Effect of Tele-Nursing Services on Pregnant Women Regarding Minor Discomforts

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Abstract

Background: Minor discomforts are frequently common health problem that disturbance pregnant women, but not threating life. **Aim:** the current study aimed to evaluate the effect of Tele-nursing services on pregnant women regarding minor discomforts. **Subjects and Methods:** A quasi- experimental design was used. **Sample:** A purposive sample, 120 pregnant women included in this study. **Setting:** the study was conducted in antenatal clinic at Ain Shams University Maternity Hospital. **Tools: Tool I** A structured interview questionnaire. **Tool II** self-care reported practice checklist **Tool III** Women satisfaction Likert scale. In addition to, Supportive material (Electronic Arabic booklet). **Results:** The study revealed that there was a statistically significant improvement in total knowledge and self-care practice score of pregnant women related minor discomforts at post intervention compared to pre intervention. **Conclusion**: There was a positive effect of telenursing services on improving pregnant women knowledge and self-care practice regarding minor discomforts during pregnancy among study group compared to control group. in addition, the majority of study group were satisfied regarding using telenursing services at post-intervention. Also, there was a statistically significant correlation between total knowledge score and total self-care practice score regarding minor discomforts among study group at post-intervention(p-value<0.05). **Recommendations**: Implementation of telenursing services at natal clinic of different health care setting for improving knowledge and practice related to minor discomforts among pregnant women. Awareness programs should be developed to raise women's knowledge and practice regarding minor discomforts of pregnancy via telenursing services and increase women's satisfaction regarding using telenursing services to improve obstetrics services.

Keywords: Tele-nursing Services, pregnant women, minor discomforts, antenatal care.

Introduction:

Pregnancy is a precious time for all pregnant women, Pregnant women need to be aware of full of excitement and anticipation of various events of pregnancy as minor discomforts during pregnancy, how the fetus will develop and grow in the uterus, good nutrition and exercise need for good pregnancy to provide safe environment for fetus and delivery **(Uwambaye et al., 2020)**

Minor discomforts are simple discomforts occur in all system of the body during pregnancy result to hormonal change, metabolic change, accommodation changes and posture changes (**Jacob, 2018).**

Pregnant women experience common discomforts that are the signs of preparing the body for a new life. These minor discomforts are nausea, vomiting, heartburn, constipation, bleeding gum, difficult breathing, frequency urination, leg cramps, varicose veins, hemorrhoids, skin problem, swollen legs, back pain, fainting, and dizziness **(Gururani et al., 2016)**

The pregnant women face many difficulties during pregnancy. Thus, they need successful adequate knowledge how to manage

minor discomfort and how to differentiate between pathological condition and normal changes during pregnancy (**Samarakoon et al., 2020)**

Many pregnant women find these changes relatively easily to following a normal healthy lifestyle. Other women can't adapt with these changes and experience discomforts. The pregnant women need to knowledge to be able to adapt with these changes of pregnancy at home (**Jacob, 2019).**

The World Health Organization (WHO) recommends that the pregnant women initiate follow up of antenatal care within ANC should be initiated within the first 12 weeks' gestation, and range number of follow up visits during pregnancy at least four, and optimally eight visits **(WHO, 2016).**

Hence, pregnant women need to be frequent contact with their health care provider and at the same time provide the easiest way to keep communication among them. So, technological advancements support healthcare by using information and communication technology (ICT) has been spreading worldwide (**Ali et al., 2020).**

Tele-nursing has an essential role to delivery primary care, it may be including many methods that can be used by nurses for distance nursing care as telephone, short message service (SMS), e-mail, and video call. Tele-nursing is a subset of tele-medicine. During the COVID-19 pandemic, they become a vital process for providing cost-effective quality care to pregnant women **(Fathizadeh et al., 2020)**

ACOG (2020), "Evidence suggests that telenursing provides comparable health outcomes when compared with traditional methods of health care delivery, and it also illustrated that increase pregnant women satisfaction to provide prenatal care **(Goblisch & Hand., 2021).**

Prenatal nurses play an important role in saving lives through early detection and management of minor discomforts and can help to reduce risk and promote more positive outcomes for both the pregnant women and the new born. in addition to preparing women for childbirth, as well as prepare them for their new role **(Liu et al., 2107).**

Significance of the Study:

The incidence of minor discomforts is varying from pregnant woman to another and according to its type. Nausea and vomiting are the most common discomforts occur in the first trimester of the pregnancy about (80%) of pregnancies, by the end of 12 weeks of pregnancy, these minor discomforts calm but, Heart burn increase from 22% in the first trimester to 39% in the second trimester and 60 % to 70% in the third trimester, and more than two third of the pregnant women complain from Backache (**Ibrahim et al., 2020)**.

The World Health Organization (WHO) has declared that 2020 is the 'Year of the Nurse and Midwife' to advance them vital position in transforming healthcare around the world. More than 20 million nurses worldwide are involved in health professions and care delivery 24/7. So, nurses have been involved with telehealth technology and applications **(Bartz, 2020).**

Aim Of The Study

The current study aimed to evaluate the effect of Tele-nursing services on pregnant women regarding minor discomforts. **Through the following**:

1.Assessing pregnant women Knowledge and self care practice regarding minor discomforts.

2.Implementing tele-nursing services on pregnant women regarding minor discomforts.

3.Evaluating the effect of tele-nursing services on pregnant women knowledge and practice regarding minor discomforts.

4.Assessing pregnant women satisfaction regarding tele-nursing services.

Research Hypothesis:

1.Tele-nursing services will improve pregnant women knowledge and self-care practice regarding minor discomforts among study group compared to control group..

2.The pregnant women will be satisfied with using tele-nursing services among study group compared to control group.

SUBJECTS AND METHODS

Research design:

A quasi-experimental study design (study and control group pre-test/post-test) was utilized to achieve the aim of the current study.

Setting:

The current study was conducted at Antenatal clinic at Ain Shams University Maternity Hospital.

Subjects:

Sample type

A purposive sample will be utilized.

Sample size:

120 pregnant women will be included in the current study according of the following equation:

$$n = \frac{(Z_\alpha + Z_\beta)^2 * (S)^2}{(d)^2}$$

Type Ierror (α)= 0.05

TypeIIerror (β)= 0.1

With power of statistics = 90%

Effect size 0.51

Z= level of confidence (1-Alpha Error): 95%

S= standard deviation

D=error rate

Based on the mean health practice lifestyle scores for the study group was 144.37±21.25 and control group was 118.22±12.41 The sample size determines at every group 53 pregnant woman. Considering 10% sample attrition (5-6 pregnant women), the final sample size in every group is 60 pregnant women in each group. Sample size calculates using test comparing two means through **Kane SP. Sample Size Calculator. ClinCalc** ***(Rosner, 2011).***

Sample technique:

The sample divided into two groups.

Group (1): study group consists of 60 pregnant women who received telenursing services with routine hospital antenatal care.

Group (2): control group consists of 60 pregnant women who will not utilize telenursing services, just receive routine hospital antenatal care.

Inclusion criteria:

- Healthy Pregnant women at first and second trimester (free from any complications such as medical disorders).
- Have a single fetus.
- Educated women.
- Access to telephone and internet.
- Welling to participate in the study.

Exclusion criteria:

- High risk pregnant women as pre-eclampsia.
- Suffer from medical or psychiatric disease.
- behavior abused
- Women without telephones and internet access.

Tools of data collection:

Tool I: A Structured interviewing questionnaire: it was designed by the researcher based on review of literature **(Khalil & Hamad 2019)** consisted of 29 multiple choice questions and divided into four parts.

- ***First part***: it included general characteristics of the pregnant women, as age, marital status, educational level, husband education, and occupation.
- ***Second part:*** it included women's obstetric history such as "gravida, para, abortion, and methods of delivery"
- ***Third part:*** it encompassed with women's

current pregnancy such as" last menstrual period, gestational age, any complication and complain from minor discomforts in the current pregnancy"

- ***Fourth part:*** it was designed to assess pregnant women knowledge regarding minor discomforts as (definition, causes, signs and management of minor discomforts)

Knowledge scoring system: each correct answer was scored as two marks for correct answer and one mark for incorrect answer.

While the total knowledge scores were graded as

good > 70%

average =50% < 70%

poor < 50%.

Tool II: self-care reported practice checklist: it was adopted from **(Sharma et al., 2020)** to assess pregnant women self-care practice regarding minor discomforts.

Scoring system: each correct practice equal (2) and incorrect practice equal (1).

While the total practice was scored as the following:

Satisfactory> 60%

Unsatisfactory < 60%.

Tool III: Women satisfaction Likert scale it was adopted from **(Ackerman et al., 2020)** to assess pregnant women's satisfaction regarding using tele nursing services. It consists of 14 statements as tele-nursing services are an easy way to communicate and quickly access health care services, tele-nursing services provide more comprehensive and accommodating medical care for patients than the traditional methods and were tele-nursing services available at any time.

Satisfaction scoring system Likert scale: each statement scored as (3) agree, (2) uncertain, (1) disagree.

The total satisfaction score classified as the following

Satisfied > 60%

Unsatisfied < 60%.

Supportive material (Electronic Arabic booklet): it was designed by the researcher using simple language and different illustrative pictures to facilitate understanding its contents for providing care for pregnant women with minor discomforts which divided into three part. first part included basic knowledge regarding minor discomforts (definition, causes, signs, symptoms, management) Second part self-care practice regarding minor discomforts including (nausea & vomiting, heartburn, constipation, bleeding gum, difficult breathing, frequency urination, leg cramps, varicose veins, haemorrhoids, skin problem, swollen legs, back pain, and fainting &dizziness and third part included knowledge regarding telenursing services as (definition, types, advantages, and disadvantages).

Validity & reliability of the tool:

Validity of the tool:

Tools of the study was tested through a jury of expertise 3 professors from faculty of Nursing Ain shams university to test the content validity of the tool and clarify the sentences as well as appropriateness of contents, modification, and rephrasing were done to some statement.

Reliability of the tool:

Testing reliability of proposed tools was done by Cronbach alpha was calculated to assess the reliability. Where, 0.80 for Tool I, 0.85 for tool II, and 0.79 for tool III.

Ethical considerations:

Informed consent was obtained from women after explaining the purposes of the study. No harmful methodology was used, each woman had the right to withdraw from the study at any time, confidentiality was maintained and using coding system for data, and human rights were used.

Operational design:

The operational design included the preparatory phase including administrative design and pilot study, implementation phase, and follow up phase

Preparatory phase:

It included reviewing of local and international related literatures and theoretical knowledge about various aspects of the study problem. This helped the researcher to be acquainted with the magnitude of the problems and guided the researcher to prepare the required data collection tools. Then the researcher tested the validity of the tool.

Pilot study:

The pilot study was carried out on 10 % of the total study sample (12 women) that aimed to evaluate the applicability and clarity of the data collection tools and help the researcher to estimate the time needed for women to fill in the tools data collection. In addition to its applicability to the current study and find the possible problems that might face the researchers and interfere with data collection. No modification was done according to the results of the pilot study. Pregnant Women, who shared in the pilot study, were included in the main study sample.

Field work

The study included three phases Assessment phase, implementation phase and evaluation phase. The data was collected through a period of three months from the start of Abril 2022 till the end of June 2022. The researcher attended at Ain shams university hospital (3days per week from 9am to 2pm) hospital (antenatal clinic). the study included 3 phases.

Assessment phase:

- Firstly, the researcher introduced herself to the women and explained the aim of the study prior to data collection. Then oral consent of women was obtained. the researcher starts to assess women's general characteristics, obstetric history, knowledge by using tool I then the researcher assessed the pregnant women self-care reported practice regarding minor discomforts using tool II and finally the researcher assessed pregnant women satisfaction regarding telenursing services by using III

- The time of each interview taken 20-25 minutes.

Implementation phase:

The researcher divided the study sample to equal group

Group 1: control group who received routine antenatal care only

Group 2: study group who received instruction about minor discomfort through tele nursing services (whats app and telephone calls)**.**

The researcher divided the study group participants to 6 group on whats app. each subgroup composes from 10 pregnant women, the researcher contacted with each subgroup once per week for online three sessions. Each session lasted approximately 20 -25 minutes.

The first session:

Included knowledge that the researcher provided about Definition, causes, types of minor discomforts during pregnancy.

Second session:

focused on how to management minor discomforts of pregnancy(nausea, vomiting, heartburn, constipation, bleeding gum, difficult breathing, frequency urination, leg cramps, varicose veins, hemorrhoids, skin problem, swollen legs, back pain, fainting and dizziness,

Third session: focused on telenursing (definition, types, uses, advantages, and disadvantages)

Evaluation phase:

Evaluate the effect of telenursing services through comparing between the control and study group regarding their knowledge and self-care practice about minor discomforts of pregnancy at pre and post intervention (after one month) in addition to assess the study group

satisfaction regarding using tele nursing services

Administrative Design:

An official written approval letter clarifying the purpose of the study was obtained from the Dean of Faculty of Nursing of Ain Shams University & director of Ain Shams Maternity University Hospital as an approval for data collection to conduct this study.

Limitations of the study:

1. Calls are expensive.

2. Some women didn't answer from first call and the researchers tried to call them again and all this was time consuming for the researchers because there was no a full team

Statistical Design:

The collected data was revised, coded, tabulated, and introduced to a PC (Personal computer) using statistical package for social sciences (IBM SPSS 25.0). Data was presented and suitable analysis was done according to the type of data obtained for each parameter. Where **Descriptive Statistics** were used Mean, Standard deviation (+SD) and range for quantitative variables (parametric numerical data). Frequency and percentage for qualitative variables (non-numerical data).

For statistical analysis was use Chi square test was used to compare between two groups and illustrate statistically significant differences.

P-value: Level of significance difference were considered as: P>0.05: No significant difference (NS), P<0.05: Significant difference (S), and P<0.01: Highly significant difference (HS) and Correlation matrix (spearman's rho) test to measure strength correlation between studied variables. **Level of correlation coefficient (r) were considered as:** r > 0 to +1: positive correlation and r < 0 to -1: negative correlation.

Results

Table (1) reveals that 50.0 % of the Study group and 61.7 % of the control group their age was ranged from (20<30) years old, 56.7% of study group compared to 55.0% of the control group were from urban areas, according to marital status all studied group were married, 61.7 % of study group and 46.7 % of the control group had secondary education, and 81.7 % of the study group and 75.0 % of the control group were housewives. There was no statistically significant difference between studied group sample in terms of general characteristics (P value >0.05).

Table (2) shows that 73.3%, and 70.0% of the study group and control group were multigravida respectively, while 18.3 % and 15.0 % of study group and control had abortion (1-2) respectively. 50.0% of study group and 48.3% of control group had delivered (from1-2). there was no statically significant difference between studied sample (p value > 0.05).

Table (3): reveals that 55.0 % and 63.3% of the Study group and control group were in 2nd trimester of pregnancy respectively. while 66.7 % and 65.0 % of the Study group and control group were planned pregnancy respectively. According to antenatal follow up 38.3 % of study group were the 1st visit, on the other side, 45.0 % of control group were the 2nd visit. In relation to reason of the visit were 93.3 % and 95.0 % of Study group and control group were routine visit respectively. There was no statistically significant difference in studied sample regarding to present obstetric history (P value >0.05).

Table (4): indicates that 96.7%, and 95.0% of study group had incorrect knowledge regarding (hemorrhoids, and varicose veins) respectively. While 98.3%, and 95.0% of control group had incorrect knowledge regarding (hemorrhoids, and varicose veins) respectively. there was no statistically significant difference in studied sample knowledge regarding minor discomforts between study and control group (P value >0.05).

Table (5) indicates that there was highly statically significant difference between study and control group regarding knowledge about minor discomfort (P value <0.05).

Figure (1): Number and percentage distribution of the studied sample according to

total knowledge of minor discomforts at pre-intervention and post-intervention.

Figure (2): Number and percentage distribution of the studied sample according to source of information.

Table (6) shows that There was no statistically significant difference between the study and control groups in all aspect of the practice regarding minor discomforts before intervention (P value >0.05).

Table (7): shows that there was a highly statistically significant difference related to all aspects of practice regarding different types of minor discomforts as 97.6%, 95.7 %, 95.1, and 92.9 of study group compared to 72.0%, 70.0%, 69.4% and 73.1% of control group related to backpain, constipation, nausea& vomiting, fainting & dizziness respectively, at post-intervention (P value <0.05).

Figure (3): Number and percentage distribution of the studied sample according to total self-care reported practice of minor discomforts.

Table (8): This table indicate that there was no statically significant correlation among total knowledge and (total practices pre and post intervention and total satisfaction post intervention) of the study group (p-value >0.05).

Table1: Distribution of the studied sample according to their general characteristics.

Items	study group (n=60)		control group (n=60)		χ^2	P-value
	No	%	No	%		
Age(years)						
20< 30years	30	50.0	37	61.7	1.69	0.429
30< 40 years	29	48.3	22	36.6		
>40 years	1	1.7	1	1.7		
Mean ± SD	**1.52 ± 0.537**		**1.40 ± 0.527**			
Residence						
rural	26	43.3	27	45.0	0.0338	0.854
urban	34	56.7	33	55.0		
Marital status						
married	60	100	60	100	0.00	0.00
divorce	0	0.00	0	0.00		
Widow	0	0.00	0	0.00		
Level of Education						
Primary education	6	10.0	12	20.0	3.49	0.175
Secondary education	37	61.7	28	46.7		
University	17	28.3	20	33.3		
Occupation						
worker	11	18.3	15	25.0	0.786	0.375
Housewife	49	81.7	45	75.0		

Table 2: Distribution of studied sample according to their obstetric history

Obstetrics history	study group (n= 60)		control group (n= 60)		χ^2	P-value
	No	%	No	%		
Gravidity						
Primigravida	16	26.7	18	30.0	0.164	0.685
Multigravida	44	73.3	42	70.0		
abortions						
none	45	75.0	50	83.3	2.46	0.482
1 - 2	11	18.3	9	15.0		
3 - 4	3	5.0	1	1.7		
+ 4	1	1.7	0	0.0		
parity						
none	16	26.7	18	30.0	1.19	0.754
P1	30	50.0	31	51.7		
P2	13	21.6	9	15.0		
P+3	1	1.7	2	3.3		

Table 3: Distribution of the studied sample according to present obstetric history.

Present obstetric history	study group (n= 60)		control group (n=60)		χ^2	P-value
	No	%	No	%		
Gestational age						
1st trimester	27	45.0	22	36.7	0.862	0.353
2nd trimester	33	55.0	38	63.3		
Type of pregnancy						
Planned	40	66.7	39	65.0	0.0370	0.847
Unplanned	20	33.3	21	35.0		
Antenatal follow up						
1	23	38.3	17	28.3	1.72	0.633
2	22	36.7	27	45.0		
3	4	6.7	3	5.0		
+4	11	18.3	13	21.7		
Reason for visit						
Routine visits	56	93.3	57	95.0	0.152	0.697
complain of pregnancy	4	6.7	3	5.0		

Table4: Distribution of the studied sample according to their knowledge about minor discomforts before intervention.

Items	study group (n= 60)				control group (n= 60)				χ^2	P-value
	correct		Incorrect		Correct		Incorrect			
	No	%	No	%	No	%	No	%		
Definition of minor discomforts	27	45.0	33	55.0	23	38.8	37	61.7	0.549	0.459
Reasons of minor discomforts	44	73.3	16	26.7	40	66.7	20	33.3	0.635	0.426
Types of minor discomforts	22	36.7	38	63.3	24	40.0	36	60.0	0.141	0.707
Nausea & Vomiting	35	58.3	25	41.7	38	63.3	22	36.7	0.315	0.575
Heartburn	32	46.7	28	53.3	36	60.0	24	40.0	0.543	0.461
Constipation	18	30.0	42	70.0	14	23.3	46	76.7	0.682	0.409
Bleeding gum	9	15.0	51	85.0	5	8.3	55	91.7	1.29	0.255
Difficult breathing	11	18.3	49	81.7	18	30.0	42	70.0	2.23	0.136
Frequency urination	24	40.0	36	60.0	22	36.7	38	63.3	0.141	0.707
Leg cramps	9	15.0	51	85.0	6	10.0	54	90.0	0.686	0.408
Varicose veins	3	5.0	57	95.0	3	5.0	57	95.0	0.00	1.000
hemorrhoids	2	3.3	58	96.7	1	1.7	59	98.3	0.342	0.559
Skin problem	6	10.0	54	90.0	5	8.3	55	91.7	0.100	0.752
Swollen legs	11	18.3	49	81.7	14	23.3	46	76.7	0.455	0.500
Back pain	31	51.7	29	48.3	38	63.3	22	36.7	1.67	0.196
Fainting &dizziness	31	51.7	29	48.3	24	40.0	36	60.0	1.64	0.200

Table 5: Distribution of the studied sample knowledge regarding minor discomforts at post intervention.

Items	study group (n= 60)				control group (n= 60)				χ^2	P value
	correct		Incorrect		Correct		Incorrect			
	No	%	No	%	No	%	No	%		
Definition of minor discomforts	58	96.7	2	3.3	28	46.7	32	53.3	36.9	<0.001**
Reasons of minor discomforts	58	96.7	2	3.3	50	83.3	10	16.7	5.93	0.015
Types of minor discomforts	57	95.0	3	5.0	40	66.7	20	33.3	15.5	<0.001**
Nausea & Vomiting	58	96.7	2	3.3	48	80.0	12	20.0	8.09	0.004*
Heartburn	54	90.0	6	10.0	36	60.0	24	40.0	14.4	<0.001**
Constipation	51	85.5	9	15.0	29	48.3	31	51.7	18.1	<0.001**
Bleeding gum	53	88.3	7	11.7	16	26.7	44	73.3	46.7	<0.001**
Difficult breathing	56	93.3	4	6.7	49	81.7	11	18.3	3.73	0.053*
Frequency urination	54	90.0	6	10.0	45	70.0	15	25.0	4.68	0.031*
Leg cramps	50	83.3	10	16.7	24	40.0	36	60.0	23.8	<0.001**
Varicose veins	45	75.0	15	45.0	22	36.7	38	63.3	17.9	<0.001**
hemorrhoids	39	65.0	21	35.0	11	18.3	49	81.7	26.9	<0.001**
Skin problem	46	67.7	14	23.3	18	30.0	42	70.0	26.3	<0.001**
Swollen legs	54	90.0	6	10.0	23	38.3	37	61.7	34.8	<0.001**
Back pain	57	95.0	3	5.0	49	81.7	11	18.3	5.18	0.023*
Fainting &dizziness	52	86.7	8	13.3	28	46.7	32	53.3	21.6	<0.001**

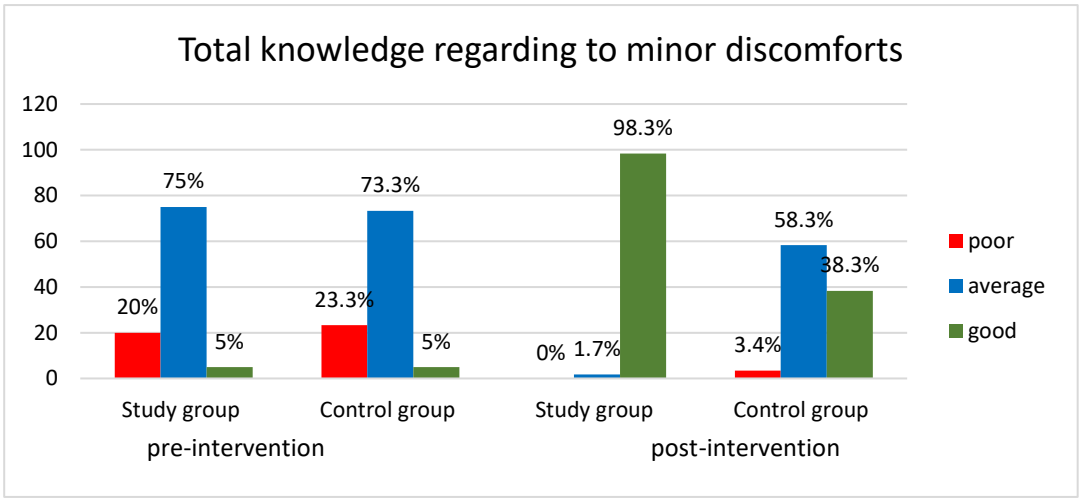

Figure (1): Number and percentage distribution of the studied sample according to total knowledge of minor discomforts at pre-intervention and post-intervention.

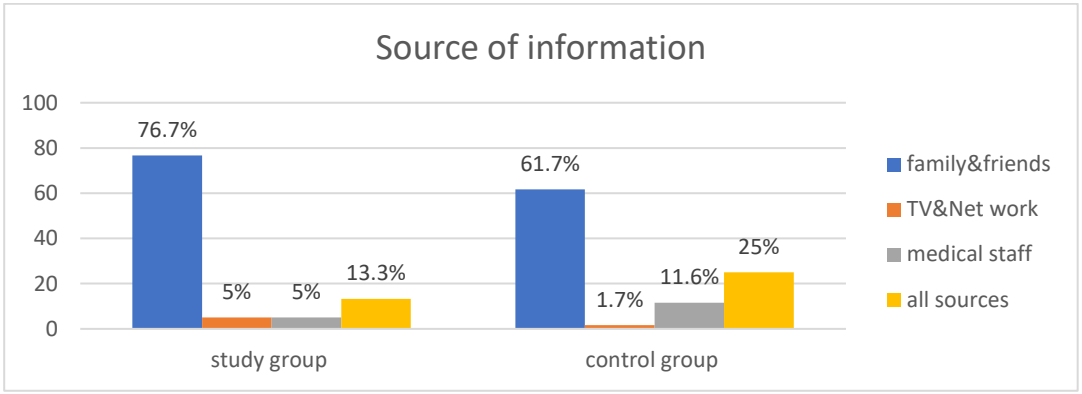

Figure (2): Number and percentage distribution of the studied sample according to source of information.

Table (6): distribution of studied sample self-care reported practice related to minor discomforts before intervention.

Items	Study group (n= 60)				Control group (n= 60)				χ^2	P value
	Correct		Incorrect		Correct		Incorrect			
	No	%	No	%	No	%	No	%		
Nausea & Vomiting	14	34.1	27	65.9	20	40.8	29	59.2	0.422	0.516
Total	41		100.0		49		100.0			
Heartburn	18	37.5	30	62.5	17	42.5	23	57.5	0.228	0.633
Total	48		100.0		40		100.0			
Constipation	8	34.8	15	65.2	9	45.0	11	55.0	0.467	0.494
Total	23		100.0		20		100.0			
Bleeding gum	5	38.5	8	61.5	3	60.0	2	40.0	0.678	0.410
Total	13		100.0		5		100.0			
Difficult breathing	9	33.3	18	66.7	15	48.4	16	51.6	1.34	0.246
Total	27		100.0		31		100.0			
Frequency urination	24	46.2	28	53.8	22	48.9	23	51.1	0.072	0.788
Total	52		100.0		45		100.0			
Leg cramps	4	33.3	8	66.7	5	31.3	11	68.8	0.014	0.907
Total	12		100.0		16		100.0			
Swollen legs	3	37.5	5	62.5	4	28.6	10	71.4	0.178	0.665
Total	8		100.0		14		100.0			
Back pain	19	45.2	23	54.8	24	48.0	26	52.0	0.70	0.791
Total	42		100.0		50		100.0			
Fainting &dizziness	9	32.1	19	67.9	12	46.2	14	53.8	1.114	0.291
Total	28		100.0		26		100.0			

Table (7): Distribution of studied sample self-care reported practice related to minor discomforts at post intervention.

Items	Study group (n= 60)				Control group (n= 60)				χ^2	P value
	Correct		Incorrect		Correct		Incorrect			
	No	%	No	%	No	%	No	%		
Nausea& Vomiting	39	95.1	2	4.9	34	69.4	15	30.6	9.649	0.002**
Total	41		100.0		49		100.0			
Heartburn	44	91.7	4	8.3	30	75.0	10	25.0	4.53	0.033**
Total	48		100.0		40		100.0			
Constipation	22	95.7	1	4.3	14	70.0	6	30.0	5.165	0.023**
Total	23		100.0		20		100.0			
Bleeding gum	13	100.0	0	0.00	4	80.0	1	20.0	2.75	0.097
Total	13		100.0		5		100.0			
Difficult breathing	25	92.6	2	7.4	21	67.7	10	32.3	5.43	0.02*
Total	27		100.0		31		100.0			
Frequency urination	47	90.4	5	9.6	32	71.1	13	28.9	5.92	0.015*
Total	52		100.0		45		100.0			
Leg cramps	11	91.7	1	8.3	8	50.0	8	50.0	5.45	0.019*
Total	12		100.0		16		100.0			
Swollen legs	8	100.0	0	0.00	8	57.1	6	42.9	4.71	0.03*
Total	8		100.0		14		100.0			
Back pain	41	97.6	1	2.4	36	72.0	14	28.0	10.97	0.001**
Total	42		100.0		50		100.0			
Fainting &dizziness	26	92.9	2	7.1	19	73.1	7	26.9	3.79	0.05*
Total	28		100.0		26		100.0			

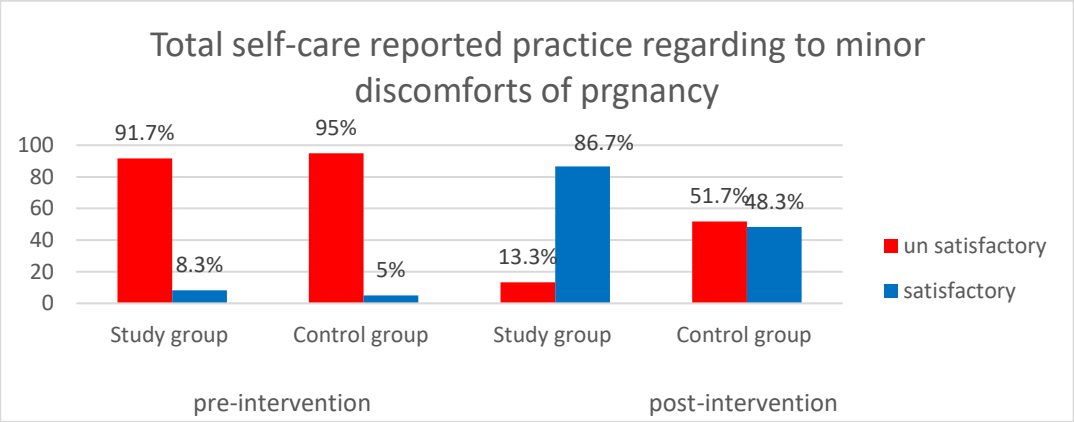

Figure (3): Number and percentage distribution of the studied sample according to total self-care reported practice of minor discomforts.

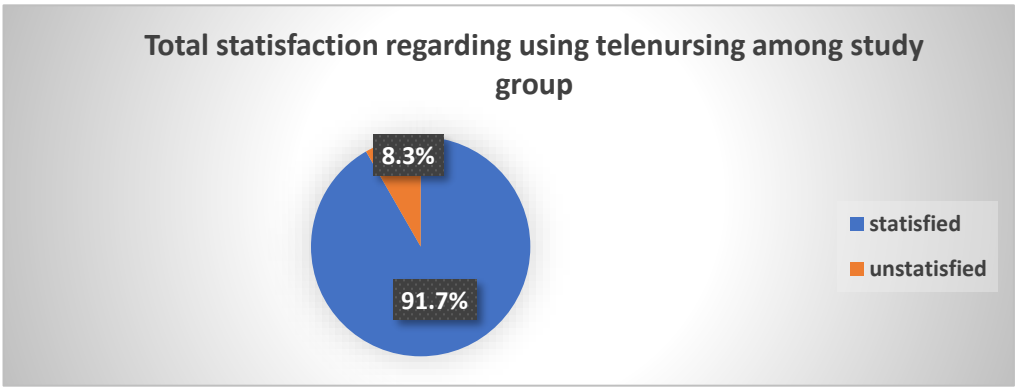

Figure (4): Number and percentage distribution of the studied group according to total satisfaction of telenursing after intervention.

Table (8): Correlation among total knowledge and (total self-care reported practice practices and total satisfaction) of the study group.

Items	Total practice pre-intervention		Total practice post-intervention		Total satisfaction-post intervention	
	R	p-value	R	p-value	R	p-value
Total knowledge pre-intervention	0.214	0.100	0.292*	0.023	-0.043	0.745
Total knowledge post-intervention	0.039	0.766	-0.051	0.698	-0.055	0.678

Discussion:

Pregnancy is a precious time for all pregnant women, Pregnant women need to be aware of full of excitement and anticipation of various events of pregnancy as minor discomforts during pregnancy, how the fetus will develop and grow in the uterus, good nutrition and exercise need for good pregnancy to provide safe environment for fetus (**Uwambaye et al., 2020).**

Pregnancy is the time to promote healthy behaviors and good parenting skills. Though pregnancy is not considering a disorder, some undesirable changes may occur during pregnancy called minor discomforts due to an altered physiological change, such as nausea, vomiting, edema, varicose veins, heartburn, constipation, backache, tiredness, fainting loss of sleep, headache, skin problem, leg cramps, and hemorrhoid these changes called minor discomforts of pregnancy. **(Pascual & Langaker, 2022).**

Minor discomforts are the most common disturbance of pregnant women. These minors related to disorder in hormones. It may be indicator of danger. Thus, pregnant women need to be aware for these minors' discomforts and differentiate a danger borderline and need to be commit regular follow up during antenatal period **(Sharma et al., 2020).**

Telenursing is defined as provide health services to pregnant women by nursing who are not in the same physical location, by using information and communications technology. By comparison Telenursing to face-to-face meeting can provide greater choice to pregnant women, health care providers and the health system holistically, as improved acceptability, availability, and efficiency of quality health care. The global COVID-19 pandemic in 2020 was a point of change telehealth practice, as health care provider and pregnant women sought that safe ways to access healthcare (**Keenan et al., 2022)**

Regarding the general characteristics of the studied sample, the present study results showed that, with a mean age (1.52 ± 0.537 &1.40 ± 0.527), half and slightly more than two third of study and control group respectively were aged from 20< 30years old respectively, slightly more than half of both groups were from urban areas, all studied sample were married, slightly more than two third of study group slightly less than half of control group had secondary education, and slightly more than majority of study group and three quarter of control group were housewife.

These findings were consistent with the findings of the study conducted in ante natal outpatient clinic at Ain Shams university maternity hospital by **(Hamed et al., 2022)** who assessed pregnant women's knowledge regarding telemedicine to be used as antenatal care strategy during corona pandemic and reported that more than half of pregnant women were between twenty and thirty years old, the majority of them were married, and more than one third of them had university education. This similarity can be explained by the same site of data collection and inclusion criteria of the studied sample.

Concerning to obstetrics history of studied sample, the present study indicated that slightly less than three quarter of study and control group were multigravida, minority of studied groups had abortion (from1-2), half of study group and slightly more than half of control group had delivered (from1- 2). Whereas, slightly less than of studied sample were multiparous. More than half of study group and more than two third of control group were in 2ndtrimester of pregnancy, more than two third of both studied group (66.7 % and 65.0 %) of the Study group and control group had planned pregnancy respectively, more than one third of study group were the 1st visit and slightly less than half of control group were the 2nd visit, and majority of both study groups were routine visit.

These findings were agreed with the finding of the study carried out New York Medical College, NYC Health þ Hospitals and NYC Health þ Hospitals/Metropolitan by **(Futterman et al., 2021)** who assessed the patient satisfaction with prenatal care conducted via telehealth was compared with in-person visits at the height of the novel coronavirus disease 2019 (COVID-19) pandemic. Moreover, **(Helmy et al., 2021)** approved that half of the studied group had multigravida (1–2) times, and more than half of them had multipara 1-2 times. were conducted at Beni-Suef Governorate who evaluated the effect of telehealth nursing program regarding Covid-19 among Pregnant Women. This similarity may be due to the same culture of the studied sample.

Concerning to total knowledge of pregnant women about minor discomforts the present study indicated that there was highly statistically significant improvement in total knowledge of pregnant women among the study group compared to the control group at post-intervention compared with pre-intervention. As the majority of study group had good level of knowledge regarding minor discomforts at post intervention. These results may be due to the positive effect of telenursing services on improving pregnant women's knowledge regarding minor discomforts through WhatsApp and telephone calls. where the study group received telenursing services and antenatal follow-up, while the control group received antenatal follow-up only.

The results of the present study consistent with **El-Sharkawy et al., (2020)** who evaluated the effectiveness of self-instructional module on knowledge and remedial practices regarding selected minor ailments among primigravida, used A quasi-experimental design (one group pre-test/post-test), conducted on 120 primigravida women ,and illustrated that an improvement with highly statistically significant differences observed in women's knowledge regarding minor discomforts at the post-intervention phase compared to the pre-intervention phase. This similarity may be because of their using of audio-visual aids that proved that important use of telenursing during pregnancy.

As well, the current study agreed with **(Sowunmi et al., 2021)** who studied Enhancing Knowledge of Pregnant Women on Self-Management of Minor Disorders of Pregnancy at a State Specialist Hospital, Southwest, Nigeria who found that majority of pregnant women had below average of grade before

intervention but, there was improvement at post-intervention where, majority of the pregnant women had above average of knowledge grade.

Thse results supported by **AbdElhaliem et al. (2018),** who studied the utilization of self-care practice guideline on relieving minor discomfort among new pregnant woman, used A quasi-experimental design, and found that the majority of women had poor knowledge regarding minor discomforts at pre-intervention, while there was a significant improvement in knowledge at post intervention. This indicated that the implementation of telenursing services had a positive effect on the knowledge of pregnant women regarding minor discomforts.

Concerning to source of information the present study illustrated that slightly more than two third of the studied sample received their information through family and friends.

This finding was consistent with **(Sharma et al., 2020)** which conducted at obstetrics OPD of All India Institute of Medical Sciences, Jodhpur, Rajasthan to assess knowledge and practices regarding management of minor ailments of pregnancy among antenatal mothers. Who found that more than one third of studied sample received their information through relatives.

Regarding pregnant women self-care reported practice about minor discomforts the results of the current study revealed there were no statically significant difference between study and control groups at pre intervention. Whereas there was a highly statistically significant improvement between study group compared to control group at post intervention.

The present study matching **(Aziz & Maqsood., 2016)** who studied self-management of pregnant women regarding minor discomforts in primary health care centers in Erbil city. Who illustrated that most pregnant women able to do self-management for common minor discomforts as fatigue, frequency of urination and leg cramps due to some information about it.

The present study consistent with **(AbdElhaliem et al., 2018)** who studied utilization of self-care practice guideline on relieving minor discomfort among new pregnant woman. Who found that majority of total self-care reported practice score regarding management of minor discomfort of the pregnant women at post intervention were satisfactory.

According to study group satisfaction regarding using telenursing. the present study illustrated that more than majority of study group were satisfied by using telenursing during antenatal follow up.

The current study agreed with **(Zedan et aal., 2021)** who studied effect of social media on labour outcomes and women satisfaction who found that nearly three quarters of the studied women strongly agree that the social media was easy method for communication, fast reach for information need, available at any time, attractive method of learning experiences, safe time, effort and money, positive effect on pregnancy experiences & labor outcomes. Additionally, **(Tsai et al., 2018)** approved that the pregnant women in the experimental group higher satisfaction with antenatal care than control group (88.40[7.31] vs 85.04[8.37]; t = 2.48, P = .01) who studied effects of a web-based antenatal care system on maternal stress and self-efficacy during pregnancy.

The current study observed that there was statically significant moderate positive correlation among total knowledge pre-intervention and post-intervention and total practice post-intervention (p-value <0.05).

The current study matching with **(Lyimo et al., 2022)** who studied Pregnant women's self-care practices for relieve of minor discomforts in Dodoma Region, Tanzania who observed that There was a positive correlation coefficient between the total score of knowledge and self-care practices regarding minor discomforts, and it was highly statistically significant (P=<0.001).

In summary, telenursing can be understood as the application of the Internet and other related technologies in the nursing sector for improving access, efficiency, efficacy, and

quality of clinical and corporate processes used by health organizations, nursing, and patients to improve the health status of patients.

Conclusion

Based on the findings of the present study, it is concluded that: There was a positive effect of telenursing services on improving pregnant women knowledge and self-care practice regarding minor discomforts during pregnancy among study group compared to control group. in addition, the majority of study group were satisfied regarding using telenursing services at post-intervention. Also, there was a statistically significant correlation between total knowledge score and total self-care practice score regarding minor discomforts among study group at post-intervention(p-value<0.05).

Recommendations

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

- Implementation of telenursing services at natal clinic of different health care setting for improving knowledge and practice related to minor discomforts among pregnant women.
- Awareness programs should be developed to raise women's knowledge and practice regarding minor discomforts of pregnancy via telenursing services and increase women's satisfaction regarding using telenursing services to improve obstetrics services.

Further Research:

- Replication of the study on a large sample size and in other different institutions for generalizing the findings.
- evaluate the effect of telenursing services regarding minor discomforts during pregnancy on maternal and fetal outcomes.

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