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Effect of an Educational Module on the Knowledge and Self-Care of Women suffering from Pre-eclmpsia

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Abstract: *Each year worldwide, about 76,000 pregnant women die from preeclampsia and related hypertensive disorders. Complications related to preeclampsia are occurring due to maternal negligence or unawareness on self-management, so maternal death could be reduced if women are equipped with knowledge and followed preventive health practices. So, the aim of this study was to evaluate the effect of an educational module on knowledge and self-care practice of 100 women suffering from pre-eclmpsia and attending antenatal clinics at Cairo university hospitals, Egypt. Design: quasi- experimental design one group (time series). Tool: interviewing questionnaire, preeclampsia knowledge and self-care practices questionnaire (pre-posttest). Results: Repeated Measures Analysis of Variance (ANOVA) indicated that, there was statistically significant difference in mean knowledge score before and after intervention (f=282.4, p <0.000). Also, there were significant changes in knowledge level from the pre-intervention scores with a mean of 13.37±5.01, to post-intervention scores with a mean of 22.48±7.15, and 4 weeks follow up with a mean of 18.31±5.13. Also, there were statistically significant differences in mean Self-care practice score (f=248.9, p<, 0.001). There were significant changes from the pre-intervention scores with a mean of 20.97±2.25, and post-intervention scores with a mean of 23.88±3.02 and 4 weeks follow up with a mean of 23.59±3.29. Conclusion: most of preeclampsia women have a lack of knowledge and inadequate self-care practice about preeclampsia. Therefore, educational intervention regarding preeclampsia in public or private healthcare sectors and community is essential to improve the knowledge and self-care practice. Implementing the educational module is significantly improved the knowledge and practice of women and consequently it will affect their health.*

Keywords: *Educational Module, Pre-eclampsia women, Knowledge, Self-Care Practice*

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I. Introduction

Preeclampsia is the most common health problem encountered in pregnancy. It strikes mostly the primgravida after 20th to 24th weeks of gestation and frequent occurrences are often seen at term. It is determined clinically by development of hypertension and proteinuria in previously normotensive woman [1]. Preeclampsia is considered the third leading causes of maternal morbidity and mortality worldwide [2]. In Egypt, according to the available data, maternal mortality ratio (MMR) showed a significant decline although it took 25 years to reach the 66/100,000 live births. A sizable portion of MMR in Egypt is attributed to avoidable causes in particular the substandard care and lack of supplies necessary for management of life threatening pregnancy-related complications [3]. Also, Zahran, Fadel, Ahmed & EL-Gazzar [4] reported that, the leading causes of maternal death were obstetric hemorrhage (38.3%), complications of caesarean sections (27.7%) and preeclampsia (23.4%).

Recent evidence suggests that there is no significant reduction in maternal mortality due to inadequate knowledge, negative attitude and lack of preventive practice. Studies have demonstrated that health system factors include service delivery, equipment and interpersonal aspects of care also play an important part. Maternal deaths could be prevented if women were able to have adequate knowledge and positive attitude towards attending antenatal clinic and utilize good quality services, especially when complications arise [5]. Most of the women don't present themselves for early detection. They seek treatment only in the advanced stage, and this is due to the lack of knowledge. Moreover, mortality and morbidity of preeclampsia can be reduced by early detection, appropriate management and obstetric care to minimize the severity of the condition. Much emphasis should be placed to improve the women's knowledge and self-care practice [6].

Kocaeli University (Turkey) conducted a retrospective analysis on 255 consecutive cases of hypertensive disorder from June 1997 to November 2004 proved that, the complications of severe preeclampsia could be prevented by more widespread use of prenatal care, education of primary medical care, and prompt diagnosis of high-risk patients [7]. Antenatal women with preeclampsia should acquire the essential knowledge about complications and follow-up care. However, the public health perspectives on early and regular prenatal

care found a lack of knowledge regarding preeclampsia among antenatal women [8]. This renders preeclampsia a cause for concern to public health and antenatal women in particular.

Significant

World Health Organization (WHO) estimates that at least 16% of maternal deaths in low- and middle-income countries result from hypertensive disorders of pregnancy, including severe pre-eclampsia and eclampsia [9]. Although there are known risk factors for hypertensive disorders of pregnancy, there is no clinically helpful way to predict which women will develop pre-eclampsia based on clinical data or biochemical markers [10]. However, developed countries have been able to reduce both the incidence of pre-eclampsia and the case fatality rate associated with it by 90%, using a combination of early detection during antenatal care (ANC) and increased access to hospital care for women who develop severe [11]. Comparable reductions in rural China and Sri Lanka suggest that this model—which includes routinely screening pregnant women for hypertension and proteinuria, treating severe PE/E with anti-hypertensive and anticonvulsant drugs, and, if necessary, ending the pregnancy early by inducing labor or conducting cesarean delivery—can be applied in low-income countries [12]. Implementing this strategy is challenging. However, it requires good quality focused antenatal care for all pregnant women in order to detect cases of severe PE/E, along with increased awareness of danger signs among women and the community.

Literature has demonstrated that worldwide, the majority of women with preeclampsia have inadequate self-care knowledge and practice. Limited self-care knowledge on issues such as recommended diet, prescribed medication, rest and poor symptoms management, is leading to poor self-care practices and ultimately poor hypertension control [13,14]. In addition, it is possible that if preeclampsia self-care knowledge is improved, a lot of complications reduced and ultimately a positive contribution to the 4^{th} and 5^{th} millennium development goals will be a reality. Reducing morbidity and mortality from severe PE/E will require systematic changes in women's health-seeking behaviors and access to health care, as well as an increase in the capacity of the health system to offer adequate antenatal care services. Literature revealed that most of researches who conducted educational interventions about preeclampsia were focus on nurses; no previous researches were conducted in Egypt to equip preeclampsia women with adequate knowledge to improve their self-care practice. So, this study was conducted to evaluate the effect of an educational module on knowledge and self-care practice of women suffering from pre-eclmpsia

Operational Definitions:

1. **Knowledge:** "In this research knowledge refers to range of information awareness or all that has been perceived or grasped by the preeclampsia woman".
2. **Self-care practice:** refers to the range of activities that pregnant women with preeclampsia perform to promote well-being or meet basic health needs such as adhering to prescribed diet and medication, exercising, symptoms management and rest.
3. **Educational module:** refers to systematically developed information about preeclampsia and its self-care management. It consists of pictures with simple instruction in Arabic language.

Objectives of the Study:

1. To assess women's knowledge level and self-care practice about pre-eclmpsia
2. To design and implement an educational module to equip pre-eclampsia women with adequate knowledge and improve their self-care practice.
3. To determine the impact of an educational module on women's knowledge and self-care practice about pre-eclampsia.

Hypothesis

To fulfill the aim of this study, two research hypotheses were formulated:

Ho_1: There will be a significant increase in the posttest knowledge scores than the pretest knowledge score among women suffering from preeclampsia after implementing educational module.

Ho2: There will be a significant improvement in self-care practice score about preeclampsia in posttest than pretest score among women suffering from preeclampsia after implementing educational module.

II. Subjects and Methods

Design

The quasi-experimental design "time-series" was utilized to achieve the stated aim.

Setting

This study was conducted at El Manial Maternity Hospital, Cairo University Hospitals, at the antenatal clinics. It is a university affiliated hospital providing free health care to maternity as well as gynecological and family planning services. Being a large university hospital in a metropolitan city, it attracts patients from all

over Egypt, including Upper and Lower Egypt areas especially complicated cases. The total annual admission to the antenatal clinic was 96.650 women with various levels of socioeconomic status [15].

Purposive sampling

A total of 100 pre-eclampsia pregnant women were recruited based on the following inclusion criteria: preeclampsia women, their age between 18 and 40 years with gestational age 20 to 36 weeks and attending outpatient clinic for follow up. Exclusion Criteria: chronic conditions as cardiac disease, renal disease, diabetes mellitus or chronic hypertension, and age bellow 18 years or more than 40 years, full term women. Also, pregnant women who refused to participate in the study were excluded or women who attended a previous similar training.

Sample Size

Using a G* power software with a paired sample t-testing to evaluate the effect of an educational module on women's knowledge and self-care practice about pre-eclmpsia with a p-value of 0.05, a power of 0.95, and a medium low effect size of 0.15. The needed sample size was 80 women. To ensure representative, sample was increased up to 100 women.

Tools

A structured interview questionnaire was developed and filled by the researchers based on extensive electronic review of literatures. The questionnaire consisted of three parts namely:

Part (1) Interview Schedule**:** It included2 main sections:

a. Socio-demographic data. This section was concerned with data related to pregnant women such as age; occupation; residence; educational level; economic status; weight; height; and blood pressure.
b. Obstetric history: it includes data related to; number of pregnancy and gestational age.

Part (2) knowledge pre-post-test tool: It consisted of 11 items to assess the sample knowledge regarding pre-eclampsia as definition; causes; features; factors contribute to preeclampsia; importance of rest; dietary management ; resting technique……..ect.

Part (3) self-care practice pre-post-test tool : to assess self-care practices that women were engaged in, to control and manage preeclampsia as daily measuring of BP, body weight, protein in urine, rest and relaxation, physical activity; diet and count fetal movement….ect.

A scoring system was used for each item (incorrect, partially correct, and correct). The knowledge scores were ranged from 0 to 33 and more divided to three levels which were poor knowledge (0-11), fair knowledge (12-22), and good knowledge (23-33). The self-care practice scores were ranged from 0 to 33, and divided to inadequate practice (less than 60%), and adequate practice (more than 60%)

Tool validity:

Face and content validity of tool was determined through an extensive review of literatures and researches about preeclampsia care. Also, tool was submitted to a panel of three experts in the field of maternity nursing and obstetric medicine to test the content validity. Modifications were carried out according to the panel judgment on clarity of sentences and appropriateness of content. Test-retest method was used to determine the reliability of the tool, by applying this tool on 10women who were excluded from the study. The reliability was 0.79.

Ethical Consideration

An official permission was granted from the director of the Maternity Hospital, Cairo University. The researchers introduced themselves to women who met the inclusion criteria and informed them about the purpose of the study in order to obtain their acceptance to participate in the study. All women were informed that, participation is voluntary and they can withdraw at any time. A written informed consent was obtained from women who were willing to participate in the research.

Pilot Research

A pilot research was carried out on 10% of the total sample to check clarity of items and determine the feasibility of the research. All women participated in the pilot research were excluded from the research sample.

Procedure

Following final approval to conduct the study, the researchers introduced themselves to the nursing administration as well as to nurses working in the antenatal clinics. Full explanations about the research study were done to the nursing staff to create rapport and gain their co-operation during data collection. Quiet room was identified for the interview process and implementing the educational module. The study was carried out over a period of seven months from beginning of October 2017 to the end of April 2018 from 9:00am till 1:30 pm three days per week .Data were collected through five phases: preparation, Recruitment; Interview & Assessment and, Implementation, and Follow-up &evaluation.

1-Preparation phase: Extensive review of related literature has been done to construct data collection tools and to design the teaching booklet. The booklet was constructed in a clear Arabic language supplied with pictures to clarify the written information and covered knowledge related to pre-eclampsia as definition; causes; features; factors contribute to preeclampsia, importance of rest, dietary management, ….ect and self-care practices that women have to engage in, to control and manage preeclampsia as daily measuring BP, body weight, protein in urine…..ect

2- Recruitment phase: The researchers met the pregnant women in the waiting room at the antenatal outpatient clinic and explained the purpose and nature of the study as well as to obtain the informed written consent of the study from those who agreed to participate and met the inclusion criteria. The researchers ensured that women's data were confidential and private and kept in a safe place. The questionnaire was anonymous. Also, they were informed that they can withdraw from the study at any time.

3. Interview Assessment and phase: In this phase, each pregnant woman was interviewed individually and data related to socio-demographic characteristics as well as obstetrical history was collected. Researchers asked questions in Arabic and recorded the answers. Then, height and weight were measured. Blood pressure reading was taken while the woman was seated in the upright position. The procedure of recording the blood pressure was immediately followed by face to face interview to assess woman's knowledge and self-care practice (Pre-test). Interview consumed about 20-30 minutes for each woman.

4-Implementing the educational module: Immediately after assessment phase, the educational session aims were explained to the women (Average 7 women per session). The educational sessions covered: introduction; meaning of pre-eclampsia; risk factors and feature; complications; dietary management; importance of rest and self-care practices that women should engage in to control and manage preeclampsia. The researchers had corrected woman's knowledge and enhance the correct practice using educational booklet, power point presentation and showing video. During and after the teaching sessions the researchers encouraged active participation of the pregnant woman through asking questions and receiving feedback. Each woman received a copy of the educational booklet. The time taken to complete this phase was about 40-45 for explanation and about10 minutes allowed for the pregnant woman for asking any question or clarification related to the session. The total sessions for the entire study sample to complete an educational module were about 15 sessions. At the end of the session the researchers arranged with the pregnant women for a meeting to conduct the posttest to evaluate the impact of the educational module.

5. Follow up and evaluation phase: The researchers followed up the women every day by phone to check their compliance and to guide them, and during their antenatal appointment visits. Then after 4 weeks from the implementation phase the researchers evaluated women's knowledge and self-care practice using pre-post-test tool. The time taken to complete this phase was about 15-20 minutes.

Statistical Analysis

Collected data were coded and tabulated using personal computer. Statistical package for social science (SPSS) version 20 was used. Descriptive analysis was performed by using range, frequencies, percentages, means and standard deviations. Inferential statistics was used inform of chi-square to compare between two qualitative variables, and T test. ANOVA test was used to compare mean score between two and more groups respectively. The p-value is the degree of significant. A significant level value was considered when p-value $\leq$ 0.05.

III. Results

I- Description of Sample Socio-demographic Characteristics:

Table (1): Frequency Distribution of the Socio-demographic characteristics as Well as Obstetrical Data of the Sample

Characteristics of women	n= 100	
	Number	Percent
Age range 19-41 (years)		
19-24	34	34.0
25-30	38	38.0
31-36	12	12.0
37-41	16	16.0

Mean ± SD 28.15 ± 5.95		
Educational level		
Can't read & write	25	25.0
Read & write	30	30.0
Primary school	18	18.0
Secondary school	18	18.0
University graduation	9	9.0
Residency		
Urban	66	66.0
Rural	34	34.0
Socioeconomic status		
Simple	34	34.0
Average	66	66.0
Occupation		
Working	36	36.0
Housewife	64	64.0
Mean BMI (kg/m^2 ±SD)		
Normal weight = 18.5–24.9kg/m^2	12	12.0
Overweight = 25–29.9 kg/m^2	50	50.0
Obesity = BMI of 30 or greater kg/m^2	38	38.0
Mean ± SD 29.28± 4.37		
Number of pregnancy		
Primi-gravida	36	36.0
Multi gravida	64	64.0
Mean ± SD 1.63± 0.48		
Gestational Age		
20-25 weeks	22	22.0
26-31weeks	52	52.0
32-47 weeks	26	26.0
Mean ±SD 32.39± 5.104		

Table (1), shows the socio-demographic as well as obstetric characteristics of the sample. The age range was 19-41 years with mean age of 28.15 ±5.95 years. More than half of the sample (55%) were with low level of education, two third (66%) were from urban area with average socioeconomic status, and more than two third (64%) were house wife. Information on BMI revealed that, half of the sample (50%) were overweight, and more than one third (38%) were obese. More than two third (64%) were multigravida, and more than half of sample (52%) were in gestational age between 26-31weeks.

II- Level of Knowledge among Preeclamptic Women

Table (2): Comparison between Pre, Post Intervention and Four Weeks Follow up of Women's knowledge regarding Preeclampsia

Variables	Pre-intervention	Post-intervention	4 weeks follow up	P Value
	Percent	Percent	Percent	
Do you know what preeclampsia is?				
Correct	23.0	97	95	
Partially correct	20.0	3.0	5.0	0.001
Incorrect	57.0	0.0	0.0	
Do you know what the risk factors of preeclampsia are?				
Correct	8.0	95.0	90.0	0.000
Partially correct	22.0	3.0	5.0	
Incorrect	70.0	2.0	5.0	
Do you know what the features (S&S) of preeclampsia are?				
Correct	49.0	99.0	94.0	
Partially correct	42.0	1.0	4.0	0.000
Incorrect	9.0	0.0	2.0	
Do you know what the factors contributing to preeclampsia are?				
Correct	12.0	97.0	91.0	
Partially correct	18.0	2.0	7.0	0.000
Incorrect	70.0	1.0	1.0	
Do you know which cases require further caution are?				
Correct				
Partially correct	32.0	95.0	91.0	
Incorrect	19.0	5.0	6.0	0.000
	49.0	0.0	3.0	

Do you know what the importance of rest is?				
Correct	3.0	92.0	89.0	0.000
Partially correct	41.0	5.0	6.0	
Incorrect	56.0	3.0	5.0	
Do you know what the resting techniques are?				
Correct	18.0	94.0	93.0	
Partially correct	11.0	4.0	5.0	0.001
Incorrect	71.0	2.0	2.0	
Do you know what the food should be avoided?				
Correct	39.0	100	100	0.000
Partially correct	45.0	0.0	0.0	
Incorrect	16.0	0.0	0.0	
Do you know what the importance of exercise is?				
Correct	28.0	78.0	73.0	
Partially correct	18.0	12.0	15.0	0.000
Incorrect	54.0	10.0	12.0	
Do you know which conditions require further caution are?				
Correct	24.0	99.0	95.0	0.000
Partially correct	61.0	1.0	5.0	
Incorrect	15.0	0.0	0.0	
Since you know that you have PIH, what should you do about it?				
Correct	40.0	99.0	96.0	0.000
Partially correct	52.0	1.0	4.0	
Incorrect	8.0	0.0	0.0	

Regarding women's knowledge, data analysis revealed that, before implementing the educational module, more than half of the sample (57%) didn't know what is meant by pre-eclampsia, its risk factors (70%), importance of rest (56%) and resting technique (71%) (Table, 2). While immediately and 4 weeks follow up after intervention, these percentages were totally changed. Moreover, most of the sample (97%) were correctly knew the factors contribute to preeclampsia as (High salt diet, lack of adequate rest, lack of exercise), 95% knew cases require further caution as (Diabetes, bleeding and hypertension), what they should do as they have preeclampsia (99%) (Attend antenatal clinic, take rest, eat high protein diet, and doing exercise), the importance of rest to relief the fluid retention (94%), important of exercise to reduce hypertension (78%), the type of food that they should avoid (100%) (Table, 2), with a statistical significant differences in all items ($p<0.000$). In addition, Figure (1) shows comparison between pre, post intervention and 4 weeks follow up women's knowledge score level about preeclampsia, as a few women (6%) had good knowledge pre intervention compared to good knowledge post intervention and after 4 weeks (85% and 73% respectively).

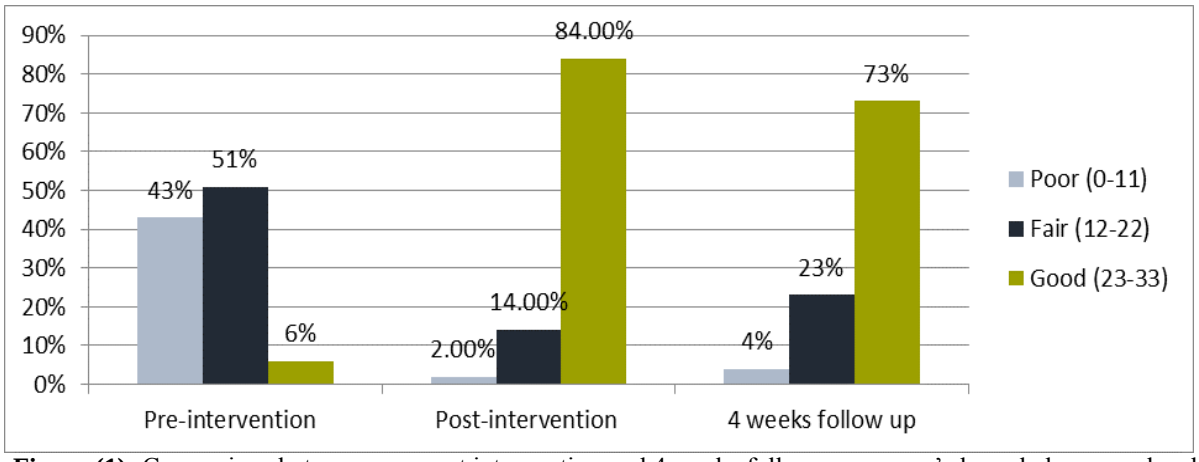

Figure (1): Comparison between pre, post intervention and 4 weeks follow up women's knowledge score level about preeclampsia

Table (3): Multiple Comparisons of Total Knowledge Score Change Overtime

Knowledge (1)	Knowledge (2)	Mean difference (1-2)	SD error	P value
Pre-intervention	Post-intervention	-9.11	0.371	0.000
	4 weeks follow up	-4.94	0.352	0.001
Post-intervention	4 weeks follow up	-4.17	0.343	0.172

This study had hypothesized that "There will be a significant increase in the posttest knowledge scores than the pretest knowledge score among women suffering from preeclampsia after implementing educational module". Women's knowledge was measured at baseline (pre-intervention), immediately after the educational module (Post-intervention), and at 4 weeks follow-up. Possible scores were 0-33. Baseline mean knowledge scores was compared to mean knowledge score after the intervention to determine if the educational module influenced women's' knowledge. Further comparison was made between the baseline mean scores and 4 weeks follow up mean scores. There were statistical significant gains from the pre to Post-intervention ($p < 0.000$) and from Pre-intervention to 4 weeks ($p < 0.001$). Despite there was a significant decrease in knowledge score from post-intervention to 4 weeks ($p < 0.172$), the participants still retained a higher score than their initial pre-intervention scores (table, 3).

III- Level of Self-Care Practice among Preeclampsia Women

Table (4): Comparison between Pre, Post Intervention and Four Weeks Follow Up of Women's Preeclampsia Self-Care Practice

Variables	Pre-intervention	Post-intervention	4 weeks Follow up	P Value
	Percent	Percent	Percent	
Do you measure your blood pressure daily?				
Always	15.0	80.0	78.0	0.000
Some times	55.0	18.0	17.0	
Rare	30.0	2.0	5.0	
Do you Check your urine for protein daily?				
Always	21.0	78.0	78.0	0.000
Some times	49.0	22.0	17.0	
Rare	30.0	0.0	5.0	
Do you check your weight daily?				
Always	21.0	81.0	90.0	0.000
Some times	17.0	9.0	5.0	
Rare	62.0	10.0	5.0	
Do you follow the medication regimen as prescribed?				
Always	40.0	95.0	93.0	0.000
Some times	47.0	5.0	7.0	
Rare	13.0	0.0	0.0	
Do you consume recommended diet for preeclampsia (high protein, low salt, low fat)?				
Always	25.0	97.0	96.0	0.000
Some times	63.0	3.0	4.0	
Rare	12.0	0.0	0.0	
Do you engage in activities that make you relax (walk in fresh air, watching TV)**?**				
Always	36.0	98.0	94.0	0.000
Some times	56.0	2.0	6.0	
Rare	8.0	0.0	0.0	
Do you practice exercise daily (swimming, walking)?				
Always	18.0	76.0	69.0	0.001
Some times	76.0	19.0	22.0	
Rare	6.0	5.0	9.0	
Do you rest yourself during the day?				
Always	34.0	92.0	95.0	0.000
Some times	56.0	8.0	5.0	
Rare	10.0	0.0	0.0	
Do you monitor how much fluid you drink daily (8-10 glass/day**)?**				
Always	11.0	88.0	91.0	0.000
Some times	34.0	10.0	9.0	
Rare	55.0	2.0	0.0	
Do you monitor your baby moves and kicks daily?				
Always	25.0	98.0	99.0	0.000
Some times				

Rare	72.0 3.0	2.0 0.0	1.0 0.0	
Do you take enough sleep (8 hours or more per day)?				
Always	77.0	98.0	98.0	
Some times	13.0	2.0	2.0	0.000
Rare	10.0	0.0	0.0	

Table (5) Comparison between Pre, Post Intervention and Four Weeks Follow Up of Women's Preeclampsia level of Self-Care Practice

	Pre-intervention		Post-intervention		4 weeks Follow up		χ^2	P value
Self-care practice	**No.**	**%**	**No.**	**%**	**No.**	**%**		
Inadequate practice	82	82.0	7	7.0	11	11.0		
Adequate practice	18	18.0	93	93.0	89	89.0	73.41	0.000

Table (6): Multiple Comparisons of Total Self-Care Practice Score Change Overtime

Self-Care Practice (1)	**Self-Care Practice (2)**	**Mean difference (1-2)**	**SD error**	**P value**
	Post-intervention	-2.91	0.513	0.001
Pre-intervention	4 weeks follow up	-2.62	0.738	0.016
Post-intervention	4 weeks follow up	-0.29	0.617	0.158

Preeclampsia Self-care Practices

Table (4) display findings on self-care activities done by the sample such as (measuring blood pressure, protein in urine, daily weight,….ect). There were statistically significant differences in all preeclampsia self-care practice items throughout the study (p<0.000) (table, 4).Moreover, table (5) indicated that, the majority of women (82%) had inadequate self-care practice level before intervention, while after intervention this level of practice were changed as 93% and 89% had adequate self-care practice post intervention and 4 weeks follow up respectively with a statistical significance differences (<0.000). Moreover, the data results had accepted the hypothesis stated that "There will be a significant improvement in self-care practice score about preeclampsia in posttest than pretest score among women suffering from preeclampsia after implementing educational module". There were statistically significance differences between pre-intervention to Post-intervention scores and Pre-intervention to 4 weeks follow up scores (p<0.001, p<0.016 respectively). However, there was a statistically significant decrease in scores from post-intervention to 4 weeks follow up, there was no statistical difference (p=0.158) (table, 6).

Table (7): One-way Repeated Measures Analysis of Variance Investigating Change over Time from Pre-intervention to Post intervention and 4 weeks Follow-up for Knowledge and Self-Care Practice

Variable	**Pre-intervention**		**Post-intervention**		**4weeks follow up**		f	p
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**		
Knowledge	13.37	5.01	22.48	7.15	18.31	5.13	282.4	0.000
Self-care practice	20.97	2.25	23.88	3.02	23.59	3.29	248.9	0.001

Repeated Measures Analysis of Variance (ANOVA) indicated that, there were statistically significant differences in mean knowledge score and self-care practice score before and after intervention (f=282.4, p <0.000, & f=248.9, p<0.001 respectively). There were significant changes in knowledge mean scores from the pre-intervention of 13.37±5.01, to post-intervention 22.48±7.15, and 4 weeks follow up 18.31±5.13 (table, 7). Also, there were significant improvement of Self-care practice score from pre-intervention scores with a mean of 20.97±2.25, and post-intervention scores with a mean of 23.88±3.02 and 4 weeks follow up with a mean of 23.59±3.29 (table, 7).

IV. Discussion

Preeclampsia remains a serious health problem that affects women's health all over the world. The exact cause and consequences of this problem is still remained unsolved. Abbas Amin, Ali, and Salem [16] reported that, the maternal mortality ratio in Egypt decreased progressively from 2009 to 2014 (228 and 89 per 100000 live birth respectively). However, preeclampsia remained the primary causes of maternal mortality and represented 27.7 % of the avoidable causes. So, the aim of this study was to evaluate the effect of an educational module on knowledge and self-care practice of women suffering from pre-eclmpsia.

Regarding to baseline characteristics of the sample, the current result revealed that the mean age of the sample was 28.15±5.95 years, more than half were with low level of education and two third were from urban area and were house wife, and more than half were in gestational age between 26-31 weeks. In terms of knowledge level about preeclampsia, more than half of sample didn't know definition of preclampsia, its causes

or even its features before intervention. This is in the same line with the findings of [17] who stated that less than half of the women were aware of pre-eclampsia as against majority who were not aware. However, the current finding was contrary to a related study conducted in Zimbabwe [18] where majority of the women knew the correct definition of pre-eclampsia. The reason behind this could be that pregnant women had received detailed health education about the health condition during antenatal follow up. In relation to the total preeclampsia knowledge's score, the current study revealed that, there were statistical significant gains from pre to post-intervention ($p < 0.000$) and from pre-intervention to 4 weeks ($p < 0.001$). However, there was a significant decrease from post-intervention to 4 weeks ($p < 0.172$). Also, before implementing the educational module the women exhibit lack of knowledge with a mean total knowledge score of 13.37±5.01, while after intervention, this mean score was improved and changed to 22.48± 7.15 post intervention, and 18.31±5 after 4 weeks follow up. This lack of knowledge is may be due to their poor knowledge on the importance related to hypertension in pregnancy and complications. This finding was consistent with the results illustrated by studies from India [19]. Their survey revealed that the majority of the antenatal women had average knowledge towards preeclampsia. The lack of adequate knowledge on preeclampsia may be due to lack of planned preeclampsia educational or awareness program among antenatal women. Indeed, some studies revealed that the educational program is important to improve antenatal women's' knowledge about preeclampsia. The study of Kavitha Prasath, and Krishnaraj [20], suggested that structured teaching program was significantly effective in improving the knowledge of pregnancy warning signs among antenatal women. In addition, Kim Lee, Kim, Park, and Lee [21] reported that the educational program consists of affirmative effect on pregnancy related to level of knowledge among the married women. Consequently, as knowledge is the base for practice, the educational program regarding preeclampsia is needed. And this reveals the importance of the current study.

There is a necessity to improve the availability and quality of antenatal health care facilities and services in order to reduce the risk of preeclampsia during antenatal period and improve women's knowledge and self-care practice [22]. The present study showed that a few cases had good knowledge and adequate self-care practice about preeclampsia before intervention. This indicates a lack of health information delivered by the health care providers and consequently affect the women self-care practice. These percentages are totally changed after implementing the educational module. This finding is congruent with study findings of Sarah, Ayinla, and Olusegun [23] which revealed that ignorance was the major barriers for pregnant women to have health information sources. In this regards, it appears that the availability and quality of antenatal healthcare information system still need to be improved and the educational program regarding preeclampsia should be widely promoted among the antenatal women.

V. Conclusion

It can be concluded that most of preeclampsia women have a lack of knowledge and inadequate self-care practice about preeclampsia. Therefore, educational intervention regarding preeclampsia in public or private healthcare sectors and community is essential to improve the deficit in knowledge and self-care practice. Implementing the educational module is significantly improved the knowledge and practice of women and consequently will affect their health and their babies.

VI. Recommendations

Based on the finding of this study:

- Provide nurses working in antenatal clinics with periodic training sessions to update their knowledge regarding preeclampsia.
- Establish educational campaign to teach women about preeclampsia
- Enhance health awareness of early detection of preeclampsia and treatment to decrease disability
- The health education classes for women during antenatal care should focus on what is pre-eclampsia, predisposing factor, resting techniques, food and social habit to avoid such health condition especially for those who are at risk.

Limitation

Some of the recruitment challenges experienced included:

- Eleven participants did not show up in follow up and didn't explain why.
- Four participants attended with their children. They were distracted providing care and entertaining their children during the session. They were only physically present at the session.

Conflict of Interest

Authors declare no conflict of interest.

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References

[1]. Murray, E. McKinney, (5th Ed). Foundation of Maternal- Newborn Nursing. Saunders. 2014.
[2]. Palacios & JP Pena-Rosas. Calcium supplementation during pregnancy for preventing hypertensive disorders and related problems. WHO RHL Commmentary2014. http://apps.who.int/rhl/pregnancy_childbirth/antenatal_care/nutrition/cd001059_penasrosasjp_com/en/.Accessed 19/11.
[3]. T.T., Amin,. Maternal and Perinatal Mortality: A snapshot on the Egyptian situation.. International Public Health Forum. 2014 Vol (1). Available from: https://www.researchgate.net/publication/264974914_Maternal_and_Perinatal_Mortality_A_snapshot_on_the_Egyptian_situation [accessed Feb 23 2019].
[4]. K.M, Zahran. K.A Fadel, S.A Ahmed . & A. F EL-Gazzar. Maternal mortality in an academic institution in Upper Egypt. Journal of Obstetrics and Gynaecology. 2017 Vol 37, No 3.
[5]. E James, OA Mgbekem, MA,Edem. Knowledge, attitude and preventive practices towards pregnancy induced hypertension among pregnant women in general hospital Calabar, Cross River State, Nigeria. Pakistan Journal of Social Sciences, 20096: 1-5.
[6]. S., Prathapan, P., Fonseka, G, Lindmark R., Prathapan, & A., Lokubalasooriya. The need for quality improvement in diagnosing pregnancy induced hypertension in Sri Lanka S. South East Asia Journal Of Public Health; 20122(2):55-60.
[7]. I, MacGillivray AM McCaw-Binns, DE Ashley A, Fedrick & J Golding. Strategies to prevent eclampsia in a developing country: II. Use of a maternal pictorial card. International Journal of Gynaecol Obstet. (2004)87:295–300. doi: 10.101.
[8]. 0., Olayinka, 0. Achi, A Amos, & E.Chideu. Awareness barriers to utilization of maternal health care services among reproductive women in Amasson community,Bayelsa State. Academic Journals (2014)6(1):10-15.
[9]. KS Khan, D. L, Wojdyla Say, AM, Gülmezoglu, PF. Van Look. WHO analysis of causes of maternal death: a systematic review. Lancet. 2006; 367:1066–1074. doi: 10.1016/S0140-6736(06)68397-9.[PubMed] [CrossRef] [Google Scholar]
[10]. L, Myatt, RG, Clifton, J., CY Roberts Spong, JC Hauth, MW Varner, JM Thorp, etal. First-trimester prediction of preeclampsia in nulliparous women at low risk. Obstet Gynecol. 2012; 119:1234–1242. doi: 10.1097/AOG.0b013e3182571669.[PMC free article] [PubMed] [CrossRef] [Google Scholar].
[11]. RL Goldenberg, EM McClure, ER Macguire, BD Kamath, AH. Jobe. Lessons for low-income regions following the reduction in hypertension-related maternal mortality in high-income countries. Int J Gynaecol Obstet. 2011; 113 (2):91–95. doi: 10.1016/j.ijgo.2011.01.002. [PubMed] [CrossRef] [Google Scholar].
[12]. C Ronsmans, O Campbell. Quantifying the fall in mortality associated with interventions related to hypertensive diseases of pregnancy. BMC Public Health. 2011; 11(Suppl 3):S8. doi: 10.1186/1471-2458-11-S3-S8. [PMC free article] [PubMed] [CrossRef] [Google Scholar].
[13]. S., Rasmussen, C., Ebbing, & L. M. Irgens, (). Predicting preeclampsia from a history of preterm birth. PloS one. 12(7) 2017. doi:10.1371/journal.pone.0181016.
[14]. E.J., Dickinson, & M.O.,Schult. Clinical Companion to Nursing. Maternal infant Nursing Care. USA, Chicago. Published by Mosby. 2008.
[15]. Statistical Department. Statistical department at El Manial Maternity Hospital, Cairo University. 2016.
[16]. P. Prathima. Compare knowledge on self-care management of Pregnancy induced hypertension between primi gravid and multigravida. Nitte University Journal of Health Science. 2014; Vol. 4, No.3, ISSN 2249-7110.
[17]. AM. Abbas, MT Amin, SS Ali, N. Z. Salem. Maternal Mortality: a tertiary care hospital experience in Upper Egypt. International Journal of Reproduction, Contraception, Obstetrics and Gynecology; 2016; 5 (5):1466-1471.
[18]. k. R Okhae., & S. Laruloguno. Knowledge of Pre-Eclampsia among Pregnant Women attending Adeoyo Maternity Hospital, Yemetu Ibadan North Local Government Area, Nigeria. International Journal of Science and Research (IJSR) ISSN (Online): 2015; 2319-7064.
[19]. R. I. Fadare, O. A Akpor, O. B. Oziegbe. Knowledge and Attitude of Pregnant Women towards Management of Pregnancy-induced Hypertension in Southwest Nigeria Journal of Advances in Medical and Pharmaceutical Sciences 11(2) 2016.
[20]. S.J., Joseph, S. NayakFernandes, & P Suvarna. Effectiveness of Antenatal Care Package on Knowledge of Pregnancy Induced Hypertension for Antenatal Mothers in Selected Hospitals of Mangalore. Nitte University Journal of Health Science.3 (1), 2013; pp 8-10.
[21]. P. Kavitha, RA. Prasath, & P. Krishnaraj. A Study to Assess the Knowledge of Antenatal Mothers Regarding Pregnancy-Induced Hypertension. International Journal of Pharmacy Practice & Drug Research. 2(1), 2012; pp 1-2.
[22]. E.H. Kim, E. Lee, M. Kim, D.Y Park. & S.H. Lee. Effects of an Educational Program of Pregnancy and Delivery on Pregnancy related Knowledge, Newborn Care Knowledge, and Postpartum Care Self-efficacy of Marriage Immigrant Women. Journal of Korean Academic Nurses 40(1), 2010; pp 78-87.
[23]. T.C., Zuo, S.P., Teng, S.L., Keng, & F., Jummaat. Knowledge of Preeclampsia among antenatal women in a tertiary referral teaching hospital. The Malaysian Journal of Nursing vol. 7(2) 2016.
[24]. E.A Sarah, O.T. Ayinla, & O.S Olusegun. Health Information Need and Information Sources of Pregnant Women in Ogbomosho Metropolis, Oyo State, Nigeria; 2013. http://digitalcommons.uni.edo/libphilprac/981.

Dr. Nagwa A. El Fadeel Afefy. "Effect of Educational Module about Pre-Eclmpsia on Knowledge and Self-Care Practice of Women Attending Antenatal Clinics at Cairo University Hospitals" .IOSR Journal of Nursing and Health Science (IOSR-JNHS), vol. 8, no.02 , 2019, pp. 33-42.