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Effectiveness of Structured Teaching Programme on Knowledge about Self-assessment of Fetal Wellbeing among Primigravida women

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Abstract: **The aim of the study was to assess effectiveness of structured teaching programme on knowledge about self-Assessment of fetal well-being among primigravida women. The Design of the study was a quasi-experimental design.The studied participants comprised all eligible pregnant women according to inclusion criteria amounting to 140 of women. Tools of this study included socio-demographic characteristics, and Knowledge of the study group about self-assessment of fetal wellbeing. The findings, most of the studied participants were 20 to 30 years and had bachelor degree, married from about one to two years. There was a highly statistically significant difference between the mean score of total knowledge among the studied participants at the pre-test and the post-test intervention. . It was concluded that, the implementation of structured teaching programme was effective and significantly improved women's knowledge about self-assessment of fetal well-being after application of the teaching program. Based on the present findings; the study hypothesis was accepted. It is recommended that pregnant woman should be educated on the importance of self-assessment of fetal wellbeing, its goals, methods, and physiological changes during pregnancy within antenatal counseling to ensure healthy outcomes for herself and her infant.**

Keywords: **Assess, effectiveness, structured teaching programme, fetal well-being, primigravida.**

1. INTRODUCTION

Pregnancy is considered as a very precious event in every woman's life. It is filled with happiness, joy and surprises (Hackly, Kriebs, Rousseau, 2013). Every parent hopes for a healthy baby but may sometimes become sorrowful when danger sets in either to the mother or to the fetus (Sword et al., 2012). Mother's education is not a luxury but a necessity if mothers are to receive the maximum benefit from today's knowledge of the possible treatment, prevention and control of disease. Reedmen (2012) say that the process of teaching and learning often begins when division identifies a need for knowing or gaining an ability to do something.

According to Sujatha, Radhiga, Sudha, (2013) assessment of maternal and fetal well-being is the focus of prenatal care. The same reference added that fetal monitoring in a wide sense means fetal surveillance but practically it is an indirect way to measure fetal wellbeing. The primary goal of antenatal evaluation is to identify fetus at risk for intrauterine injury and risk so that intervention and timely delivery can prevent progression to still-birth.

Movements of the fetus are unique for every fetus as also the mother's experiences of those movements. Normal fetal movements can be defined as 10 or more movements in 2 hours, felt by a woman when she is lying on her side and focusing on the movement which may be perceived as any discrete kick, flutter, swish or roll (Mangesi et al, 2014).

The fundal height measurement is a widely used tool to aid in the detection of fetal growth abnormalities during the second and third trimesters of pregnancy (Anita , Lee, 2011). While it is an appealing intervention given the fact that it is inexpensive, relatively it is noninvasive and easy to perform. Weight gain during pregnancy is a reliable indicator of fetal well- being as gaining adequate weight during pregnancy indicates adequate fetal growth (Sorenson& Abrams, 2011).

Adele Davis, (2012) reported that, assessment of maternal and fetal well-being is the focus of prenatal care. Nursing responsibilities include heavy emphasis on teaching throughout the pregnancy (Ugwa et al, 2012).

Significance of the study:

A healthy fetus is the goal of every expectant mother and her physician. Yet for every 1000 live births the perinatal mortality is 22.9 deaths (DHS,2016). According to WHO (2015) 2.6 million perinatal deaths occur annually in the world down from 4.5 million in 1990. The same reference added that, worldwide 36 deaths among 1000 live births in rural areas and 22 fetal deaths among 1000 live births in urban areas are recorded. According to Egypt Demographic and Health Survey (EDHS, 2014) about 8, 90,000 perinatal deaths occurs annually in Egypt , 15 fetal deaths among 1000 live births in rural areas and 18 deaths among 1000 births in urban areas are recorded. In Menoufia Governorate 4.48 fetal deaths among 1000 live births (Inter- Agency Group for Child Mortality Estimation, 2014). Maternal assessment of fetal well-being during pregnancy and adequate prenatal care is very important to identify fetal well-being. It detects any abnormalities of the fetuses such as intrauterine injury and deaths. Therefore interventions and delivery at the expected date can prevent still birth (Froen et al., 2011). Ideally, antenatal monitoring and follow up would decrease fetal death without putting large numbers of healthy fetuses at risk as preterm labour and associated morbidity and mortality (Barker et al., 2013). Therefore, the present study aims to highlight the importance of self-assessment of fetal wellbeing among primigravida

Purpose of the Study:

The study purposed to assess effectiveness of a structured teaching programme on knowledge about self-assessment of fetal well-being among primigravida women.

Research Hypotheses:

1-Primigravida women will obtain higher knowledge scores about self-assessment of fetal well-being after implementing the structured teaching programme than before.

2. METHODS

Research design:

A quasi-experimental design (Study-control group) was used.

Setting:

The present study was conducted at two Maternal and Child Health Centers at Shebin El-Kom, Menoufia (Quibli and Bahari maternal and child health care center). Their main function is the provision of health care to mothers and children up to six years. Services of women provided by the MCH include antenatal care for delivery for normal labor, postpartum care and family planning. This facility usually serves normal cases. Abnormal or complicated cases are referred to the General or University Hospital due to technological and specialty services required for diagnosis and treatment such as ultrasonography. The flow rate of pregnant women at Quibli maternal and child health care center is 268 women per year and at Bahari maternal and child health care center is 197 women per year (IDSC, 2017).

Sampling:

A purposive sample of 140 pregnant women participated in the present study (85 women were selected from Qubli and 55 women from Bahari Maternal and Child Health Care). They included Primigravida women who are in the second and third trimester, Single pregnancy, Can read and write and Normal pregnancy with no medical or obstetric complications. The studied participants assigned randomly into two groups (Study Group and Control group). Each of the 140 women

was asked to pick a piece of paper containing a number (1and 2). Those who selected number 1 was assigned to Study Group, those who selected number 2 were assigned to Control Group. This technique was used to avoid sample contamination and bias.

Sample size:

By reviewing the previous studies that examined the same outcomes, significant differences was found at the average sample size ranged from 115- 105 to achieve 80% power to detect this difference with significant level of 5%. So, a purposive sample of 140 primigravida women was recruited in the study. Simple random sample was used to assign primigravidas into the study and control group.

Instruments:

Instrument I: A structured interview questionnaire: It was developed based on the review of currently related literature. It consisted of five parts: the three parts contained questions related to the socio-demographic characteristics, the second part contained Family History, and the third part included Obstetric history of primigravidas.

Instrument II: Knowledge of the study group about Self-assessment of Fetal Wellbeing: Reviewing literature, it was adapted by the researcher from Mandor, (2011). It consisted of 20 questions related to self-assessment of fetal wellbeing and was used to assess the level of women's knowledge about self-assessment of fetal wellbeing which included Definition of self-Assessment of fetal wellbeing, Methods of self-assessment of fetal wellbeing, When to feel first fetal movement, How to increase fetal movement, Causes of decreased fetal movement, What to consider when counting fetal movement, Definition of fundal height, Methods of measuring fundal height, Fundal height at 12 weeks of pregnancy, Fundal height at 24 weeks of pregnancy, Fundal height at 36 weeks of pregnancy, Causes of short fundal height, Causes of long fundal height, Weight gain during first trimester, Weight gain during second trimester, Weight gain during third trimester, Complications of overweight and Complications of underweight . Twenty knowledge questions were determined, according to the literature, and coded accordingly. Each question item of knowledge was given a score; correct & complete answer took (3), correct & incomplete answer took (2), whereas incorrect & don't know took (1) (Chia, 2014). The total score of knowledge (60) was classified as follows: - Good > 75% (60-45) - Average or fair 51% to < 75% (44-31) - Poor ≤ 50% (30-0).

Validity and reliability

For validity purposes, the researchers conducted an extensive literature review and developed the questionnaire from the previously used instruments and reviewing pertinent studies. Instrument 1 was designed by the researchers and validated by three experts (two Professors in Maternal and Newborn Health Nursing and one expert in Obstetric Medicine) for content accuracy and internal validity, while instruments II were adopted from the previous studies. The interview questionnaire underwent some modifications according to the panel of judgment regarding the clarity of sentences and appropriateness of content. Intra-class correlation coefficients to evaluate test–retest reliability were high (range 0.89–0.95, $P < 0.001$.

Administrative Approvals:

An official letter was taken from Dean, Faculty of nursing, Menoufia University and directed to Directors of the study settings. An official permission to carry out the study. Also, the approval of the Ethics Committee of the Faculty of Nursing, Monoufia University was obtained.

Ethical Consideration:

An approval of the committee of the research committee in the faculty of nursing, Menoufia University was obtained on 6/11/2018. Approaches to ensuring ethics were considered in the study regarding confidentiality and informed consent. Confidentiality was achieved by the use of closed sheets with the names of the participants replaced by numbers. All participants were informed that the information they provided during the study would be kept confidential and used only for statistical purpose and after finishing the study, the findings would be presented as a group data with no personal participant's information remained.

Pilot study

A pilot study conducted to test the feasibility, applicability and understandability of the tools. It was conducted on 10%of the total sample (14 women) according to the selection criteria. All women participated in the pilot study were excluded from the study sample because the researcher made some modifications in the instruments.

Study field work of the structured teaching programme:

The current study was carried out on four phases where the description of the programme, it's aim, objectives, methods of teaching, media used, evaluation and total number of sessions are included.

1) Preparatory phase:

An extensive review related to the study area was conducted including electronic dissertations, available books, articles and periodicals. A review of literature to formulate knowledge base relevant to the study area was also done. Administrative and ethical approvals were obtained. Preparation and testing of all instruments regarding validity and reliability, Pilot study was done and the necessary modifications were made.

2) Assessment phase:

The researcher collected the data from the women of the two groups through an interview and assessment using Socio-demographic Characteristics tool.

3) Implementation phase (for study group):

Each woman in the study group received two sessions, one for knowledge about methods of self-assessment of fetal wellbeing and one for applying the structured nursing program on self-assessment of fetal wellbeing.

The researcher explained to each woman the definition of fetal wellbeing, define self-assessment of fetal wellbeing and importance of self-assessment of fetal wellbeing. This session took about 7-10 minutes

In the second session, the researcher explained the definition of fetal kick count, when to feel fetal kick count, methods of stimulating fetal kick counts, causes of decreased fetal movements. Also, The researcher explained the fundal height, methods of fundal height measurement, causes of small fundal height, causes of long fundal height, and the fundal height according to gestational age and explained the gestational weight, normal weight gain during pregnancy, how to calculate body mass index, complications of underweight during pregnancy, and complications of overweight during pregnancy. Demonstration by the researcher took 10 minutes and re-demonstration by the women took about 5 minutes. This session took about 15 minutes.

At the end of the sessions. Each woman was given a booklet, Brochure, and Compact disc contains information about self-assessment of fetal wellbeing. The researcher scheduled with each woman the next visit after one month in the MCH center for Tetanus +vaccination and for follow-up assessment

For control group, the women who were assigned to the control group were interviewed also in the second and third trimester, assessed for their knowledge regarding self-assessment of fetal well-being, did not receive management from the researcher, they received brochures on methods of self-assessment of fetal wellbeing from the researcher.

4) Evaluation phase:

In this phase, all primigravida women recruited in the study were evaluated for their knowledge regarding self-assessment of fetal wellbeing, the importance of self-assessment of fetal wellbeing, knowledge regarding fetal kick count, fundal height and gestational weight were evaluated using instruments number two. The researcher received the data by a telephone contact to assess the effectiveness of the intervention.

Statistical Analysis:

Data analysis

The collected data were categorized, coded, computerized, tabulated and analyzed using Statistical Package for Social Sciences (SPSS) +version 22 program. Upon completion of data collection, each answer sheet was coded and scored. The

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researcher coded the data into a coding sheet so that data could be prepared for computer use analyzed using Statistical Package for Social Sciences (SPSS) version 22 program on IBM compatible computer. The level of significance was set at $p < 0.05$. Chi square test, Number and percentage distribution, Fischer exact test (FE), Mean and Mann- Standard Deviation (SD) were used to analyze the data.

3. RESULTS

Table (1): Socio-demographic Characteristics of the studied participants (No=140).

Variables		Study Group (70)		Control Group (70)		Total		X2	P value
		No	%	No	%	No	%		
Age groups:	20 years <	11	15.8%	9	12.8%	20	14.2%	0.561	0.755
	20-30<	51	72.8%	49	70%	100	71.4%		
	30-40<	7	10%	12	17.2%	19	13.5%		
	40 year or more	1	1.4%	0	0%	1	.9%		
Mean±SD		24.8±2.6 Y		22.4±5.1 Y		23.6±3.6 Y			
Education	Illiterate	12	17.2%	2	2.8%	14	10%	12.255	0.057
	Read and write	10	14.2%	18	25.8%	28	20%		
	Diploma	12	17.2%	20	28.5%	32	22.8%		
	University	36	51.4%	30	42.9%	66	47.2%		
Occupation :	Working	48	68.6%	52	74.3%	100	71.4%	0.566	0.753
	House wife	22	31.4%	18	25.7%	40	28.6%		
Income	Enough	39	55.7%	43	61.4%	82	58.5%	4.828	0.089
	Not enough	31	44.3%	27	38.6%	58	41.5%		
Total		70	100%	70	100%	140	100%		

Table (1) showed the socio-demographic characteristics of the studied participants. The mean age of the studied participants was (23.6±3.6Y). The majority of the studied participants (47.2%) had Bachelor's degree& the minority of them (10%) was illiterates. Regarding the occupation, the majority of the studied participants were housewives (71.4%). More than half of them (58.5%) had enough income.

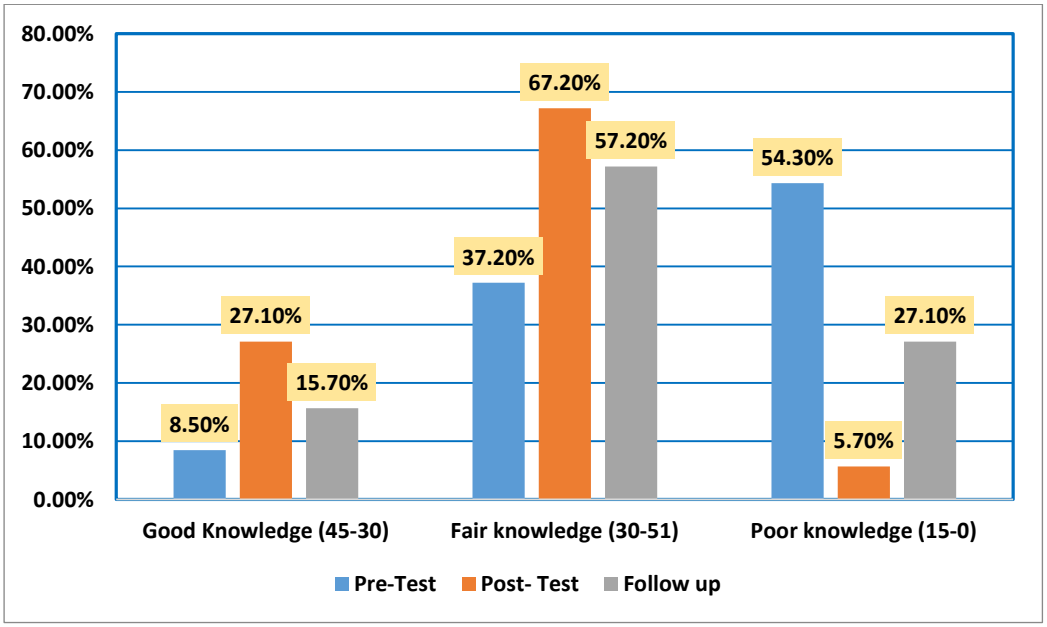

Figure (1): Total Knowledge Score of the Study Group about self-assessment of fetal wellbeing

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Figure 1: illustrated that half of the study group (54.3%) had poor knowledge regarding pre-test and the majority of the study group had fair knowledge regarding post-test and follow up intervention.

Table (2): Correlation between sociodemographic characteristics of the study group and their total knowledge score (n=140)

Variable		Total knowledge score						X2	P. value
		Poor (0-15)		Fair (30-51)		Good(30-45)			
		No	%	No	%	No	%		
Age	20 years or less	2		9		5		5.3	0.021
	20-30	6		29		11			
	30-40	3		3		1			
	40 year or more	0		1		1			
Total		10		42		18			
Level of education	Illiterate	7	70%	1	2.4%	1	5.7%	9.25	0.016
	Read and write	1	10%	2	4.7%	3	16.7%		
	Diploma	2	20%	8	19.1%	5	27.6%		
	University	0	0%	31	73.8%	9	50%		
Total		10		42		18			
Occupation	Working	6	60%	24	57.1%	10	55.6%	8.32	0.025
	House wife	4	40%	18	42.9%	8	44.4%		
Total		10		42		18			
Income	Enough	5	50%	20	47.6%	10	55.6%	3.32	0.46
	Not enough	5	50%	22	52.4%	8	44.4%		
Total		10		42		18			
Duration of marriage	Less than one year	3	30%	13	30.9%	6	33.5%	5.32	0.073
	Less than 1-2 years	4	40%	18	42.8%	8	44.5%		
	Less than 2-3 years	2	20%	11	26.3%	3	16.7%		
	More than 4 years	1	10%	0	0%	1	5.6%		
Total		10		42		18			
Previous use of any family planning method	Yes	4	40%	26	38.1%	9	50%	7.66	0.063
	No	6	60%	16	61.9%	9	50%		
Total		10		42		18			

Table (2) indicated that there was a statistical significant association between total knowledge score on self- assessment of fetal well-being among primigravida mothers and their demographic variables on age in years, education of the mothers and their occupation at P< 0.05 and the other variables as income, duration of marital life in years and previous use of any family planning method had no significant association with the total knowledge score on self- assessment of fetal well- being..

4. DISCUSSION

The participants' mean age was (23.6±3.6Y). The researcher selected this age group as a woman's fertility peaks in mid to late 20s, Female fertility generally starts to decline when a woman is in her early 30s, and the decline speeds up after the age of 35. This was in agreement with Refaat et al, (2016) who assessed the Effect of Counseling Intervention on Women's Knowledge and Practices and Lifestyle of Fetal Wellbeing among Primigravida in Benha University hospital, Egypt. She reported that the mean age of the studied primigravidae was 22.30±3.17.

Also, these previous findings were similar to a study performed by Bhargaval et al, (2017) who studied the effect of structured teaching program on knowledge regarding self-assessment of fetal wellbeing among normal and high risk primigravida mothers at Red Cross Hospital, India. Their findings revealed that more than half of the primigravida women 59 (59%) were between 21 to 30 years.

Also, this finding was in harmony with El-sayed et al, (2018) who investigated Effect of Women Self-Monitoring of Fetal Kicks on Enhancing Their General Health Status in Mansoura, Egypt. Their findings reveal that age of the pregnant women ranged from 21 to 30 years with mean of (20.29 ± 2.94) years. As regards to education. about half of the studied participants (51.4) had bachelor's degree. This may be rationalized as percentage of education is about 90% in Menoufia governorate and this was helpful to improve level of knowledge and practice in pre and posttest of the study.

Other studies have reported conflicting findings regarding education and self-assessment of fetal wellbeing, Heubusch et al, (2013) who studied fetal movement counts in pregnancy, found that two thirds of the study had secondary education. Ugwu et al; (2014) who studied Effectiveness of teaching program on knowledge and attitude regarding self-assessment of fetal wellbeing, it was reported that the majority of the participant women were with elementary and secondary education. This contradiction can be explained that these studies were carried out in the Indian countryside where lack of awareness by the government to rationalize the high education and strive only on the elementary education

The present study also reported that most of women had inadequate knowledge regarding self-assessment of fetal movements, measuring fundal height and gestational weight before application of the structured teaching programme as compared with after application of the intervention. This was supported by Abdel-Hakim et al., (2017) who studied Effect of women self- monitoring of fetal kicks on enhancing their health status, the auther reported that, there was a highly statically significant improvement of the total mean score of knowledge about fetal kicks from (20.14±0.512) at 28 weeks of gestation to (39.86±0.550) at 37 weeks of gestation..

This result was in agreement with Ugwu et al., (2015) who confirmed that mothers have deficient knowledge on the normal physiologic change that occurs during pregnancy. Most of women expressed that it is important to feel the fetal movements, because this is a sure sign that the fetus is alive, more over added that the significance of fetal movements as an indication that the fetus is growing well which is not the accurate reason for perceiving fetal movement.

This is also ascertained by Refaat et al, (2016) who studied Effect of counseling intervention on women's knowledge, practices and lifestyle of fetal well-being among primigravidae, found women's knowledge regarding health care during pregnancy, most of women had inadequate knowledge (93.3%) about fetal well-being. Also, Zachary, et al (2013) who studied Antepartum evaluation of the fetus and fetal well- being stated that 81% of the many pregnant women lack vital information that could contribute to a healthy pregnancy such as counseling, physical activity, and nutrition during pregnancy

According to the present study, the results revealed that a very low level of satisfactory knowledge among participants at the pre-test. In pretest, nearly half of the studied participants had poor knowledge and majority of the studied participants had fair knowledge regarding posttest and follow up intervention. This was in harmony with Prabavathy & Dash (2013) who assess the knowledge of fetal movements count among antenatal mothers in Puducherry and reported that half of mothers had poor knowledge of fetal movements count, around one third of them had the average knowledge and only 13.3% of the mothers had good knowledge of fetal movements count.

This study revealed that there was significant association between total knowledge on self- assessment of fetal well-being among primigravida mothers and their demographic variables on age in years, education of the mothers and their occupation and the other variables as income, duration of marital life in years and previous intake of any family planning method had no significant association with the total knowledge on self- assessment of fetal well- being.

These findings were in harmony with a study performed by Thulasamma et al (2017) who studied Effectiveness of teaching programme on self- assessment of fetal well- being among rural Primigravida reported that there was significant association between age in years, religion, education of the mothers and husband, occupation of the mothers and husband, family income per month in rupees, source of information and knowledge on self- assessment of fetal well-being. The most likely explanation of this high compliance among women probably has to do with a generally high awareness of importance of fetal activity among pregnant women.

The present findings were in disagreement with study by Maputle et al, (2015) that assessed mothers' knowledge of fetal wellbeing during pregnancy in relation to perinatal outcome among 1200 primigravida women. These findings were not consistent with our study result in which that there wasn't significant association between mothers' knowledge of fetal wellbeing during pregnancy and their demographic variables on the occupation of the mothers, duration of marital life in years, exposure to mass media, consanguinity, weight of the mothers in kgs and number of times TT injection received. This disagreement can be rationalized that this study depends on larger sample size

5. CONCLUSION

According to the findings of the present study, it can be concluded that there was a higher statistical improvement in total knowledge scores about self-assessment of fetal well-being after implementing the structured teaching programme than before. This supported the study hypothesis.

6. RECOMMENDATIONS

In light of the study findings, the following recommendations are proposed:

Educating pregnant women about importance of self-assessment of fetal wellbeing, goals, methods, and physiological changes during pregnancy within antenatal counseling to ensure health outcomes for mother and her infant. Enhance that periodical educational class for pregnant women about methods of self-assessment of fetal wellbeing should be considered as a part of routine antenatal care.

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