

# Effectiveness of Instructional Program on Women Practices about Prevention of Covid 19 in Kirkuk City

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## ABSTRACT

**Background:** Pregnancy is a condition of partial immune suppression which makes pregnant women riskier to viral infections, and the morbidity is increased even with seasonal influenza. Therefore, the COVID-19 epidemic may have dangers consequences for pregnant women. Although the high incidence of cases of COVID-19 are currently in China, the risk of outward transmission appears to be significantly high global concern.

**Objectives:** To assess pregnant women's practices about prevention of covid 19 before and after implementation of instruction program and to determine the effectiveness of instruction program on pregnant women practices about prevention methods of corona virus, covid 19 in PHCC in Kirkuk city.

**Methods:** A quasi-experimental design was conducted during the period from (6<sup>th</sup> may 2021 through 20<sup>th</sup> August 2021) on non-probability sample (purposive) consists of (100) pregnant women) who visited the primary health care center. The sample practices was exposed to pretest, educational program, posttest. The study was conducted in Kirkuk city, Kirkuk health Director, three primary health care centers from the Kirkuk 1<sup>st</sup> sector which include (Al- Mansur center for primary health care, Al-Wassity center for primary health care, and Bader center for primary health care), than select three primary health care centers from Kirkuk 2<sup>nd</sup> sector which include (AL-Rasheed center for Primary health care, Azady center for Primary health care, AL-Nassir center for Primary health care, and Al- Mansur center for primary health care)

Questionnaire was used as a tool of data collection. A pilot study was conducted at Al- Wassity center for primary health care in order to determine the reliability of the study and the testing the pregnant women practices about prevention methods of corona virus diseases 19. Data were collected through the questionnaire. Data were analyzed through the application of descriptive and inferential statistical data analysis approach through the use of (SPSS) version 22.0 and Excel system

**Results:** The results of the study have revealed that significant correlation between pretest and posttest periods after the implementation of education program for pregnant women Practices regarding prevention methods of corona virus and reducing infected by it. There were high significant correlations between pre and post periods at (p. value: 0.101) in evaluation of the effectiveness of the instruction program in the practices of pregnant women on prevention methods to reduce the incidence of infection between Pre and post evaluation.

**Conclusions:** The study concluded that the educational program can be considered as an effective mean for the improvement of the pregnant women's practices about the importance prevention methods of corona virus.

**Recommendations:** Pregnant women should be given instructional booklets in order to raise practice level of preventive measures of COVID-19 infection at the beginning of their pregnancy and who can protect their families' members from such pandemic.

**Keywords:** practices, pregnant women, transmission methods, and covid 19.

## INTRODUCTION

Emerging infections have been shown to have deferent effect on pregnant women and their neonate as shown by recent pandemic caused by 2009 pandemic H1N1 influenza virus and the more fetal effects of Sika virus (Yu et.al, 2020). In 2020, a new global pandemic has emerged, caused by a new type of CoV called SARS-CoV-2, This pandemic is spread primary in Wuhan, China in December 2019, and involved almost every country in the world which lead to mostly mild upper respiratory tract infection and in a minority of cases lower respiratory tract symptoms called coronavirus disease-19 (Smith et.al, 2020). On May 25th, 2020, more than 5,305,000 cases were reported with corona virus infection and more than 342,000 deaths with a case highly rate of 6.4%. The corona virus is different from its previous predecessors in that it is highly contagious and easily spread from human to human through respiratory droplets and direct contact which led to this large number of infected persons, the day-today numbers are still on the increase especially in Europe (Pena et.al, 2020).

Pregnancy is a condition of partial immune suppression which makes pregnant women riskier to viral infections, and the morbidity is increased even with seasonal influenza. Therefore, the COVID-19 epidemic may have danger consequences for pregnant women. Although the high incidence of cases of COVID-19 are currently in China, the risk of outward transmission appears to be significantly high global concern. Human to human transmission of the virus is proven to occur,1,2 perhaps even from asymptomatic patients, and the mortality is substantial, especially among weakly, elderly patients with comorbidities. (Irfan et. al, 2020)

**Aims of the study:** The aim of this study was to assess pregnant women's practices about prevention methods of corona virus covid-19 in primary health care center in Kirkuk city.

## METHODOLOGY

The aim of this study was to assess pregnant women's knowledge about transmission methods of corona virus covid-19 in primary health care center in Kirkuk city. To carry out the study, a choice was made descriptive design, and then the current study began after official permission was obtained from the Ministry of Health, Department of Primary Health Care. The data for the original study were collected from pregnant women in (Al- Mansur center for primary health care, Al- Wassity center for primary health care, and Bader center for primary health care) these was selected from Kirkuk 1<sup>st</sup> sector, then (AL-Rasheed center for Primary health care, and Azady center for Primary health care), selects from Kirkuk 2<sup>nd</sup> sector. The study started from the 1st of December 2020 until 15th September 2021. The period of the data collection extends from 1st march to 15th July of 2021, a purposive sample for this study selected (100) pregnant women who are visited the maternity unit in the PHCC. The tool was constructed using a review of literature from published research studies. it is composed of the first part represents the demographic variables of women participating in the current study, which include: age, educational level, Occupation, Place of residence, family income, Relevancy to husband, smoking). The second part are medical history which consists of some variable (diseases) if the study sample was suffering from it include (Hypertension, diabetes, asthma, allergy, renal diseases, heart diseases, other problems, do you take any

medication, and history of previous surgery). Third Part Pregnant Woman practices about prevention methods of Corona Virus Disease. This part consists of (12 items), all items scored by using three levels scale including; always, sometime, never, from zero (never), one to (sometime) and two to (always). The level of overall practices was estimated by calculating the mean of score and the cutoff point for the total mean score of practices as follow: poor practices (0 – 23), fair practices (24 – 47), and good practices (48 – 70). The validity of the questionnaire was established through a panel of (8) experts chosen to examine the questionnaire. In order to give their opinions about the suitability of the items included in the tool. Some corrections were done to the arrangements of the items. The internal consistency of the questionnaire was (r = 0.75). Statistical Package for the Social Science (SPSS, Version 24) was by using descriptive statistics, and inferential statistical methods. The data significant at P. value ≤ 0.05.

**RESULTS**

Table 1: Distribution of the Sample According to their Socio-demographic Characteristics

List	Characteristics	Study Group		Control Group		C.C
		f	%	f	%	
1	Age					p = 0.892 Sig: NS
	< 20 year	3	6	6	12	
	20 – 25 year	14	28	12	24	
	26 – 30 year	12	24	7	14	
	31 – 35 year	11	22	9	18	
	36 – 40 year	9	18	13	26	
	41 ≤ year	1	2	3	6	
Total	50	100	50	100		
	Mean ± Standard deviation	29.42 ± 6.25		29.84 ± 7.85		
2	Level of education					p = 0.490 Sig: NS
	Doesn't read & write	4	8	3	6	
	Read & write	7	14	7	14	
	Primary school	13	26	12	24	
	Intermediate school	7	14	5	10	
	Secondary school	8	16	12	24	
	Institute/ college	11	22	9	18	
Postgraduate	0	0	1	2		
Total	50	100	50	100		
3	Occupation					p = 0.444 Sig: NS
	Housewife	37	74	38	76	
	Governmental employee	8	16	4	8	
	Private work	3	6	2	4	
	Retired	1	2	1	2	
Student	1	2	5	10		
Total	50	100	50	100		
4	Residency					p = 0.098 Sig: NS
	Rural	10	20	14	28	
	Urban	31	62	26	52	
	Sub-urban	9	18	10	20	
	Total	50	100	50	100	
5	Perceived family monthly income					p = 0.738 Sig: NS
	Highly sufficient	1	2	4	8	
	Sufficient	28	56	21	42	
	Barely sufficient	16	32	20	40	
	Insufficient	5	10	5	10	
Total	50	100	50	100		
6	Relevancy to husband					p = 0.096 Sig: NS
	Relative	18	36	17	34	
	Not relative	32	64	33	66	
Total	50	100	50	100		
7	Smoking					p = 0.670 Sig: NS
	No	48	96	46	92	
	Yes	2	4	4	8	
Total	50	100	50	100		
8	Husband smoking					p = 0.108 Sig: NS
	No	30	60	34	68	
	Yes	20	40	16	32	
Total	50	100	50	100		

f: Frequency, %: Percentage, C.C: Contingency coefficient, p: Probability, Sig: Significance, S: Significant, N.S: Not significant

The descriptive analysis of socio-demographic variables shows that pregnant women are with age (29.42 ± 6.25) year among the study group and (29.84 ± 7.85) year among the control group; the highest percentage age group refer to 20-25 year (28%) and 26-30 year (24%) among the study group, and 36-40 year (26%) and 20-25 year (24%) among the control group. Regarding level of education, the women in the study group show that (26%) of them graduated from primary school and (22%) graduated from institute / college while those in the control group show that (24%) are graduated from the primary school and the same from secondary school.

The occupational status refers that more of the pregnant women are housewives among both groups; the study and control group (74% and 76%) respectively, and only (16%) in the study group and (8%) in the control group are working as governmental employees. More than half of pregnant women are reporting they are resident at urban as seen among (62%) of women in the study group and (52%) in the control group. Regarding family monthly income, (56%) in the study group and (42%) in the control group perceive sufficient monthly income, while (32%) in the study group, and (40%) in the control group perceive barely sufficient monthly income. The relevancy to husband indicates that only (36%) of women in the study group, and (34%) in the control group have relation with their husbands. The smoking status refers that only (4%) in the study group and (8%) in the control group are smokers, while (60%) of husbands in the study group and (68%) in the control group are smokers. The contingency coefficients among the variables in the study and control groups show that there are no significant differences among all variables of the study.

Table 2: Distribution of the Sample According to their Prenatal Health Care Visits

List	History	Study Group		Control Group		C.C
		f	%	f	%	
1	Prenatal visits					p = 0.547 Sig: N.S
	No	8	16	11	22	
	Yes	42	84	39	78	
	Total	50	100	50	100	
2	Number of prenatal visits					p = 0.094 Sig: N.S
	None	8	16	11	22	
	1 – 3	31	62	28	56	
	4 – 6	11	22	11	22	
Total	50	100	50	100		
3	Primary health care					p = 0.165 Sig: N.S
	No	25	50	35	70	
	1	25	50	15	30	
Total	50	100	50	100		
4	Hospital					p = 0.203 Sig: N.S
	No	40	80	41	82	
	1	10	20	9	18	
Total	50	100	50	100		
5	Private clinics					p = 0.349 Sig: N.S
	No	15	30	20	40	
	1	35	70	30	60	
Total	50	100	50	100		

f: Frequency, %: Percentage, C.C: Contingency coefficient, p: Probability, Sig: Significance, S: Significant, N.S: Not significant

This table displays the history of prenatal visits; the findings show that (84%) of pregnant women in the study group, and (78%) of them in the control group are reporting regular prenatal visits that are (1–3) visits as seen among (62%) in the study group, and (56%) in the control group.

Regarding types of health care visits that refer to one visit, the primary health care was attended by (50%) of women in the study group, and (30%) of women in the control group, hospital was attended by (20%) of women in the study group, and (18%) of women in the control group, and private clinic was attended by

(70%) of women in the study group, and (60%) of women in the control group.

The contingency coefficients among the variables in the study and control groups show that there are no significant differences among all variables of the study.

Table 3: Evaluation of Women' Practices about Prevention of COVID-19 during Pregnancy among Study and Control Group

List	Practices about practices	Study Group (N=50)						Control Group (N=50)					
		Pre-test		Post-test I		Post-test II		Pre-test		Post-test I		Post-test II	
		M.S	Eval.	M.S	Eval.	M.S	Eval.	M.S	Eval.	M.S	Eval.	M.S	Eval.
1	Did you Disinfect the surfaces to reduce contamination with corona virus?	0.94	Fair	1.68	Good	1.86	Good	1.02	Fair	1.02	Fair	1.02	Fair
2	If you working outside the house, do you prefer to take your Work Home	1.04	Fair	1.82	Good	1.86	Good	1.18	Fair	1.18	Fair	1.18	Fair
3	Do you Keep a distance of at least one meter in various necessary interactions and activities	0.70	Fair	1.86	Good	1.96	Good	0.92	Fair	0.92	Fair	0.92	Fair
4	If public transport is used, are you maintaining social distance?	0.38	Poor	1.50	Good	1.58	Good	0.46	Poor	0.46	Poor	0.46	Poor
5	Do you Minimize the visitors from coming to meet you and your baby after delivery?	0.42	Poor	1.76	Good	1.74	Good	0.62	Poor	0.62	Poor	0.62	Poor
6	Do you Stay at home as much as possible unless there is a medical need related to development of symptoms of infection or related to pregnancy	1.04	Fair	1.92	Good	1.92	Good	0.98	Fair	0.98	Fair	0.98	Fair
7	Do you maintain the Routine of antenatal visits for caring?	0.56	Poor	1.82	Good	1.86	Good	0.68	Fair	0.68	Fair	0.68	Fair
8	Are you Washing your hands frequently and properly with a soap and water or an alcohol for minimum 20 seconds	0.80	Fair	1.84	Good	1.86	Good	0.78	Fair	0.78	Fair	0.78	Fair
9	Are you Covering your mouth and nose with their bent elbow, or tissue while coughing or sneezing?	0.66	Fair	1.58	Good	1.82	Good	0.82	Fair	0.82	Fair	0.82	Fair
10	Do you Avoid touching your face, eyes, nose and mouth with hands?	1.00	Fair	1.70	Good	1.44	Good	1.08	Fair	1.08	Fair	1.08	Fair
11	Are you wearing a surgical mask and changing it every 6 to 8 hours?	0.48	Poor	1.56	Good	1.68	Good	0.40	Poor	0.40	Poor	0.40	Poor
12	Are you wearing Disposable gloves frequently?	0.20	Poor	1.50	Good	1.58	Good	0.34	Poor	0.34	Poor	0.34	Poor

M.S: Mean of score, Eval: Evaluation, Poor= 0 – 0.66, Fair= 0.67– 1.33, Good= 1.34 – 2

Table 4: Repeated Measure Analysis of Variance (RM-ANOVA) Test for Effectiveness of Instructional Program on Mothers' Practices regarding COVID-19 among the Study Group (N=30)

Descriptive		Within-Subjects Effect									
Practices	Mean (S.D)	Source	Type III Sum of Squares	df	Mean Square	F	P-value	Sig.	Partial Eta Squared		
Pre-test Post-test I Post-test II	25.94 (4.938) 59.90 (3.770) 61.76 (3.526)	Time	Sphericity Assumed	40663.560	2	20331.780	1250.710	.001	H.S	.962	
			Greenhouse-Geisser	40663.560	1.777	22886.704	1250.710	.001	H.S	.962	
			Huynh-Feldt	40663.560	1.839	22113.546	1250.710	.001	H.S	.962	
			Lower-bound	40663.560	1.000	40663.560	1250.710	.001	H.S	.962	
		Error(Time)	Sphericity Assumed	1593.107	98	16.256					
			Greenhouse-Geisser	1593.107	87.060	18.299					
			Huynh-Feldt	1593.107	90.104	17.681					
			Lower-bound	1593.107	49.000	32.512					

S.D: Standard Deviation, df: Degree of Freedom, f: F-statistics, P-value: probability value, Sig: Significance, H.S: High Significant

This table presents the mean score for items related to practices of prevention of COVID-19; the finding in the study group indicates that women during the pre-test time show poor to fair level of practices in which they show poor level in items 1, 2, 3, 6, 8, 9, and 10 while show fair level in items 4, 5, 7, 11, and 12. During the post-test 1 and post-test 2, the women are showing good level of practices among all items.

The finding in the control group show the same level of practices over the three time (pre-test, post-test 1, and post-test 2) in which they show poor in items 4, 5, 11, and 12 while show fair level in items 1, 2, 3, 6, 7, 8, 9, and 10.

This table displays that analysis of RM-ANOVA test indicate that instructional program was highly effective on pregnant women' practices in the study group evidenced by high significance associated with "Greenhouse-Geisser" correction at p-value=0.001. It is clear out of descriptive the noticeable increasing of mean score for practices during pre-test time through post-test 1 and 2 that indicate the effectiveness of instructional program.

This figure reveals the noticeable increasing in practices among study group women during post-test 1 and 2, on the

contrary among women in the control group that show not significant increasing in practices during post-test 1 and 2.

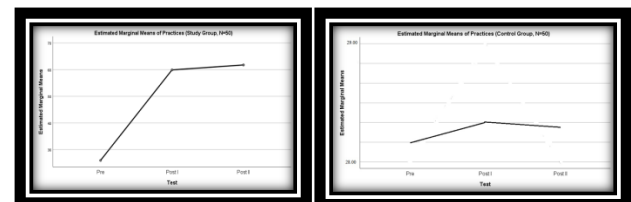


Figure 4-2: Estimated Marginal Mean for Mothers' Practices among Study and Control Groups

This table indicates that there is high significant relationship (strong reverse) between women' practices and their occupation at p-value= 0.00, and there is also significant relationship between women' practices and their family monthly income at p-value = 0.033 among women in the study group, while there is no significant relationship has been seen among women' practices with regard to their socio-demographic variables.

Table 5: Correlation among Mothers' Practices and their Socio-demographic Variables in the Study and control Groups

Practices Variables	Study Group (N=50)			Control Group (N=50)		
	Pearson correlation	p-value	Sig	Pearson correlation	p-value	Sig
Age	0.122	0.400	N.S	-0.159	0.270	N.S
Level of education	-0.072	0.624	N.S	-0.165	0.251	N.S
Occupation	-0.397	0.004	H.S	-0.071	0.625	N.S
Residency	0.039	0.787	N.S	0.112	0.437	N.S
Monthly income	0.302	0.033	S	-0.067	0.643	N.S
Relevance to husband	-0.205	0.153	N.S	0.094	0.514	N.S

P: probability, Sig: Significance, N.S: Not Significant, S: Sig-Onificant, H.S: High significant

## DISCUSSION

The present study found there are no significant differences ( $P>0.05$ ) between the study and control group, which is consistent and supported by (Bellizzi et.al, 2020) who showed that there were no significant differences between the demographic characteristics of the women in both groups. More than half (73%) were housewives, (56%) from intercity, (37%) primary school graduated. (Williams et.al, 2019) emphasized that there were no significant differences between the study and control group in age, social status, educational level, and job. revealed that the mean age and SD ( $28.46 \pm 5.23$ ) years in the study group, and ( $29.11 \pm 5.95$ ) in the control group. the majority of both group were primary school graduated (Sarri et.al., 2021). The highest percentage of them (74%) and (76%) were housewife. Although, the present study is inconsistent with (Issac et.al., 2021) who mentioned that the mean age and SD ( $23.41 \pm 2.27$ ) years in the study group, the majority of them (79.2%) were university graduates and more than two-thirds (73%) employed. The mean age and SD ( $25.7 \pm 3.5$ ) years in the control group, the highest percentage of them (79.8%) were university graduates and more than two-thirds (83.2%) employed. Regarding monthly income (56%) of the study group had sufficient monthly income while (48%) had the same monthly income from control group, (64%) and (66%) respectively from study sample and control sample were not relatively to their husbands. the majority of both study sample and control group were not smoker. This result in agreement with study conduct in north Africans be (Fikadu et.al., 2021) to assess women knowledge about corona virus diseases, it's found in their results that (52%) of study sample had adequate socioeconomically status, (71%) of them were no relatively to the husbands. and (93%) of pregnant women in Harshil study doesn't smoker. (Yoon et. al., 2020) emphasized that there were no significant differences between the study and control group in family monthly income, relationship between partner and smoking with alcoholism status for both parent. Finally, this result in disagreement with (Roy et. al., 2020) in their study which conducting on 120 pregnant women (60 study sample and 60 control sample) to compare their awareness about protection methods of infectious diseases during pregnancy in Saudi Arabia who found only (29.4%) had sufficient monthly income for their family's, while (79.3%) had highly sufficient. majority of the study sample (86%) relative to their husband. And (33.7%) of the control group smoker women started before pregnancy at 3 years ago. The differences in the above studies could be due to this study conducted among the different sample, different setting, and different inclusion criteria, especially the present study sample were had previously infected with covid 19 pandemic. Table 3 and 4 The result of a study conducting in African by (Kurdoglu,&

3+ Khaki., 2020) disagree with my study result because they found (68%) of study sample, and (71%) of control group had good practice level about protective measurers from corona virus, and

nutritional therapy to improve high degree of immunity during some pandemic diseases, before an educational intervention.

According to pregnant women' practices about washing hands during covid 19 pandemic (table 4 ) results show that there are highly significant differences between study sample and control group, that women show poor to fair level of practices during the pre-test time. But in the post-test 1 and post-test 2, the women are showing good practices among all items in study sample. While the finding in the control group show fair and poor practices overall three times (time one, time two and time three).

These finding in agreement with a study result conducted by (Allotey et. al., 2020) in Nigeria which knotted that no significant differences between study sample (which consist of 44 working pregnant) and control group about cleaning measures to protected from corona virus. But (Larki,2020) disagree with my study because they found majority of the study sample (74.4%) had very good practice levels about hand washing without educational training. Table 5: (Lopes et. al., 2020, found that pregnant women who were illiterate, unemployed were more likely to have a mild and low level of practices regarding protective measures from covid 19 pandemic. Their study results were similar to previous studies that used the same assessment tool in Turkish, and Australian, women.

## CONCLUSION

1. There is a significant correlation between pretest and posttest periods after the implementation of instruction program for pregnant women regarding practices of protective measures from covid 19 virus.
2. The finding in the control group show poor to fair level of practices which related to covid 19 over the three time (pre-test, post-test 1, and post-test 2).

### Recommendation:

1. Pregnant women should be given instructional booklets in order to raise practice level of preventive measures of COVID-19 infection at the beginning of their pregnancy and who can protect their families' members from such pandemic.
2. All patients including pregnant women should be evaluated for fever and signs and symptoms of a respiratory infection. Ideally, screening procedures begin before arrival on a labor and delivery unit or prenatal care clinic. Social support programs should be designed to women in the antenatal period

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