-care regarding relieving symptoms or side effects resulted from vaccination except in one item related to nurses' feeling of redness at the injection site where P-value less than 0.05. This result was in disassociation with **Simpson, et.al. (2021)** who found that self-reported adverse reactions after the first dose in groups (A, B) and second doses in groups (C, D) in males, females, and different age groups. Systemic adverse reactions in sheets A and C; local adverse reactions in sheets B and D. Overall, the second dose of the immunization was associated with a higher incidence of systemic reactions in females (F, in red) than in males (M, in blue); moreover, an inversely proportional correlational statistics was found between age and localized reactions in both females and males. Concerning males, considering the age groups, a significant diminishing direction was observed in association with increased age categories for both systemic ($p = 0.001$) and local reactions ($p = 0.0002$) after the first dose. In contrast, this relationship was observed for a systemic reaction only after the second dose ($p = 0.075$). Allergic reactions had a corresponding incidence among age groups ($p = 0.604$ and $p = 0.363$ after the first and second dose, respectively) **(Leshem & Wilder-Smith, 2021**).

Finally, there is no statistically significant relationship between nurses' age and nurses' experiences with COVID-19 vaccination after the first dose of vaccination excluding one item related to the nurses feeling redness at the injection site.

Conclusion:

The results of the present study revealed that there are side effects after getting the first dose of COVID-19 vaccine, which indicated the

intention of the nurses not to receive the second dose of vaccination. Furthermore, it was also found that there is no significant relationship between the experience of vaccinated nurses after first and their age.

Recommendation:

- ❖ Continuous the same research to evaluate the experience of vaccinated nurses with COVID-19 vaccination after the second dose of vaccines in all hospitals at Port said City.
- ❖ Assess the readiness of nurses to receive the second dose of the COVID-19 vaccine and what are the obstacles to their readiness.
- ❖ Studies in a similar context but with a wider scope and much larger sample size are suggested to confirm the findings of this study.
- ❖ Evaluation relationship experience of vaccinated nurses with COVID-19 vaccination after the second dose of vaccines with sociodemographic data.

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