The Effect of Nursing Instructions about Fetal Kicks on knowledge and practice of High-Risk Pregnant Women

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Abstract

Background: Counting of fetal movement during pregnancy is believed to be a method by which a woman estimates the fetal well-being. it was estimated that 2.6 million babies had died in utero. A percentage of 30-55% of women who experience an episode of reduced fetal movement within a week may face stillbirth. This study aimed To study the effect of nursing instructions about fetal kicks on knowledge and practice of high-risk pregnant women. Design: A quasi-experimental research design (pre-posttest) has been utilized to achieve the aim of current study. Settings: The proposed study has been conducted in obstetric and gynecological clinic in El-tbeen El-Markaz hospital. Sample: A purposive sampling of high risk pregnant women were involved in the obstetric and gynecological clinic in El-tbeen El-Markaz hospital. Tools: three tools were used for data collection: I- A structured interview questionnaire sheet, II- Knowledge assessment sheet and III- Daily Fetal Movement Chart. Results: The study finding revealed that 75.8% of the high risk pregnant women had a satisfactory level of total knowledge regarding to fetal kick count. Conclusion: In light of the current study, it can be concluded that nursing instruction about fetal kicks improve knowledge scores of high risk pregnant women about self-assessment of fetal movement. Recommendations: Applying nursing clinical pathways in routine nursing care for low risk and high risk pregnant women.

Keywords: *High risk, pregnant women, fetal kick count.*

INTRODUCTION

Fetal kick counting (FKC) is a quantification of fetal movement perceived by the mother to interpret the general condition of the fetus. This procedure is inexpensive, non-invasive, and simple, so it can be used to evaluate the state of her fetus for continuous maternal monitoring and fetal health assessment (Rincy & Nalini;2019).

A high-risk pregnancy is defined as "any pregnancy in which is a medical factor, maternal or fetal that potentially acts adversely to affect the pregnancy outcomes. A pregnancy complication can be a result of abnormal responses in the mother's body to the pregnancy-induced changes that greatly affect the health of the baby. Atypical development, such as significant anomalies and genetic or congenital problems in the newborn, can lead to hazard pregnancy consequences. Medical

conditions associated with labor or delivery, including preterm labor, gestational diabetes, preeclampsia, and placental previa may complicate the pregnancy (Nazeema and Michelle;2020).

Fetal movement is an indication that the fetus is growing and strength, and it is felt by pregnant mothers. Usually, the pregnant woman is the first to notice these movements, which can subsequently be noticed by others. Between weeks 16 and 22, a woman's feelings with fetal movement begins to emerge. Health care providers frequently instruct women to observe or be aware of the fetal movements. This might be a broad awareness of fetal movements, decreased fetal movement can be a warning sign of potential fetal impairment or risk. (Mohapatre, et al; 2021).

Maternal perception of reduced fetal movement (RFM) is a common reason for women to contact their healthcare provider. Women presenting on multiple occasions with RFM are at increased risk of poor perinatal outcomes, including fetal death, intrauterine fetal growth restriction (IUFGR) or preterm birth., examination and auscultation of fetal heart, cardiotocography (CTG) and ultrasound are indicated (Bellussi, et al; 2020).

Nurses participate in evaluation of fetal condition following mother complaints of reduced fetal movement. Interventions may include applying an external fetal heart monitor, monitoring for contractions, assessing maternal vital signs, and assessing for rupture of maternal membranes. The nurse may also be involved in the care of the woman during further ultrasound assessment of the fetus (biophysical profile) and in communicating the assessments to the patient and family as well as the primary care clinician. (De Vivo, et al; 2020).

Education of women about fetal movements and rapid response to complaints of reduced fetal movements should be part of ongoing monitoring by nurses working in maternity healthcare setting reports. All office personnel that are in contact with a pregnant woman either during phone triage or prenatal assessments need to understand the importance of fetal movement monitoring and the need to listen to patient reports. (Bellussi and saccone;2020).

Significance of the study:

High risk pregnancy is the time during which the mother, fetus or newborn, are at risk of death, disability or illness higher than usual. According to mortality rate of pregnant women in the province and having a high-risk rank, can reduce the mortality rate by proper care and more monitoring for the fetus (Firozi;2020).

Fetal kicks and outcome numerous studies have shown that fetal movement provides an important measure of fetal health of women perceiving decreased fetal movements, 25% have poor perinatal outcomes, and more than half of stillbirths are preceded by decreased fetal movements in united states (Athiel ;2020).

Perinatal mortality and morbidity are a concern in all countries, or a critical aspect in any country. The perinatal mortality rate in developed countries accounts for about 90 percent of all fetal and infant mortality. The rate of neonatal mortality was estimated at 18 deaths per 100 live births worldwide, according to the WHO in 2018.

According to the Egypt Demographic and Health Survey (EDHS, 2018), approximately 8, 90,000 perinatal deaths occur annually in Egypt, 15 fetal deaths are registered among 1,000 live births in rural areas and 18 deaths among 1,000 births in urban areas. (Interagency

Group for Child Mortality Estimation, 2014) (Amal and Hana,.2020)

There is not enough evidence to support or reject the counting of organized fetal activity in either low-risk or high-risk females. Therefore, the study aims to effect of nursing instructions about fetal kicks on knowledge and practice of high-risk pregnant women.

Aim of the study:

To study the effect of nursing instructions about fetal kicks on knowledge and practice of high-risk pregnant women.

Research hypothesis:

Nursing instructions about fetal kicks have positive effect on knowledge and practice of high-risk pregnant women.

Subject and methods:

The subject and methods for this study were portrayed under the four main items as follows:

I) Technical item.

II) Operational item.

III) Administrative item.

IV) Statistical item.

I- Technical item:

The technical design includes research design, setting, subjects and tools for data collection.

Research design:

A quasi-experimental research design (pre-posttest) has been utilized to achieve the aim of current study.

Setting:

The proposed study has been conducted in obstetric and gynecological clinic in El-tbeen El-Markaz hospital.The hospital consists of three buildings, the building that contain the obstetric and gynecological clinic contain many clinics such as an ultrasound room, an abdominal clinic, an ophthalmology clinic, an orthopedic clinic, a dental clinic, a spare clinic, and a surgery clinic. After the clinic's corridor, there is a square of about fifteen meters (waiting area). there are three large terraces in the shape of the letter U, and here the researcher has been meets high-risk pregnant women.

Subjects:

A purposive sampling composed of (68) high risk pregnant women were involved in the study sitting over a period of 6 months form Jolay 2022 till December 2022 at the previous mentioned setting according to the following inclusion and exclusion criteria.

Tools of data collection:

Tool (I): A structured Interviewing questionnaire: this tool will be designated by the investigator, it includes two sections; personal data of pregnant women: includes of age, residence, and educational level will presented in the first section. While, Section two includes data related: obstetric and gynecological history such as parity, gravida, mode of delivery and any medical or gynecological problem.

Tool (II): Knowledge assessment sheet: designed by the investigator after reviewing national and international literature regarding fetal kicks among high-risk pregnant women such as: normal fetal movement pattern, abnormal of fetal movement pattern, methods to enhance fetal movement and how to count fetal movement after this assigned score such as poor knowledge1, fair knowledge2 and good knowledge3.

Tool (III): Daily Fetal Movement Chart (DFMC): "count-to-ten" kick charts adapted from Saastad, (2011).

The daily movement chart is used for monitoring and recording daily movement of the fetus by the mother for three times in a day one hour after breakfast; one hour after lunch; one hour after dinner. More than 10 kicks for 12 hours are considered to be normal. Scoring System for practice about Daily Fetal Movement Chart:

Incorrect 0, correct and incomplete1 and correct2.

Validity:

The developed tool has been formulated and submitted to five experts in maternal health nursing from faculty of nursing Helwan and Cairo university to assess the content validity Their opinions were regarding comprehensiveness, accuracy, clarity, relevance, and appropriateness of the study tools. Minor modifications were done based on expert's judgment and the final form was developed.

Reliability:

The tool show good reliability for knowledge and practice for pregnant women about fetal kick count, through Comparison between pre and post according to Knowledge assessment and it show highly statistically significant differences between pre and post with good knowledge in post when it compared to pre with good reliability of 0,758 according to Cronbach's Alpha test.

Comparison between pre and post according to Daily Fetal Movement Chart (DFMC) and it show highly statistically significant differences between pre and post with good knowledge in post when it compared ZXaz to pre with excellent reliability of 0, 910 according to Cronbach's Alpha test.

Ethical considerations:

An official permission to conduct the proposed study was obtained from the Scientific Research Ethics Committee. Participation in the study was voluntary and subjects were given complete full information about the study and their role before signing the informed consent. The ethical considerations were included explaining the purpose and nature of the study, stating the possibility to withdraw at any time, confidentiality of the information where they weren't be accessed by any other party without taking permission of the participants. Ethics, values, culture and beliefs were respected.

II- Operational item:

The operational design includes preparatory phase, pilot study and field work

Preparatory phase:

It included reviewing of past, current, national and international related literature and theoretical knowledge of various aspects of the study using books, articles, internet, periodicals and magazines to develop the tool for data collection.

Pilot study:

The pilot study was done on 10% of the sample (7 high risk pregnant women) to examine the clarity of questions and time needed to complete the study tools. Subjects included in the pilot study weren't excluded from the study sample as minor modifications were done.

Field work:

The actual field work was carried out in obstetric and gynecological clinic in El-tbeen El-Markazy Hospital through six months

started at the beginning of July 2022 till December 2022 after obtaining all official permission.

Data collection was done at the previous mentioned setting two days per week (Saturday and Tuesday) by the researcher in the morning shift between 10.00 AM to 1.00 PM. Each woman took about 35-40 minutes for interviewing and completing the questionnaires data.

The study was implemented in the following stage: -

1-preparing and planning stage: -

At this stage researcher visited the hospital to meet the manager and to assess the number of high risk pregnant who's come to the obstetric and gynecological clinic.

The researcher design questionnaire form to identify the unmet need of high risk pregnant women.

II-Implementation stage: -

In this stage, the researcher explained the aim of the study, and distributed the approval written consent when high risk pregnant women that refused written consent toke oral verbal agree from them.

In this stage pretest questionnaire was distributed to assess knowledge and practice of high risk pregnant women regarding fetal kick count this questionnaire was take from 35-40 minute.

Personal characteristic was taking a 10 min and data related to the knowledge was take from 10-15 min and final part that related to how count fetal kick was take from 10-15min.

At the end of the meeting the researcher has given burshor to the high risk pregnant women and asked to meet them again after the first time by two weeks.

III: -Evaluation stage: -

At this stage, the researcher interested to assess feedback of knowledge and practice of high risk pregnant women regarding fetal kick count and level of satisfactory regarding the study.

IV Administrative Item:

After explanation of the study aim and objectives, an official permission was obtained from the dean of faculty of nursing and the general manager of El-tbeen hospital asking for cooperation and permission to conduct the study.

V Statistical item:

Data were fed to the computer and analyzed using IBM SPSS software package version 20.0. (Armonk, NY: IBM Corp) (2) Qualitative data were described using number and percent. The Kolmogorov-Smirnov test was used to verify the normality of distribution Quantitative data were described using range (minimum and maximum), mean and standard deviation. Significance of the obtained results was judged at the 5% level. The used tests were. Chi-square test For categorical variables, to compare between different groups, Student t-test For normally quantitative variables, to compare between two studied groups and Mann Whitney test For abnormally quantitative variables, to compare between two studied groups.

Results

Table (1): Distribution of studied sample according to demographic data.

	Number	Percent
Age (years)		
Range	20–45	
Mean±S.D.	29.91±5.528	
Residence		
Urban	65	95.6
Rural	3	4.4
Educational Level		
Read and write	14	20.6
Preparatory	13	19.1
Secondary	28	41.2
University	5	7.4
Postgraduate	8	11.8
Occupation		
Working	11	16.2
Housewife	57	83.8

Table (1) illustrate demographic data of the studied group. Age was ranged between 20–45 years with mean value 29.91±5.528 years. Residence show that the majority of the study (95.6%) were from urban and less than one fifth (4.4%) were from rural.

Table (2): Distribution of studied sample according to obstetric history.

Obstetric history	Number	Percent
Gravidity		
1 – 2	30	44.1
2 – 3	16	23.5
3 – 4	17	25.0
≥5	5	7.4
Parity		
No	16	23.5
1 – 2	25	36.8
2 – 3	14	20.6
3 – 4	11	16.2
≥5	2	2.9
Abortion		
No	53	77.9
1 – 2	9	13.2
≥3	6	8.8
Type of last delivery		
No	14	20.6
VD	17	25.0
C.S	37	54.4

Table (2) illustrate obstetric history of the studied group. shows that more than one third (44.1%) had 1-2 Gravidity and less than one fifth (7.4%) had ⩾5 Gravidity. More than one third (36.8) had 1-2 parity, less than one fifth (2.9%) had ⩾5 parity and above half (54%) had C.S delivery.

Table (3): Distribution of studied sample according to Placenta Problems.

Placenta Problems	Number	Percent
Yes	11	16.2
placenta previa	8	11.8
Abruption placenta	3	4.4

Table (3) illustrate placenta problems of the studied group show that less than one fifth (11.8%) had advanced placenta and (4.4%) had abruption placenta.

Figure (4): Distribution of studied sample according to medical history.

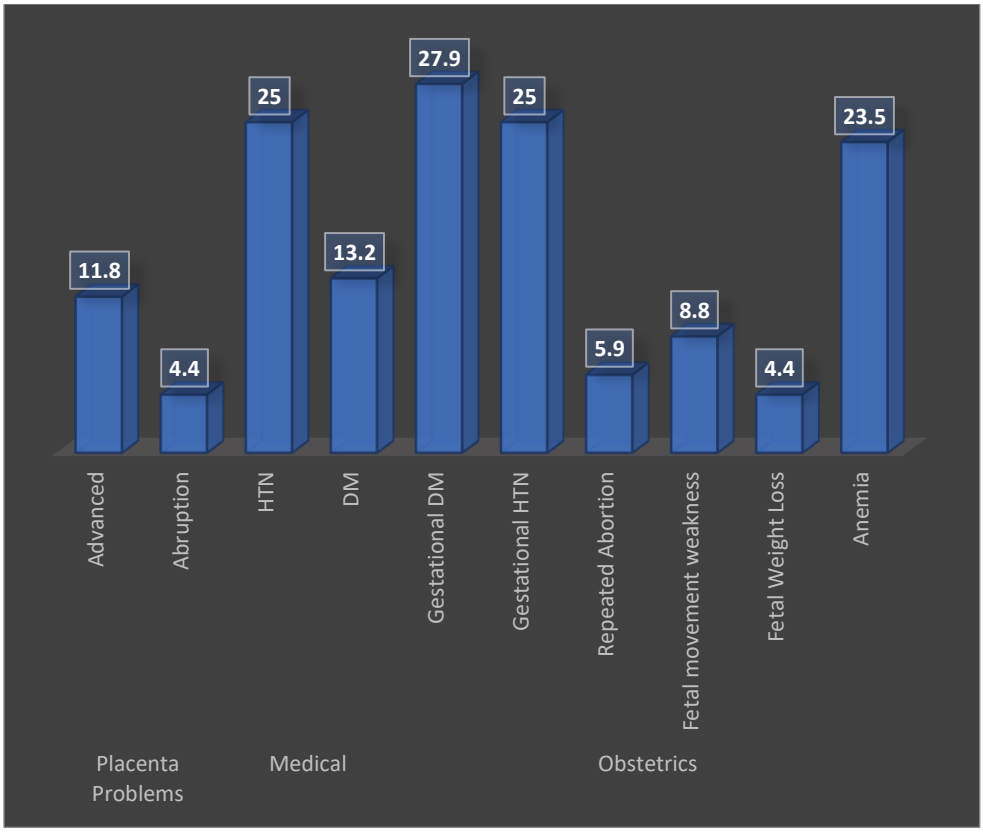

Table (5): Comparison between pre and post according to Knowledge assessment.

Items	Pre		Post		X2	P value	Cronbach's Alpha test for reliability
	No.	%	No.	%			
When fetal movement start?							**0.758**
No	20	29.4	0	0	23.448	<0.001*	
Yes	48	70.6	68	100			
Good knowledge	10	20.8	42	61.7			
Faire knowledge	10	20.8	20	29.4			
Poor knowledge	28	58.3	6	8.8			
The normal number of fetal movements?							
No	47	69.1	6	8.8	51.970	<0.001*	
Yes	21	30.9	62	91.2			
Good knowledge	8	38.1	50	80,6			
Faire knowledge	3	14,2	10	16,1			
Poor knowledge	10	47,6	2	3.2			

How do you differentiate between normal fetal movement and decrease of fetal movement?							
No	32	47.1	17	25.0			
Yes	36	52.9	51	75.0			
Good knowledge	3	4.4	34	50.0	7.178	0.012*	
Faire knowledge	9	13.2	3	4.4			
Poor knowledge	24	35.3	14	20.6			
Do you know what are the practices that improve the movement of the fetus?							
No	41	60.3	26	38.2			
Yes	27	39.7	42	61.8			
Good knowledge	0	0	0	0	6.619	0.016*	
Faire knowledge	21	77.8	31	73.8			
Poor knowledge	6	22.2	11	26.2			
What is the best position to improve fetal movement?							
No	30	44.1	6	8.8			
Yes	38	55.9	62	91.2			
Good knowledge	14	36.8	36	58.1	21.760	<0.001*	
Faire knowledge	19	50.0	14	22.6			
Poor knowledge	5	13.2	12	19.4			

Table (5): Comparison between pre and post according to Knowledge assessment (continue).

Items	Pre		Post		X2	P value	Cronbach's Alpha test for reliability
	No.	%	No.	%			
Do you know what are the types of foods that improve fetal movement?							
No	18	26.5	4	5.9			
Yes	50	73.5	64	94.1			
Good knowledge	27	54.0	51	79.7	10.628	0.002*	
Faire knowledge	18	36.0	10	15.6			
Poor knowledge	5	10.0	3	4.7			**0.758**
Do you know when does fetal movement increase per day?							
No	25	36.8	12	17.6			
Yes	43	63.2	56	82.4			
Good knowledge	8	18.6	41	73.2	6.275	0.020*	
Faire knowledge	9	20.9	12	21.4			

Poor knowledge	26	60.5	3	5.4			
Does your chronic illness effect on fetal movement?							
No	51	75.0	35	51.5			
Yes	17	33,3	33	48.5			
Good knowledge	17	33,3	20	57.1	8.097	0.007*	
Faire knowledge	17	33,3	13	39.3			
Poor knowledge	0	0	0	0			
Does the amount of amniotic fluid around the fetus affect its movement?							
No	47	69.1	42	61.8			
Yes	21	30.9	26	38.2			
Good knowledge	0	0	5	19.2	0.813	0.471	
Faire knowledge	3	14.3	0	0			
Poor knowledge	18	85.7	21	80.8			

Table (5) shows Comparison between pre and post according to Knowledge assessment and it show highly statistically significant differences between pre and post with good knowledge in post when it compared to pre with good reliability of 0.758 according to Cronbach's Alpha test.

Figure (6): Comparison between pre and post according to Knowledge assessment total score.

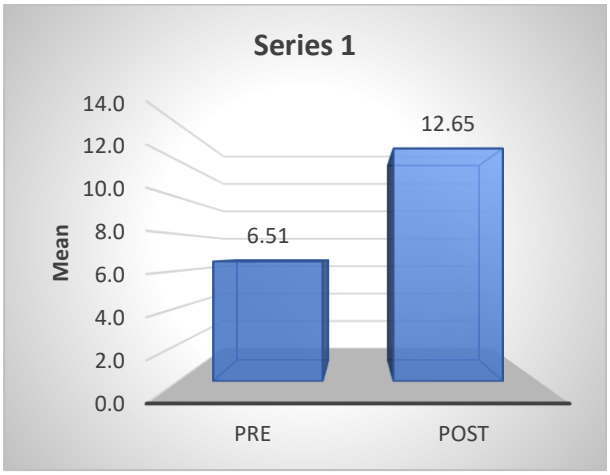

Table (7): Comparison between pre and post according to Knowledge assessment.

Items	Pre		Post		X2	P value	Cronbach's Alpha test for reliability
	No.	%	No.	%			
When fetal movement start							
No	20	29.4	0	0	23.448	<0.001*	0,758
Yes	48	70.6	68	100			

The normal number of fetal movements							
No	47	69.1	6	8.8	51.970	<0.001*	
Yes	21	30.9	62	91.2			
How do you differentiate between normal fetal movement and lack of fetal movement?							
No	32	47.1	17	25.0	7.178	0.012*	
Yes	36	52.9	51	75.0			
Do you know what are the practices that improve the movement of the fetus							
No	41	60.3	26	38.2	6.619	0.016*	
Yes	27	39.7	42	61.8			
Do you know what is the best position to improve fetal movement?							
No	30	44.1	6	8.8	21.760	<0.001*	
Yes	38	55.9	62	91.2			
Do you know what are the types of foods that improve fetal movement?							
No	18	26.5	4	5.9	10.628	0.002*	
Yes	50	73.5	64	94.1			
Do you know when does fetal movement increase per day?							
No	25	36.8	12	17.6	6.275	0.020*	
Yes	43	63.2	56	82.4			
Does your chronic illness affect fetal movement?							
No	51	75.0	35	51.5	8.097	0.007*	
Yes	17	25.0	33	48.5			
Does the amount of amniotic fluid around the fetus affect its movement?							
No	47	69.1	42	61.8	0.813	0.471	
Yes	21	30.9	26	38.2			

Table (7) shows Comparison between pre and post according to Knowledge assessment and it show highly statistically significant differences between pre and post with good knowledge in post when it compared to pre with good reliability of 75.8% according to Cronbach's Alpha test.

Figure (8): Distribution of studied sample according to sources for counting your fetal movement.

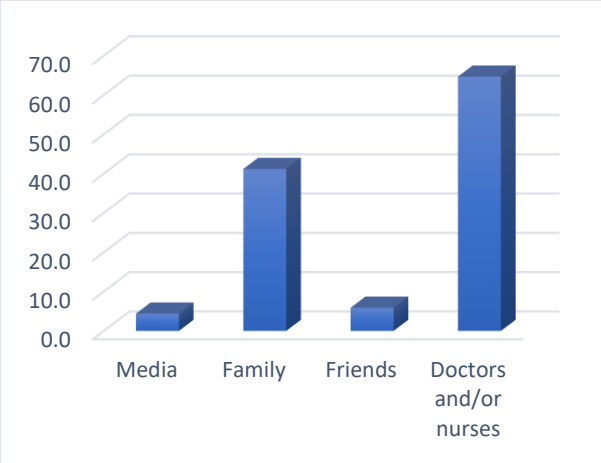

Table (9): Comparison between pre and post according to Daily Fetal Movement Chart (DFMC).

Items	Pre		Post		X2	P value	Cronbach's Alpha test for reliability
	No.	%	No.	%			
After one hour of Breakfast							0.910
No	43	63.2	21	30.9	14.285	<0.001*	
Yes	25	36.8	47	69.1			
<10	14	56.0	34	72.3			
=10	0	0	13	27.7			
>10	11	44.0	0	0			
After One hour of Lunch							
No	45	66.2	21	30.9	16.956	<0.001*	
Yes	23	33.8	47	69.1			
<10	13	56.5	22	46.8			
=10	7	30.4	18	38.3			
>10	3	13.0	7	14.9			
After One hour of dinner							
No	41	60.3	11	16.2	28.022	<0.001*	
Yes	27	39.7	57	83.8			
<10	11	40.7	23	40.4			
=10	5	18.5	28	49.1			
>10	11	40.7	6	10.5			

Table (9) shows Comparison between pre and post according to Daily Fetal Movement Chart (DFMC) and it show highly statistically significant differences between pre and post with good knowledge in post when it compared

to pre with excellent reliability of 0,910 according to Cronbach's Alpha test.

Discussion

A healthy fetus moves and kicks regularly. On the other hand, decreased or increased fetal movements during pregnancy is associated with adverse fetal outcomes and may be a warning sign of an impending fetal demise. Fetal movements counting (FMC), a self screening technique, has been proposed as a primary method of fetal surveillance for all pregnancies including HRP. Maternal regular perception of fetal movements during the third trimester has been considered as an indicator of fetal well-being. FMC is also associated with improved perinatal outcomes as it permits early identification, timely evaluation, and appropriate intervention for fetuses at risk of adverse outcomes (Dutton et al., 2020).

The fetal movement pattern is different for every fetus, and women experience different types of movements. Therefore, an improved understanding of fetal movement patterns and quality, as perceived by pregnant women, is crucial and can be achieved through providing adequate information. When pregnant women have adequate information about normal fetal movement patterns, they can identify and report any deviations that may occur early. Fetal movement counting is a cost effective, reassuring, and easily taught skill that, all pregnant women can benefit from training on fetal movement assessment (Dutton et al., 2020). A recent study conducted by Flenady et al. 2019, announced that, there is a need to ensure that pregnant women receive adequate information and support about decreased fetal movement.

The main aim of this study was to study the effect of nursing instructions about fetal kicks on knowledge and practice of high-risk pregnant women.

This quasi-experimental research design (pre-posttest) study was conducted in obstetric and gynecological clinic in El-tebeen El-markazy hospital. The study included 68 high-risk pregnant women who are attending the study setting for a period of 6 months.

The main results of this study were as following:

As regard demographic data of the studied group. Age was ranged between 20–45 years with mean value 29.91±5.528 years. Residence show that the majority of the study (95.6%) were from urban and less than one fifth (4.4%) were from rural. Educational Level show that less than one third (20.6%) were read and write, less than on quarter (19.1%) had preparatory educational level, less than half (41.2%) had secondary educational level, less than one fifth (7.4%) had university educational level and more than one fifth (11.8%) were postgraduate. Occupation shows that less than one third (16.2%) were working and above half (83.8%) were housewife, this result in same line with(Khalil & Shahin, 2020) who led study " Effect of Nursing Clinical Pathway on Self-Assessment of Fetal Well-being among high-risk pregnant women " who found that the age of the study participant ranged between 20 and 40 years, with slightly more than half of them being younger than 30 years 66.6%, more than two third had a secondary school and more than half working women. Similarly, in the study of (Ahmed et al., 2021), who concentrate about " Interactive Training Session Regarding Fetal Movements Counting and its Effect on Maternal Outcomes among High-Risk Pregnant Women " reported that 37.1% of the intervention group's age ranged between 25 to < 30 years as compared to 41.4% of the control

group. Concerning the place of residence, 65.7% of the intervention group, as compared to 58.6% of the control group lived in rural areas. In relation to education, 57.1% of the intervention group, as compared to 58.5% of the control group had completed their secondary education. Regarding occupation, 82.9% of the intervention group, as compared to 81.4% of the control group, were housewives. There were no significant differences between the intervention group and the control group regarding all sociodemographic data ($p > 0.05$).

As respect to obstetric history of the studied group. Gravidity shows that more than fifth (17.6%) with no gravidity, less than one third (29.4%) had 1 – 2 gravidity, less than one third (20.6%) had 2 – 3 gravidity, less than one third (25.0%) had 3 – 4 gravidity and less than one fifth (7.4%) had ⩾5 gravidity. Parity shows that less than one third (23.5%) with no parity, more than one third (36.8%) had 1 – 2 parity, less than on third (20.6%) had 2 – 3 parity, more than one fifth (16.2%) had 3 – 4 parity and less than one fifth (2.9%) had ⩾5 parity. Abortion shows that above half (77.9%) with no abortion, less than one fifth (13.2%) had 1 – 2 abortion and less than one fifth (8.8%) had ⩾3 abortion. Type of last delivery show that less than one third (20.6%) with no history of previous delivery, equal one quarter (25.0%) were NVD, and above half (54.4%) were C.S. This in accordance with study of (Khalil, & Shahin, 2020) as they revealed that the most incidence was for cesarean section as near to third (46%) of the study participant have previous history to cesarean section. The distribution for other risk factors 14.7%, 8.7%, 7.3% for PIH, PMROM, previous history of still birth respectively.

Concerned with placenta problems, the current study showed that less than one fifth (11.8%) had advanced placenta and (4.4%) had abruption placenta. This prevalence was higher that reported by Tikkanen , 2011 about "Placental abruption: epidemiology, risk factors and consequences" that approximately 0.4-1% of pregnancies are complicated by placental abruption. The prevalence is lower in the Nordic countries (0.38-0.51%) compared with the USA (0.6-1.0%). Placental abruption is also one of the most important causes of maternal morbidity and perinatal mortality.

As respect to comparison between pre and post according to Knowledge assessment and it show highly statistically significant differences between pre and post with good knowledge in post when it compared to pre with good reliability of 0.758 according to Cronbach's Alpha test. Regarding Knowledge assessment total score and it show highly statistically significant differences between pre and post with good knowledge score in post when it compared to pre. This in the same line with study of (Khalil & Shahin, 2020) as they reported that there are high statistically significant differences of the study participant about fatal wellbeing pre-clinical pathway and post clinical pathway intervention regarding definition, importance, indications and methods of fetal wellbeing.

These findings are in line with (Ahmed et al., 2021) as they revealed that regarding the level of knowledge about FMC, the current study revealed that preintervention, there was no statistically significant difference between the intervention and the control group in relation to the levels of knowledge ($P = 1.000$) because all the participants in both groups had poor levels of knowledge. However, post-intervention, the level of knowledge in the intervention group dramatically improved as the majority of the

participants now had high levels of knowledge. On the other hand, all the participants in the control group still recorded poor knowledge levels. Therefore, the difference between both groups was highly statistically significant ($p < 0.001$). These findings may be explained by the absence of the role of nurses as educators as no participant reported that nurses were the source of their knowledge. As well as, the absence of maternal health teaching classes can also be another contributing factor. These findings highlight the effectiveness of the training session and the teaching material administered to the participants in this study.

(Similarly, ElSayed et al. 2018) also conducted a study aimed at examining the effect of women monitoring fetal movement on improving their health status. Their findings revealed that the mean score of knowledge about fetal movement improved from 20.14± 0.512 preintervention to 39.86± 0.550 post-intervention and the difference was highly statistically significant (P=0.001). Their findings showed that there was a highly statically significant improvement of the total scores of general health at 37weeks of gestation among intervention group while there was no change of general health at 37weeks of gestation among the control group. Additionally, a high significantly was observed between 28weeks and 37weeks among intervention group about FKC and woman's general health status domain. Another study conducted by Ahmed, 2016 to examine the effect of counseling intervention on women's knowledge, practices, and fetal well-being among primigravida's. He reported that preintervention, majority of the sample (94.0%) have unsatisfactory knowledge about fetal movement compared to 100% of them who have satisfactory knowledge post-intervention.

Also the present study finding were supported by Bhargava1 et al. 2014 who study the effect of structured teaching program on knowledge regarding self-assessment of the daily fetal movement count, among normal and high risk primigravida mothers at Red Cross Hospital, and reported that structured teaching program was effective in increasing the knowledge regarding self-assessment of daily fetal movement counts, among normal and high risk primigravida mothers. (Else, Refaat , 2016) who study the effect of counseling intervention on women's knowledge, practices of fetal well-being among primigravida, showed that the level of a woman's knowledge increased after application of the intervention as compared with before. Moreover the current study results were inconsistent with Sujatha et al, , 2013 who study the effectiveness of structured teaching program among primigravida women. Antenatal care and knowledge, showed that a significant difference in the level of knowledge on antenatal care after structured teaching program (87.0%). Furthermore, concerning total score general health status, it was observed that significant improvement of pregnant woman self-monitoring of fetal kicks at 28 and 37 weeks of gestation.

As regard Comparison between pre and post according to Daily Fetal Movement Chart (DFMC) and it show highly statistically significant differences between pre and post with good knowledge in post when it compared to pre with excellent reliability of 0,910 according to Cronbach's Alpha test. This in the same line with (Khalil & Shahin, 2020) as they revealed that there are high statistically significant differences between knowledge and practice regarding to daily fatal movement chart for the study participant (P value 0.001). Total improvement regarding knowledge of daily fatal movement chart and practice of daily fatal movement chart as good and more than

good are 96.6% after post clinical pathway interventions compared to 10% in preclinical pathway interventions.

Mother's fetal movement monitoring is a tool used to determine fetal well-being and this unstructured screening lets the mother be confident of the fetus ' safety. More than 99 percent of women who gave birth to a healthy baby say it's so important for them to feel the movements of the baby every day The counting of fetal movement is an assessment tool which quantifies the fetal movements that pregnant women feel. Fetus movements are specific to each fetus as are the mother's perceptions of those movements. The amount of movement increases from 24 weeks until 32 weeks of pregnancy. Around 32 weeks onwards, the amount of fetal movements appears to become constant before labour begins. Normal fetal movements can be described in two hours as 10 or more movements, felt by a woman while lying on her side and concentrating on the movement that can be interpreted as any distinct jump, flutter, swish or roll. Fetal movements reinforce the stability of the central nervous and musculoskeletal systems (Public Health Nursing Prenatal Practice, 2019).

Diminished activity alerts the mother to a worsening fetal condition. She can then bring this to the attention of health care providers, who can then assess and intervene to prevent fetal death if required. Because it can be performed on a daily basis, or multiple times daily, it has benefits over other fetal tests which are often not technically possible to perform this. Women who show decreased fetal activity have a stillbirth incidence 60 times higher than women without this complaint. Although decreased fetal motion usually precedes fetal death, it does not necessarily indicate imminent fetal death. Several factors other than aggravating the fetal condition may influence the perception of movement, including maternal activity, environment, obesity, medication, gestational age, placental location and volume of amniotic fluid Fetal activity often usually varies over the course of the day, peaking between 9PM and 1 AM when maternal glucose levels decrease. There is a risk of complications such as restriction of fetal growth and still-birth in women with reduced fetal movements. More females notice changes in fetal activity, speed and frequency (Abd El-Razek, 2018).

Conclusion

On the light on the finding of the current study, it can be concluded that:

nursing instructions about fetal kicks improve knowledge scores and practice score of high risk pregnant women about self-assessment of fetal kick count.

Recommendations

Based on the results of the present study the following recommendation is suggested:

- Applying nursing clinical pathways in routine nursing care for low risk and high risk pregnant women in hospitals.
- Applying educational program about fetal kick count for all pregnant women.

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