Effect of Counseling Regarding COVID-19 Vaccine on Pregnant Women's Acceptance to Take the Vaccine

Nour El Hoda Moustafa Mohammed [1], Fatma Ahmed Mohammed Sabry [2], Eman Ezz Elregal Ibrahim Eisa[3], Mona R. Ahmed [4]

[1] Assistant professor of Obstetric and Gynecological Department, Faculty of Nursing, Sohag University, Egypt.
[2] Lecturer of Obstetric and Gynecological Department, Faculty of Nursing, Sohag University, Egypt.
[3] Assistant professor of Family and Community Health Nursing Department, Faculty of Nursing, Damietta University, Egypt.
[4] Lecturer of Maternity & Newborn Health Nursing, Faculty of Nursing, Assiut University, Egypt.

Abstract

Background: Covid19 vaccine remain the most important strategy for Curbing infections and disease severity in the current coronavirus disease 2019 (COVID-19) pandemic. Lack of knowledge about the vaccine's mechanism of action was related to low vaccine acceptance in pregnant women. **Aim:** To evaluate the effect of counseling regarding covid19 vaccine on pregnant women's acceptance to take the vaccine. **Design :** Quasi experimental research design was used in this study. **Setting**: It was conducted at Sohag university hospital in antenatal clinic. **Sample**: purposive sample of 100 pregnant women. **Tools**: Three tools were used in this study, (1) structured interviewing questionnaire, (2) knowledge assessment sheet, (3) acceptance assessment sheet. **Results:** There is highly statistical significance difference between pre & posttest regarding total knowledge and acceptance of studied pregnant women regarding covid19 vaccine p-value 0.001. **Conclusion:** There was an improvement in the knowledge and acceptance of covid19 vaccine following the counseling program **Recommendations:** The nurses should provide counseling to pregnant women to increase their knowledge and correct misconceptions regarding COVID-19 vaccine.

Keywords: Acceptance, Counseling, Covid19 vaccine, Knowledge, Pregnant women.

Introduction

Corona Virus Diseases 2019 (COVID-19) has caused extensive damage on the world's population, causing massive morbidity and mortality. COVID-19 is reported to be already killed over 2.5 million people worldwide**. (Nersesjan et al. 2020)** COVID-19 vaccine is a safe and effective method of managing the pandemic and minimizing COVID-19 related morbidity and mortality **(Mose and Yeshaneh, 2020).**

Pregnant women are more likely than their non-pregnant ones to develop a more severe course of COVID-19, including hosptalization, intensive care, ventilator use, special respiratory equipment, and/or death**. (Kotlar et al.,2021).**

The Centers for Disease Control and Prevention (CDC) reported that

pregnant women are the most vulnerable group population, with a higher risk of ICU admission and mechanical ventilation compared to non-pregnant women, due to physiological changes that occur during pregnancy, such as increased heart rate and oxygen consumption, decreased lung capacity, and shifts in the body's immune system **(Nakamura-Pereira et al., 2020).**

The Advisory Committee on Immunization Practices and the American College of Obstetricians and Gynecologists (ACOG) recommends that pregnant women be vaccinated and the role of obstetricians is to encourage pregnant women to vaccinate **.(Januszek et al.,2021).**

Unwillingness to vaccinate is a significant threat in the fight against COVID-19, because achieving population immunity is dependent on the effectiveness of the vaccine and the population's willingness to accept it **(El-Elimat et al.,2021).** The World Health Organization (WHO) identified vaccine hesitancy, as one of the top ten threats to global health, even prior to the current COVID-19 pandemic. Early COVID-19 vaccine surveys on vaccine acceptance foreshadow global challenges to COVID-19 vaccine distribution **(Skjefte et al.,2021).**

According to previous studies, the barriers to vaccine acceptance included worries about COVID-19, misinformation about the benefits, a lack of confidence in vaccine safety or effectiveness, and adherence to infection prevention guidelines.**(Nalumansi et al.,2020).**

Health professionals–including midwives–could reduce the level of anxiety associated with vaccination against COVID-19 through providing reliable information regarding safety, effectiveness, and recommendations of scientific societies that may contribute to wider acceptance of vaccination against COVID-19 among pregnant women. **(Januszek et al.,2021).**

Significance of the study

By the end of 2020, the total number of Coronavirus Disease 2019 (COVID-19) cases had reached 80 million worldwide, with 1.8 million deaths from COVID-19-related causes. At an unprecedented rate, several COVID-19 vaccines have been developed and approved at the same time. Such vaccines, however, will not be able to prevent the epidemic unless they are widely accepted**(Skjefte et al.,2021).**

Egypt's Ministry of Health and Population announced the first COVID-19 infection on February 14, 2020 **(Medhat, 2020).** In Egypt there have been 331,968 confirmed cases of COVID-19. Currently about 14,000 people are sick, that is one in every 7,400 inhabitants.The current incidence is 6.4 new cases per week per 100,000 inhabitants **(Saied et al.,2021).**

Vaccination remains a crucial strategy for reducing infections and disease severity in the current coronavirus disease 2019 (COVID-19) pandemic **(Jayagobi et al.,2021).** Vaccine hesitancy is a great barrier to the implementation of vaccination programmes. **(Fares et al., 2021)** and Initial research on the acceptance of COVID-19 vaccines anticipated unprecedented challenges for global vaccination. **(Lazarus et al., 2020)**

Although mass vaccination against COVID-19 may prove to be the most

effective way to end this deadly pandemic, there is still public concern and hesitation about vaccination. Because pregnant women make up a large proportion of the population of special concerns about COVID-19 vaccination because they are considered a vulnerable population due to the increased risk of severe complications from COVID-19. **(Sutton et al.,2021).**

Aim of the study

The study was aimed to evaluate effect of counseling regarding covid19 vaccine on pregnant women's acceptance to take the vaccine, through the following objectives;

1- Assess pregnant women's knowledge and acceptance of COVID-19 vaccine

2- Implement Counseling regarding COVID-19 vaccine for pregnant women

3- Evaluate effect of Counseling regarding COVID-19 vaccine on Pregnant Women′ Knowledge and Acceptance.

Research Hypotheses:

Counseling regarding COVID-19 vaccine will have positive effect on pregnant women′ knowledge.

Counseling regarding COVID-19 vaccine will have positive effect on pregnant women′ acceptance to take the vaccine.

Subjects and methods:

Research Design:

Quasi experimental research design with pretest and posttest was used in this study.

Subjects:

Setting:

This study was carried out at the Antenatal Outpatient Clinics at Sohag University Hospital. Obstetric and Gynecology Department consist of two big wards, antenatal outpatient clinics and reception department, one ward consist of antenatal room, sonar room, postpartum examination room and other ward consist of gynecological examination room, nursing room and medical room. This hospital has a higher rate of women attendance from both rural and urban areas in Sohag city, and it offers free services to women who live in the Sohag city.

Sample:

A purposive sample was used in this study

Sample size:

The sample size was estimated to be 100

Sample size calculation:

In this study, The sample was calculated using (Epi-info statistical package, version 7.2, designed by the CDC (Center for Disease Control and

Prevention) with 80 percent power, a value of 2.5 is chosen at the acceptable limit of precision (D) at 95 percent confidence level (C1), with expected prevalence 10%, worst acceptable 25%. As a result, the sample size was estimated to be 100 +10%of woman to guard against non response rate.

Inclusion criteria:

1- Pregnant women who attended antenatal clinic.
2- Women who agreed to participate in this research.

Exclusion criteria

women with any medical complications in pregnancy, such as gestational diabetes, preeclampsia, hypertension, or coronary heart disease, in order to rule out the effect of other factors on study outcomes.

Tools of the study:

Tool no. (1) Structured interviewing questionnaire include:

Part I: Socio-demographic data included: Name, age, residence, educational level, occupation.

Part II: Data related to past obstetric history included: number of gravidity, number of parity, number of abortion, No of living children.

Part III: Data related to present obstetric history included: gestational age, Regular attendance of antenatal visits.

Tool no. (2): **knowledge assessment sheet about covid-19 vaccine.** questionnaire consists of 9 items

The knowledge items were about

The latest recommendations regarding safety of covid19 vaccine in pregnancy ,benefits of covid19 vaccine in pregnancy , side effects and risks of covid19 vaccine in pregnancy, contraindications of covid19 vaccine in pregnancy, types of covid19 vaccine that pregnant woman can get,The preferable time for first dose of covid19 vaccine during pregnancy,the schedule of covid19 vaccine doses in pregnancy.

❖ **Knowledge scoring system**

For each question, a correct answer awarded a (1) and an incorrect answer awarded a (0). While the total knowledge score was categorised as follows

Inadequate knowledge if the percentage score was <75%

Adequate knowledge if the percentage score was 75% and more.

Tool no. (3): Acceptance assessment sheet of COVID-19 vaccine in the pregnant women.

Acceptance of COVID-19 vaccine: "Will you get vaccinated if COVID-19 vaccine becomes available?" Those who answered "Yes" to this question were considered to have vaccine acceptance,

while those who answered "No" were considered to have vaccine hesitancy.

Content validity:

The study tools were tested for content validity by a panel of three experts in the fields of maternity and newborn health nursing and community health nursing, and modifications were made as needed.

Content reliability:

Reliability was assessed through Cronbach's alpha reliability test α=92% which revealed that each of the tools consisted of relatively homogenous items as indicated by the moderate to the high reliability of each tool.

Ethical and legal considerations:

Official permission was obtained from the manager of the antenatal Clinic at Sohag University Hospital. Subjects agreed to participate in the study after the purpose of the study was explained to them. Prior to data collection, pregnant women were informed of the purpose and nature of the study, which did not cause any harm or pain. They were also assured that the data would be considered confidential and used solely for research purposes. The researcher informed the participants that their participation in the study was entirely voluntary and that they had the right to withdraw at any time.

Pilot study:

A pilot study was carried out on 10% of the total sample (ten pregnant women) to assess the clarity and applicability of the tools; no changes were made. Ten women were recruited for the pilot study and included in the total sample.

Procedure:

The actual fieldwork was carried out in a five-month period from May to October 2021, and included the development, implementation, and evaluation of the counselling programme.

Preparatory phase

A counseling program was designed in Arabic language following reviewing the relevant current Arabic and English literature covering various aspects of the covid19 vaccine during pregnancy, in order to address the knowledge deficits of pregnant women.

The implementation phase:

Assessment phase:

The researcher interviewed the women face to face; each interview took about 15-30 minutes before the conduction of counseling sessions, and at the beginning of each interview, the researcher greeted, introduced herself to the woman after that the researcher explained the nature and aim of study, and an oral consent to participate in the study was obtained from each woman. Then, the researcher assessed sociodemographic data&the obstetrical history of the women and Pretest structured questionnaires were completed face-to–face before the conduction of counseling sessions .

Intervention phase (Counseling program)

The counseling program involved a small groups were divided into 20 groups

of 5 mothers in each group. The counseling program was given to each group separately in 2 sessions and each session was presented for 30 minutes. At the end of each session, women' questions were discussed to correct any misunderstanding and the brochure was given to pregnant women. This brochure contained all the information needed to know about COVID-19 vaccine such as benefits of vaccine, side effects, contraindications, doses, preferable time of first dose, suitable type of vaccine which recommended for pregnant women plus photos to clarify information .

The first session include:

The sessions was performed by the researcher in the seminar room at obstetric and gynecology department by using the Arabic language that appropriate for women's understanding, the researcher firstly exploring the false beliefs and misconceptions about covid-19 vaccine, then explaining benefits of covid19 vaccine during pregnancy, mechanism of action and the latest recommendations rgarding safety of covid19 vaccine during pregnancy.

The second session include:

The researcher began with a discussion about the previous session content, then define the learning outcomes of the next session. The researcher explained side effects and risks of covid19 vaccine in pregnancy, the contraindications of covid19 vaccine in pregnancy, the types of covid19 vaccine that pregnant woman can get, the preferable time to take the first dose of covid19 vaccine during pregnancy, the schedule of covid19 vaccine doses during pregnancy and finally summary and discussion of women' questions. It was implemented through lecture, Photos, videos and posters.

Evaluation phase:

To evaluate the effect of the Counselling on improving knowledge and acceptance of pregnant women regarding COVID-19 vaccine, a post-test (one month from the application of the counselling) was done using the same two tools through telephone.

Statistical analysis

Data entry and statistical analysis will be done using the statistical package for social science program (SPSS. version 22).qualitative variables will be presented as number and percentage. Quantitative variables will be presented as mean $\pm$SD. Comparison between qualitative variables will be done by using chi-square. Comparsion between quantitative variables will be done by using student t-test.

Results

Table (1): Reveals the distribution of the studied women regarding to their socio-demographic characteristics. According age it was noticed that nearly two thirds (70.0%) of the studied women their age between (25< 30yrs) . Regarding residence, it was observed that more than two thirds (80%) of the women were living in rural areas. Regarding education level it was observed that nearly half (45.0%) of the studied women had Secondary level education. According women's occupation it was observed that more than half (65.0%) of the women were housewives.

Table (2): Reveals the distribution of the women regarding to their obstetrical history. According number of

gravida, it was noticed that nearly half (46.0%) of the studied women were primigravida. Regarding gestational age of women, it was observed that nearly half (45.0%) of the women were in second trimester.

Table (3): Shows knowledge of Pregnant women about covid-19 vaccine in pre and posttest, and finds that there is highly statistical significance difference between pre &posttest with p-value (0.001)

Figure (1): Shows total knowledge of studied pregnant women regarding covid19 vaccine in pre-test and posttest, and clarifies that there is highly statistical significance difference between pre & posttest p- value 0.001.where more than two thirds (71%)of the women had inadequate level of knowledge pre-test, compared to more than three quarters (87%) of the women had adequate level of knowledge post-test

Figure (2): Shows acceptance of studied pregnant women regarding covid19 vaccine in pre-test and posttest, and clarifies that there is highly statistical significance difference between pre & posttest p- value 0.001. Where the majority (81%) of the women were not accepted COVID19 vaccine pre-test, compared to the most (85 %) of the women were accepted COVID19 vaccine post-test

Table (4): Shows causes of unwillingness to take covid19 vaccine, the possibility of fetal harm and lack of data on the safety of the COVID-19 vaccine in pregnant women are the most common (37% ,32%) respectively.

Table (1): Distribution of the studied women according to their socio demographic characteristics (n=100).

Socio- demographic characteristics	(N=100)	%
1. Age		
• Less than 20 years	5	5.0%
• 20 < 25 years	10	20.0%
• 25 < 30	70	70.0%
• 30-35	10	10.0%
• More than 35	5	5.0%
2. Residence		
• Urban	20	20.0%
• Rural	80	80.0%
3. Mother's educational level		
• Iliterate	22	22%
• Read and write	10	10%
• secondary	45	45%
• University or higher	23	23%
4. Mother's occupation		
• House wife	65	65%
• Employed	35	35%

Table (2): Distribution of the studied women according to their obstetrical history (n=100).

Obstetrical history	(N=100)	%
1- Gravida		
• Primigravida	46	46.0%
• 2-3	30	30.0%
• >3	24	24.0%
2-para	46	46.0%
• Nulliparous	41	41.0%
• 2-3	13	13.0%
• >3		
3- Gestational age	22	22.0%
• First trimester	45	45.0%
• Second trimester	33	33.0%
• Third trimester		
4- Regular attendance of antenatal visits	65	65%
•yes	35	35%
•No		

Table (3): Distribution of studied women according knowledge about covid19 vaccine in pre-test and post test.

		Pre		Post		Chi square test	
		No	%	No	%	X^2	P value
Is COVID 19 vaccine being recommended for pregnant women	Correct	24	24.0%	96	96.0%	108	<0.001
	In correct	76	76.0%	4	4.0%		
Is covid 19 vaccine safe for pregnant women	Correct	24	24.0%	96	96.0%	108	<0.001
	In correct	76	76.0%	4	4.0%		
What are the benefits of vaccination in pregnancy	Correct	28	28.0%	96	96.0%	108.089	<0.001
	Incorrect	72	72.0%	4	4.0%		
What are the side effects of the COVID 19 vaccines in pregnancy	Correct	28	28.0%	96	96.0%	108.089	<0.001
	Incorrect	72	72.0%	4	4.0%		
What are the contraindications for covid19 vaccine in Pregnancy	Correct	24	24.0%	96	96.0%	108	<0.001
	In correct	76	76.0%	4	4.0%		
What are number of Doses of the covid 19 vaccine taken during pregnancy	Correct	24	24.0%	96	96.0%	108	<0.001
	In correct	76	76.0%	4	4.0%		
What is the perferable time of the first dose of the covid 19 vaccine for pregnant women	Correct	24	24.0%	96	96.0%	108	<0.001
	In correct	76	76.0%	4	4.0%		
Which type of vaccine can pregnant women take	Correct	28	28.0%	96	96.0%	108.089	<0.001
	Incorrect	72	72.0%	4	4.0%		
if you have a fever (temperature of 38 degrees Celsius or higher). You can take	Correct	28	28.0%	95	95.0%	104.731	<0.001
	Incorrect	72	72.0%	5	5.0%		

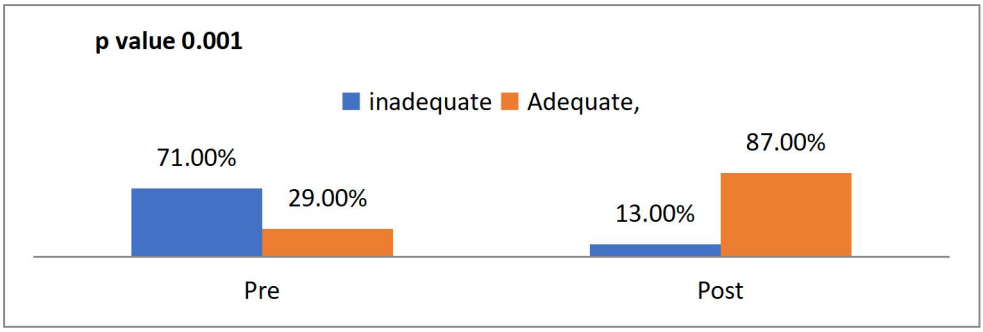

Figure (1): Total knowledge of studied pregnant women regarding covid19 vaccine.

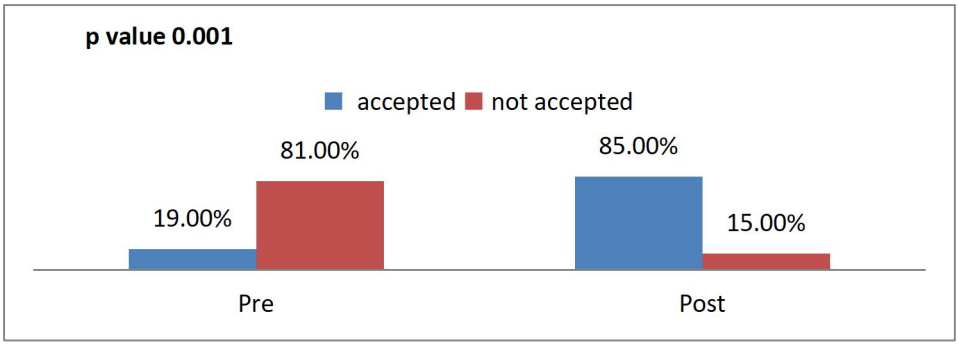

Figure (2) : Acceptance of studied pregnant women regarding covid19 vaccine.

Table (4): Distribution of studied women according their causes of unwillingness to take COVID19.

		Pre		Post		Chi square test	
		No	%	No	%	X^2	P value
causes of unwillingness to take Covid 19 vaccine	Fearing from potential complications	12	12.0%	0	0%	159.149	<0.001
	Possibility of harming fetus	37	37.0%	0	0%		
	Lack data about safety of covid19 Vaccine during pregnancy	32	32.0%	15	15.0 %		

Discussion

Covid19 vaccine remain the most important strategy for Curbing infections and disease severity in the current coronavirus disease 2019 (COVID-19) pandemic. Lack of knowledge about the vaccine's mechanism of action was related to low vaccine acceptance in both pregnant and lactating women, indicating

the potential for educating women about the vaccine's mechanism of action in order to increase vaccine acceptance rates.**(Jayagobi et al.,2021)** thus this study aimed to assess pregnant women's knowledge and acceptance of covid19 vaccine and to evalute effect of counselling pregnant women about covid-19 vaccine on their knowledge and acceptance of covid19 vaccine.

Regarding pregnant women's knowledge and acceptance of covid19 vaccine before the counselling program , the majority of pregnant women had inadequate knowledge and and their acceptance of the covid19 vaccine was low. This was similar to the findings of **(Ayhan et al.,2021),** who conducted a study in Turkey to determine vaccine acceptance and hesitancy attitudes toward coronavirus disease 2019 (COVID-19) vaccines in pregnant women and found low acceptance of COVID-19 vaccination in a sample of pregnant women.Also with **(Jayagobi et al.,2021)**who conducted their study in Singapore to assess COVID-19 vaccine acceptance in pregnant and lactating women and found that COVID-19 vaccine acceptance was low among pregnant and lactating women in Singapore.This was different with **(Nguyen et al.,2021)** who applied their study in Vietnam to assess acceptance of COVID19 vaccine and willingness to pay (WTP) for it, as well as investigate associated factors among pregnant women and reported that more than half of pregnant women accepted to receive the vaccine, and more than two-thirds of total pregnant women were willing to pay for a COVID19 vaccine.Also with **(Battarbee et al.,2021)**who conducted their study in New York to assess pregnant women's attitudes toward COVID-19 illness and vaccination, as well as to identify factors associated with vaccine acceptance, and reported that more than half of pregnant women were willing to be vaccinated during pregnancy. This difference may back to racial and ethnic disparities in study subjects.

Regarding total knowledge of studied pregnant women regarding covid19 vaccine in pre-test and posttest, the current study clarifies that there is highly statistical significance difference between pre &posttest p-value 0.001.

This was in line with **(Desai et al.,2021)** who conducted their study in to Investigate the willingness of pregnant women to receive the vaccine before and after discussion with a health care provider and reported pregnant women were more willing to receive the COVID-19 vaccine after discussion with a health care provider.

To the best of our knowledge, this is the first study evaluating effect of counselling pregnant women about covid-19 vaccine .

Concerning causes of unwillingness to take covid19 vaccine, the most common causes were the possibility of foetal harm and lack of data on the safety of the COVID-19 vaccine in pregnant populations .

This was consistent with the findings of **(Ayhan et al.,2021)**, who reported that vaccine hesitancy was mainly influenced by doubts about vaccine safety.

Strengths of the research

The main strengths of this study its novelty and the prospective design of the study.

Limitations of the Research

The current research study has some limitations, as follow:

Firstly, the lack of national and International researches that study the Current research topic.

Secondly, sometimes the sessions were protracted due to noise and other individuals' interruption and lastly, challenging to facilitate group place and sessions

Conclusion

There was an improvement in the knowledge and acceptance of pregnant women regarding covid19 vaccine following the counselling program evidenced by the pretest and posttest knowledge scores and acceptance rate.

Recommendations

Based on the findings of this study,the following recommendations are suggested:

1- The nurses should provide counselling to pregnant women to increase their knowledge and correct misconceptions regarding COVID-19 vaccine.
2- The health authorities should design interventions in terms of awareness campaigns via all types of multimedia to disseminate more transparent information about the safety and efficacy of the vaccines for pregnant women in order to boost COVID-19 vaccines acceptance.

3-Further research should be conducted to evaluate effect of counseling regarding covid19 vaccine on pregnant women's acceptance to take the vaccine and to develop effective strategy to overcome vaccine hesitancy.

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