
THE EFFECT OF THE CONTINUOUS CARE MODEL ON SELF-PRACTICES AND QUALITY OF LIFE AMONG PREECLAMPTIC WOMEN.

Abstract:

Background: Preeclampsia is a complex maternal health condition that requires ongoing support, effective education, and active involvement of women in managing their health. Implementing a structured Continuous Care Model may help overcome gaps in healthcare delivery, enhance women's self-care abilities, and support better management of health needs throughout the course of the condition.

Aim: Wasto evaluate the effect of the continuous care model on self-practice and quality of life among preeclamptic women.

Methods: A quasi-experimental design with purposive sample 100 preeclamptic women was used. The present study was conducted in the outpatient clinics at Ain Shams Maternity Hospital, Egypt. Four validated tools used in the study a structured interviewing questionnaire, women's knowledge questionnaire regarding preeclampsia, self-care-reported practices questionnaire regarding preeclampsia, and world health organization quality of life–brief version.

Results There was no statistically significant difference between total knowledge, self-care practices and total quality of life among preeclamptic women regarding preeclampsia before implementation of the continuous care model in both groups. However, after implementation the study group was had a highly statistically significant improvement of satisfactory level in the total knowledge from 22% to 94%; self-care practices were improved adequatelevel from 16% to 90%, and the total quality of life was improved high level from 33% to 94%. Versus, the control group had the same percentage before and after implementation.

Conclusions: Implementation of the Continuous Care Model had a positive effect on the knowledge, self-care practices, and health-related quality of life of women with preeclampsia.

Recommendations: Integrate the continuous care model into routine antenatal care services for women diagnosed with preeclampsia to improve self-care practices, adherence to treatment, and quality of life.

Keywords: -Continuous Care Model, Preeclampsia, Quality of Life, Self-Practices .

Introduction: -

Preeclampsia is a multisystem hypertensive disorder of pregnancy that typically develops after 20 weeks of gestation and is characterized by hypertension with proteinuria or other signs of organ dysfunction. It is classified as mild or severe according to the extent of organ involvement and as early-onset (<34 weeks) or late-onset (≥34 weeks). Major risk factors include primigravity, maternal age <18 or >35 years, a personal or family history of preeclampsia, obesity, genetic predisposition, gestational diabetes, multiple pregnancy, and chronic hypertension (Al Fattah, 2025).

Preeclampsia is associated with serious maternal complications, including preterm birth, eclampsia, placental abruption, postpartum hemorrhage, cesarean delivery, cardiovascular disease, venous thromboembolism, and maternal mortality, as well as adverse neonatal outcomes such as fetal growth restriction, prematurity, birth asphyxia, and neonatal intensive care unit admission. These complications also place a substantial burden on healthcare systems and society (Kashfi, 2025).

Knowledge plays an essential role in the management of preeclampsia, as women's awareness of the condition, warning signs, and self-care practices helps them make informed decisions and seek timely care. Improving women's knowledge through continuous education and support can enhance self-care behaviors and contribute to better maternal outcomes and quality of life (Gulanick & Myers, 2025).

Self-care practices can help pregnant women and healthcare providers take effective measures to control and prevent gestational hypertension and to provide endorsed solutions for improving maternal and neonatal health. Furthermore, quality of life (QoL) is a broad concept that incorporates aspects of social, environmental, economic, and health satisfaction (Zhang et al., 2025).

Quality of life: in preeclampsia refers to the multidimensional impact of the disorder on physical, psychological,

social, and functional well-being, reflecting the ability to perform daily activities, manage symptoms, and maintain overall health during pregnancy and the postpartum period. Thus, the goal of healthcare is to improve the QoL. Making QOL changes can be accomplished in part by utilizing educational theories and models (Sherif, et al., 2025).

The Continuous Care Model (CCM): is a structured care approach designed to improve women's awareness, responsibility, and adherence to ongoing care, thereby helping to control disease and prevent complications (Shahbazi, 2025). Because the benefits of educational interventions often diminish without follow-up, integrating continuous monitoring with education may strengthen self-care practices, reduce maternal and neonatal complications, and improve quality of life among women with preeclampsia. The CCM consists of four phases—orientation, sensitization, control, and evaluation—and promotes active participation of women and their families in the care process, enhancing problem-solving and long-term disease management (Turienzo, 2026).

The maternity nurse plays a crucial role in the care of women with preeclampsia through comprehensive assessment, continuous monitoring, and patient education. Key responsibilities include monitoring maternal blood pressure, assessing for signs of disease progression, evaluating fetal well-being, administering prescribed medications, and identifying potential complications. The nurse also educates women about medication adherence, self-care practices, and warning signs requiring immediate medical attention while providing emotional support and collaborating with the multidisciplinary healthcare team to improve maternal and fetal outcomes (ElShabory et al., 2025).

Significance of the study:

According to WHO (2025), Globally preeclampsia affects pregnant women more than the 2% average; additionally, in Egypt, it complicates about 6%-8% of all pregnancies and can reach up to 15% in referral centers like university hospitals. Additionally, preeclampsia is a prevalent pregnancy complication that continues to be the primary cause of maternal morbidity and mortality globally, accounting for 50,000 to 70,000 deaths annually. Preeclampsia has been linked to the deaths of up to 500,000 newborns.

In Egypt, the Maternal Mortality Ratio (MMR) has remained at approximately 30–50 deaths per 100,000 live births in recent years, based on modelled estimates up to 2023. Among the direct causes of maternal mortality, pre-eclampsia is a major contributor, responsible for approximately 47.5% of direct maternal deaths, followed by hemorrhage, pulmonary embolism, and other causes (WHO, 2025; Elshabory, et al., 2025).

Continuous care model promotes women's self-care responsibility, disease management, and prevention of complications. Combining continuous follow-up with education can improve adherence to health behaviors in women with preeclampsia, reduce maternal and neonatal complications, and enhance quality of life (Dickerson et al., 2025).

Also, there were limited previous studies that have examined the effect of a continuous care model on pre-eclamptic women's self-practices and QOL. Therefore, this study was carried out to evaluate the effect of the continuous care model on self-practices and quality of life among preeclamptic women.

IndependentVariable:The continuous care model (CCM)

DependentVariables:

- Knowledge regarding preeclampsia.
- Self-practices.
- Quality of life.

Aim of the study:

The current study aimed to evaluate the effect of the continuous care model on self-practices and quality of life among preeclamptic women.

Objectives:

1. Assess knowledge for pregnant women regarding preeclampsia management.
2. Assess self-care practices for pregnant women regarding preeclampsia management.

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3. Implement continuous care model on women suffering from mild level of preeclampsia.
 4. Evaluate the effect of continuous care model on self-practices and health-related quality of life among preeclamptic women.

Research Hypotheses:

1. Preeclamptic women who receive the Continuous Care Model exhibit significantly higher knowledge regarding preeclampsia than those who do not receive the model.
2. Preeclamptic women who receive the Continuous Care Model demonstrate significantly adequate self-care practices than those who do not receive the model.
3. Preeclamptic women who receive the Continuous Care Model report significantly better health-related quality of life than those who do not receive the model.

Methodology: -

Study Design and Participants:

A quasi-experimental design (pre-test and post-test) was used to evaluate the effect of the continuous care model on self-practices and quality of life among preeclamptic women. The outpatient clinics of Ain Shams University maternity hospital was chosen by the purposive sample method for the selection of women diagnosed with preeclampsia and 100 preeclamptic women were sampled according to inclusion and exclusion criteria:

Inclusion criteria:

- Women diagnosed with preeclampsia (systolic blood pressure >140 mmHg and diastolic blood pressure > 90 mmHg with proteinuria $+ 2$ in urine test strip).
- Gestational age 20 to 34 weeks.
- Literate (Can read and write).
- A single viable fetus.

Exclusion criteria:

- Women with other high-risk pregnancies.
- Attendance of a previous equivalent intervention.

Measures:

- **Demographics:** A structured interviewing questionnaire: The tool was developed by the researcher based on a related literature review (ElShabory et al., 2025; Muhindo et al., 2025; Moustfa, et al., 2024). It consisted of three parts:

Part 1: Sociodemographic characteristics included: age, marital status, educational level, residence, occupation, working specifications, husband occupation, income/month, and type of family.

Part 2: Obstetric history was divided into previous and current obstetric history. Previous history included data related to the number of gravidities and any previous complications during pregnancy, number of parties and any previous complications during delivery, any previous complications during post-partum, number of abortions, and number of children. Additionally, the current obstetric history included gestational age and the number of antenatal care visits during the current pregnancy.

Part 3: Physical examination contained physical assessment, nutritional assessment, and clinical manifestation. Firstly, physical assessment included maternal systolic and diastolic blood pressure, anthropometric measurements (height, weight, and BMI) were calculated using the formula: $\text{Weight (kg)} / \text{height (m}^2\text{)}$ and categorized according to the World Health Organization (2025). Secondly, nutritional assessment included the number of meals/days, composition of meals for 24-hour recall (breakfast, lunch, and dinner). Finally, clinical manifestation included lab investigation (urine analysis, CBC, kidney and liver function) and ultrasound.

- **Knowledge:** Women's knowledge questionnaire regarding preeclampsia: This questionnaire was designed by the researcher after reviewing related literature (Alsabi et al., 2025; Yan and Zhou 2025; Abate et al., 2023). It was used to assess women's knowledge regarding pre-eclampsia through 12 questions in the form of multiple-choice questions, such as (definition, diagnosis, signs & symptoms, risk factors, complications, severity, management and recommendation of pre-eclampsia) written in English language and the research translate to Arabic language to be suitable for women understanding.

Scoring system of knowledge:

According to Fondjo et al. (2019) and Desoky et al. (2023), all knowledge variables were weighted according to the items included in each question. Each item was given a score (2) when the answer is correct and a score (1) when the answer is incorrect or is not known. The total score was calculated by the summation of the scores of its items; the range of obtained scores was between 12 and 24. The score of total knowledge was converted into percentages and classified into:

- Satisfactory when the total score was 75% to 100% = score 18 to 24.
- Unsatisfactory when the total score was less than 75% = score 12 to 17.

- **Self-Practices:** Self-care-reported practice questionnaire regarding preeclampsia: The third tool was designed by the researchers based on reviewing the literature of review (ElShabory et al., 2025; Cong et al., 2025; Cowan et al., 2024) to assess self-care-reported practices that women practiced in controlling and managing preeclampsia. It comprised 12 items, measuring blood pressure, weight daily, proteinuria using dipstick daily, recommended preeclampsia diet, drinking water daily, regular physical activity, compliance with prescribed medications, taking rest and sleep, managing and coping with stress, counting fetal kicks daily, recommended antenatal visits, and prescribed supplements.

Scoring system:

The items were rated based on a three-point Likert scale: always (score 3), sometimes (score 2), and never (score 1). The range of obtained tool scores was between 12 and 36, with higher scores indicating more engagement in healthy behaviors.

The score of total practices is converted into percentages and classified into:

- adequate when the total score was 75% to 100% = score 27 to 36.
- Inadequate when the total score was less than 75% = score 12 to 26.

- **Quality of life:** World Health Organization Quality of Life - BREF (WHOQOL-BREF): The WHOQOL-BREF was adapted from the World Health Organization (2012) and translated into the Arabic language to assess the perception of the QOL among women with preeclampsia. It consisted of 26 items in four domains: Physical health (7 items which included pain and discomfort, medical treatment, energy, discomfort, sleep pattern, ability to perform daily living activities, and work capacity), psychological (6 items which contained positive feeling, self-esteem, thinking, learning, memory and concentration, bodily image and appearance, satisfy with self, and negative feeling), social relationships.

In addition to, (3 items which consisted of personal relationships, social support, and sexual activity), and environmental health (8 items included freedom, physical safety and security, physical environment, financial resources, opportunities for acquiring new information and skills, participation in and opportunities for recreation/leisure, home environment, health and social care: accessibility and quality, and transport), and (2 items on overall QOL and general health.

Scoring system:

On five-points Likert scale ranging from 1 to 5, each item of WHOQOL-BREF is scored (1) for the lowest, and 5 for the highest agreement with the item). The domain score was calculated using item scores within each domain that ranged between 26 and 130. The mean score of each item will be calculated. Higher scores reflect a better QOL.

-High when the total score was 75% to 100% = score 98 to 130.

-Low when the total score was less than 75% = score 26 to 97.

Tools Validity:

The content validity of the study tools was assessed by a jury consisting of three experts from the maternal and newborn health nursing department to review the tools for clarity, relevance, comprehensiveness, understandability, and applicability. Also, the tools were rephrased based on the jury opinion and their recommendations: additions, corrections, and modifications of some items were done. The modification done in the tool (I) removed part (3) which was antenatal history and combined with the part (2) obstetric history. Additionally add item (3) in Tool (I) which was physical examination.

Tools Reliability:

Internal consistency reliability was assessed in the present study tools via alpha Cronbach's reliability analysis to indicate how the items in the instrument fitted together conceptually; with Cronbach's alpha was 0.970 for the knowledge assessment sheet, 0.891 for self-care-reported practice, and 0.978 for WHOQOL- BREF.

Procedure:

Ethical Consideration:

Official permission to conduct the proposed study was obtained from the scientific research ethics committee of the faculty of Nursing at Capital University (Approved No.42, dated 14 July 2024 code: HUNRSRC 36/42/07/2024). The researcher clarified the aim of the study before starting. Informed consent was obtained from preeclamptic women. The researcher was assured of maintaining anonymity and confidentiality of the subject data included in the study, and all preeclamptic women were informed that the collected data would be used only for the purpose of the present study, as well as for their benefits. Preeclamptic women are allowed to choose whether to participate or not in the study and that the preeclamptic women have the right to withdraw from the study at any time without giving any reason, and also confidentiality of the information was assured.

Pilot Study:

The pilot study was carried out to evaluate the content validity of the tools used for data collection to find the possible obstacles that might be faced during data collection. It was also used to evaluate the time needed for preeclamptic women to fill out the study tool. The pilot study was conducted on 10% of the total sample size including 10 preeclamptic women (5 in the study group and 5 in the control group) one month before the data collection phase within two days/week for two weeks. No modifications were carried out, so all pre-eclamptic women were included in the study.

Procedure:

Preparatory Phase:

Approval to conduct the study was obtained from the Faculty of Nursing, Capital University, the Obstetrics and Gynecology Hospital at Ain-Shams (El-Demerdash), and the Scientific Research Ethical Committee. The study purpose was explained to obtain permission and cooperation. A comprehensive literature review was conducted using relevant books, journals, articles, and online sources related to preeclampsia, the CCM, self-care practices, and QOL. This review supported the development of data collection tools and ensured their validity and reliability.

Field work:

The study was conducted over a six-month period, from the beginning of December 2024 to the end of May 2025, at the outpatient clinics. The total sample consisted of 100 women with preeclampsia, who were randomly divided into two equal groups: a study group (50 women) and a control group (50 women). The researcher attended the outpatient clinics two days per week from 9:00 a.m. to 1:30 p.m. to recruit participants and collect data.

For the study group, the CCM was implemented in four phases assessment, planning, implementation, and evaluation.

1. Assessment Phase (Pre-Test): (Study and Control Groups):

- Four to five preeclamptic women per week were individually interviewed in the outpatient clinics using the structured interviewing questionnaire.
- Participants were divided into ten subgroups: five control subgroups receiving routine hospital care and five study subgroups receiving the CCM intervention.
- The researcher explained the study aim, obtained informed consent, and ensured participants' voluntary participation and right to withdraw.

- Confidentiality and privacy were maintained, with collected data used solely for research purposes.
 - Tool (I) was administered to assess participants' general characteristics and current pregnancy history after clarifying the questionnaire items.
2. Planning Phase (Pre-Test): (Study and Control Groups):
- After analyzing the structured interviewing questionnaire and applying the inclusion and exclusion criteria, participants were divided into two groups: the first 50 women were assigned to the control group, and the second 50 women to the study group.
 - Tools (II, III, and IV) were administered to both groups as a pre-test to assess women's knowledge, self-care practices, and quality of life using the WHOQOL-BREF questionnaire.
 - The questionnaires required approximately 20–30 minutes to complete.
 - Data collected during this phase served as baseline information for subsequent evaluation.
3. Implementation Phase:
- Control Group: Received routine hospital care. In addition, the researcher provided health education about breast self-examination during outpatient clinic visits.
 - Study Group: Received the (CCM) through an organized educational program implemented in four stages: Orientation, Sensitization, Control, and Evaluation.
- Orientation stage:
 - The researcher introduced the CCM and explained its importance in improving maternal and neonatal outcomes among women with preeclampsia. The stage emphasized continuous education, increased patient involvement, improved adherence to care plans, and early recognition of warning signs.
 - Sensitization stage:
 - The researcher analyzed the pre-test results to identify participants' educational needs and develop the appropriate health education program content.
 - Educational materials were prepared, including booklets, PowerPoint presentations, videos, handouts, and pictures.
 - Various teaching methods were planned and used, including lectures, brainstorming, group discussions, demonstrations, and role play.
 - Follow-up schedules were arranged for each participant.
 - Implementation Stage:
 - The 50 preeclamptic women in the study group were divided into 10 subgroups, with 5 women in each subgroup. Each subgroup attended four educational sessions, conducted twice weekly in the outpatient clinic waiting area. Each session lasted approximately 30–45 minutes.
 - Session One: Covered information about preeclampsia, including definition, causes, signs and symptoms, risk factors, classification, maternal and fetal complications, preventive measures, and management.
 - Session Two: Focused on promoting a healthy lifestyle, including appropriate diet, adequate rest and sleep, and regular physical activity to help manage preeclampsia.
 - Session Three: Addressed self-monitoring practices, including blood pressure measurement, daily weight monitoring, detection of proteinuria using urine dipsticks, and assessment of daily fetal movements.
 - Session Four: Emphasized stress management techniques, the importance of regular antenatal visits, and adherence to prescribed medications.
 - Evaluation Stage:
 - Feedback was collected from the preeclamptic women at the end of each session, and their questions and concerns were addressed.
 - The researcher conducted follow-up with participants through mobile phone communication after each session.
- 4- Evaluation Phase:
- Evaluations were conducted for both the study and control groups to assess the effectiveness of the intervention.
 - For the study group, evaluation was performed two months after implementing the CCM to assess changes in women's knowledge, self-care practices, and quality of life using Tools (II, III, and IV).
 - The evaluation was conducted through face-to-face meetings or telephone follow-up using the same assessment tools applied during the pre-test.
 - The control group underwent the same evaluations at the same time points without receiving the CCM intervention.

Data Analysis:

Data were analyzed by SPSS version 26.0. To test the effect of the continuous care model (independent variable) and three dependent variables (knowledge, self-practices and quality of life), Quantitative data were presented as mean $\pm$ standard deviation (SD), while qualitative data were expressed as frequencies and percentages. The following tests were done:

- Chi-square test (X²), test of significance was used in order to compare properties between qualitative parameters; Independent- samples T- test of significance was used even comparing between two means; McNemar-Bowker χ^2 test used to analyze paired categorical data with more than two response categories; Cohen's d test is a statistical measure used to determine the effect size, which means it quantifies the magnitude of the difference between two groups or two related measurements; and the confidence interval was set to 95 and the margin of error accepted was set to 5%. So, the p-value was considered significant as the following:

Probability (P-Value)

- P-Value 0.05 was considered significant.
- P-Value 0.001 was considered as highly significant.
- P-Value 0.05 was considered insignificant.

Results: -

Regression Analysis: PSUPredicting Sleep Disturbances

Table1: Distribution of the pre-eclamptic women according to their sociodemographic characteristics (n = 100)

Sociodemographic characteristics	Study group(n=50)		Control group(n=50)		χ^2 test	p-value
	N	%	N	%		
Age (years)					0.17	0.92 ^{ns}
○ 18 – 23	28	56	26	52		
○ 24 – 29	14	28	15	30		
○ ≥ 30	8	16	9	18		
Mean ± SD	22.8 ± 5.2		23 ± 5.4			
Marital status					0.65	0.72 ^{ns}
○ Married	43	86	40	80		
○ Divorced	4	8	6	12		
○ Widow	3	6	4	8		
Educational level					1.72	0.42 ^{ns}
○ Primary Education	1	2	2	4		
○ Preparatory Education	10	20	10	20		
○ Secondary Education	30	60	28	56		
○ Highly educated	9	18	10	20		
Residence					0.08	0.78 ^{ns}
○ Urban	21	42	19	38		
○ Rural	29	58	31	62		
Occupation					0.07	0.80 ^{ns}
○ Working	17	34	16	32		
○ Not working	33	66	34	68		
If yes, specify:						
○ Involved with heavy effort and stress.	6	35.3	5	31.3		
○ Involves moderate effort and stress.	11	64.7	11	68.8		
Family type					0.04	0.83 ^{ns}
○ Nuclear	24	48	23	46		
○ Extended	26	52	27	54		
Income adequacy					0.79	0.67 ^{ns}
○ Enough	2	4	2	4		
○ Not Enough	48	96	48	96		

χ^2 = Chi-square test. P-value: Level of significance. ns = Non-significant P > 0.05

Table (1): reveals that the mean age of the study and control groups was 22.8 ± 5.2 and 23.0 ± 5.4 years, respectively, with no statistically significant difference (p = 0.92). Regarding both groups marital status (86% and 80%, respectively) of the pre-eclamptic women were married; education, (60% and 56%, respectively) had secondary education; residence, (58% and 62%, respectively) lived in Rural areas; occupation, (66% and 68%, respectively) were not working; family type, (48% and 46%, respectively) lived in nuclear families; income, (96% and 96%, respectively) as hardly enough or not enough for living. There were no statistically significant differences between both groups regarding all socio-demographic characteristics (p > 0.05).

Table 2: Distribution of the pre-eclamptic women according to their obstetric history (n = 100)

Variables	Study group(n=50)		Control group(n=50)		χ^2 test	P-value
	N	%	N	%		
Gravidity	23	46	19	38	0.68	0.71 ^{ns}
○ Primigravida	16	32	19	38		

Variables	Study group(n=50)		Control group(n=50)		χ^2 test	P-value
	N	%	N	%		
○ 2-3 ○ ≥ 4	11	22	12	24		
Any previous complications during Pregnancy ○ Yes ○ No If yes, specify: ○ Hemorrhoids ○ Pre-eclampsia ○ Hyperemesis gravidarum	17	63	20	64.5	0.08	0.78 ^{ns}
	10	37	11	35.5		
	3	17.7	2	10		
	13	76.5	16	80		
	1	5.8	2	10		
Parity ○ Nullipara ○ 1-2 ○ ≥ 3	24	48	21	42	1.23	0.54 ^{ns}
	22	44	25	50		
	4	8	4	8		
Any previous complications during labor ○ Yes ○ No If yes, specify: ○ Bleeding during labor ○ Obstructed labor ○ Fetal distress	15	88.2	20	87	0.01	0.90 ^{ns}
	2	11.8	3	13		
	10	66.7	16	80	1.02	0.60 ^{ns}
	3	20	3	15		
	2	13.3	1	5		
Any previous complications during post-partum ○ Yes ○ No If yes, specify: ○ Post-partum hemorrhage ○ Post-partum pyrexia ○ Post-partum depression	15	88.2	16	69.6	1.95	0.16
	2	11.8	7	30.4		
	10	66.7	11	68.7	0.42	0.81 ^{ns}
	2	13.3	3	18.8		
	3	20	2	12.5		
Number of abortions ○ No abortion ○ One abortion ○ 2 abortions ○ More than 2 abortions	30	60	25	50	5.36	0.15 ^{ns}
	10	20	15	30		
	7	14	6	12		
	3	6	4	8		
Number of children ○ No Children ○ One Child ○ Two Children ○ More than two Children	25	50	22	44	3.06	0.21 ^{ns}
	18	36	17	34		
	5	10	7	14		
	2	4	4	8		
Antenatal visits during pregnancy ○ 1 – 3 visits ○ 4 – 6 visits ○ More than 6 visits	43	86	42	84	1.80	0.41 ^{ns}
	5	10	3	6		
	2	4	5	10		
Gestational age (weeks) Mean $\pm$ SD	22.46 $\pm$ 0.82		22.17 $\pm$ 1.25		t = 1.28	0.29 ^{ns}

ns = non-significant

Table (2): Regarding gravidity, study group 46% compared to 38% in the control group were primigravida, with $p=0.71$; parity, nullipara accounted for 48% of the study group and 42% of the control group; number of abortions, 60% of the study group and 50% of the control group had zero abortions. As for the number of children, 50% of the study group and 44% of the control group had no children respectively; and the antenatal visits, (86% and 84%, respectively), women in both groups had 1–3 visits with no significant difference. The mean gestational age was 22.46 ± 0.82 weeks in the study group and 22.17 ± 1.25 weeks in the control group, with no significant difference. No statistically significant difference between two groups regarding the previous and current obstetric history ($p > 0.05$).

Table (3): Distribution of the pre-eclamptic women according to their physical and physiological measurements (n = 100)

Variables	Study group(n=50)	Control group(n=50)	t-test	p-value
	Mean $\pm$ SD	Mean $\pm$ SD		
Maternal Systolic and Diastolic Blood Pressure (mmHg)	156.8 $\pm$ 8.4 92.4 $\pm$ 6.7	154.8 $\pm$ 7.9 91.8 $\pm$ 6.2	1.18 0.46	0.24 ns 0.65 ns
Height (cm)	158.9 $\pm$ 2.9	158.4 $\pm$ 3.1	0.80	0.42 ^{ns}
Weight (kg)	68.1 $\pm$ 10.5	68.4 $\pm$ 9.2	0.14	0.89 ^{ns}
Body Mass Index (BMI) (kg/m ²)	26.6 $\pm$ 4.7	26.0 $\pm$ 4.4	0.63	0.53 ^{ns}

ns = non-significant

Table (3): illustrates that there were no statistically significant differences between the study and control groups regarding all maternal anthropometric and hemodynamic variables ($p > 0.05$ for all). The mean systolic blood pressure was 156.8 ± 8.4 mmHg in the study group and 154.8 ± 7.9 mmHg in the control group. The mean diastolic blood pressure was 92.4 ± 6.7 mmHg and 91.8 ± 6.2 mmHg, respectively. Regarding height, weight, and BMI, the values were comparable between the two groups, with p-values of 0.42, 0.89, and 0.53, respectively.

Table (4): Distribution of the pre-eclamptic women according to their physical examination (n = 100)

Variables	Study group(n=50)		Control group(n=50)		χ^2 test	p-value
Number of meals/days	N	%	N	%	$\chi^2 = 0.94$	0.82 ^{ns}
• One	4	8	3	6		
• Two	24	48	25	50		
• Three	20	40	18	36		
• > Three	2	4	4	8		
Red Blood Cells count (million/mm ³)	4.32 $\pm$ 0.41		4.28 $\pm$ 0.38		t = 0.49	0.63 ^{ns}
Platelet count ($\times 10^3/\text{mm}^3$)	238.5 $\pm$ 44.2		241.3 $\pm$ 48.7		t = 0.28	0.78 ^{ns}

ns = non-significant

Table (4): reveals that (48%) of the study group and (58%) of the control group consumed two meals per day. Regarding hematological findings, the mean red blood cell (RBC) count was 4.32 ± 0.41 million/mm³ in the study group and 4.28 ± 0.38 million/mm³ in the control group. The mean platelet count was $238.5 \pm 44.2 \times 10^3/\text{mm}^3$ and $241.3 \pm 48.7 \times 10^3/\text{mm}^3$, respectively. There were no statistically significant differences between the two groups regarding dietary habits and hematological parameters ($p > 0.05$).

Table (5): Comparison between study and control groups regarding the pre-eclamptic women's knowledge about pre-eclampsia before and after the application of continuous care model.

Knowledge items		Study group (n=50)				Control group (n=50)				χ^2 test	p-value
		Correct		Incorrect		Correct		Incorrect			
		N	%	N	%	N	%	N	%		
Definition of pre-eclampsia	Before-application	28	56	22	44	22	44	28	56	1.44	.23 ns
	After-application	48	96	2	4	22	44	28	56	32.20	.001**
Causes of pre-eclampsia during pregnancy	Before-application	1	2	49	98	1	2	49	98	0.00	.00 ns
	After-application	48	96	2	4	1	2	49	98	88.40	.001**
Diagnosis of pre-eclampsia during pregnancy	Before-application	18	36	32	64	17	34	33	66	0.04	.83 ns
	After-application	48	96	2	4	17	34	33	66	49.8	.001**
Signs and symptoms of pre-eclampsia	Before-application	22	44	28	56	19	38	31	62	0.36	.55 ns
	After-application	49	98	1	2	19	38	31	62	50.44	.000**
Risk factor for developing pre-eclampsia.	Before-application	1	2	49	98	1	2	49	98	0.00	.00 ns
	After-application	48	96	2	4	1	2	49	98	88.40	.002**
Complications of pre-eclampsia for the pregnant the pre-eclamptic women	Before-application	2	4	48	96	2	4	48	96	0.00	.00 ns
	After-application	28	56	22	44	2	4	48	96	92.31	.001**

Complications of pre-eclampsia for the fetus	Before-application	48	96	2	4	1	2	49	98	0.02	.78 ns
	After-application	49	98	1	2	1	2	49	98	92.16	.002**
Time to experience pre-eclampsia	Before-application	18	36	32	64	2	4	48	96	92.31	.001**
	After-application	48	96	2	4	1	2	49	98	88.40	.001**
Severity of pre-eclampsia	Before-application	2	4	48	96	17	34	33	66	0.04	.83 ns
	After-application	49	98	1	2	1	2	49	98	92.16	.002**
Prevention or reduce the risk of pre-eclampsia.	Before-application	2	4	48	96	1	2	49	98	0.34	.56 ns
	After-application	49	98	1	2	2	4	48	96	92.31	.001**
Diet recommendation to help manage or reduce the risk of pre-eclampsia	Before-application	1	2	49	98	17	34	33	66	0.04	.83 ns
	After-application	48	96	2	4	1	2	49	98	88.40	.001**
Management of pre-eclampsia during pregnancy	Before-application	9	18	41	82	10	20	40	80	0.06	.80 ns
	After-application	49	98	1	2	10	20	40	80	53.57	.000**

χ^2 = Chi-square test. P-value: Level of significance. **P < 0.01 Highly significance (HS)

Table (5): illustrates that before the implementation of CCM, women in both groups had unsatisfied knowledge about pre-eclampsia (, as most of them provided incorrect answers across all knowledge items with no statistically significant differences between both groups ($p > 0.05$). However, after the implementation, there was a marked improvement in the study group's knowledge level regarding all items; (94%) in the study group demonstrated correct responses compared with only a few in the control group, with a highly statistically significant difference ($p < 0.001$).

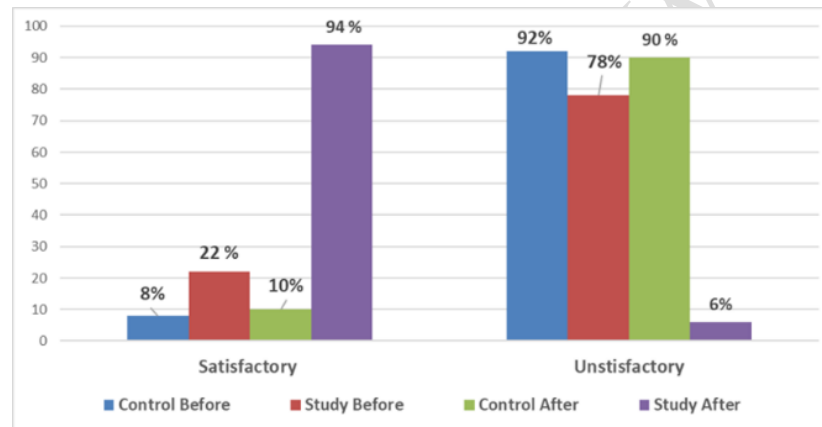


Figure (1): Comparison of Total Knowledge Levels Between Study and Control Groups before and after the application of the continuous care model (n=100).

Figure (1): shows that there was a highly statistically significant improvement in the total knowledge level of the study group (from 22% to 94%) satisfied after the implementation of the CCM ($p < 0.001$), while the control group showed no significant change. After application, there was a highly statistically significant difference between the two groups ($\chi^2 = 145.16$, $p < 0.0001$).

Table (6): Number and percentage of study and control groups regarding the pre-eclamptic women's self-care reported practice about preeclampsia before and after the application of continuous care model.

Self-care reported practice items		Study group (n=50)						Control group (n=50)						McNemar- Bowker MB χ^2 test	p-value
		Always		Sometime		Never		Always		Sometime		Never			
		N	%	N	%	N	%	N	%	N	%	N	%		
Measuring blood pressure daily at any medical service.	Before-application	2	4	18	36	30	60	2	4	18	36	30	60	0.00	1.000ns
	After-application	40	80	8	16	2	4	3	7	15	30	32	64	44.78	0.001**
Checking and recording weight daily.	Before-application	2	4	3	6	45	90	4	8	20	40	26	58	3.78	0.05ns
	After-application	40	80	8	16	2	4	2	4	20	40	28	56	47.22	0.001**
Checking urine for proteinuria by dipstick daily.	Before-application	3	6	2	4	45	90	2	4	18	36	30	60	10.53	0.001**
	After-application	45	90	3	6	2	4	3	7	15	30	32	64	49.12	0.001**
Consuming the recommended	Before-application	5	10	20	40	25	50	4	8	20	40	26	58	0.72	0.395ns

preeclampsia diet (high protein, low salt, low fat).	After-application	48	96	1	2	1	2	2	4	20	40	28	56	45.89	0.001**
Drinking 8 to 10 glasses of water daily.	Before-application	6	12	30	60	14	28	5	10	30	60	15	30	0.12	0.729ns
	After-application	48	96	1	2	1	2	3	7	35	70	12	24	37.44	0.001**
Participating in regular physical activity, ex. (Walking).	Before-application	2	4	3	6	45	90	8	16	2	4	40	80	4.38	0.03*
	After-application	47	94	2	4	1	2	2	4	2	4	46	92	46.09	0.001**
Compliance with prescribed medications.	Before-application	3	6	25	50	22	44	2	4	18	36	30	60	3.20	0.074ns
	After-application	48	96	1	2	1	2	3	7	15	30	32	64	46.78	0.001**
Taking rest (the left side) and adequate sleep.	Before-application	3	6	7	14	40	80	4	8	20	40	26	58	5.29	0.02*
	After-application	47	94	2	4	1	2	2	4	20	40	28	56	41.33	0.001**
Managing and coping with stress.	Before-application	2	4	18	36	30	60	2	4	18	36	30	60	0.00	1.00ns
	After-application	40	80	8	16	2	4	3	7	15	30	32	64	44.78	0.001**
Counting fetal kicks daily.	Before-application	3	6	25	50	22	44	4	8	20	40	26	58	2.04	0.153ns
	After-application	48	96	1	2	1	2	2	4	20	40	28	56	44.56	0.001**
Compliance with recommended antenatal visits.	Before-application	2	4	3	6	45	90	5	10	30	60	15	30	8.40	0.004**
	After-application	47	94	2	4	1	2	3	7	35	70	12	24	50.12	0.001**
Take prescribed supplements as recommended by healthcare provider	Before-application	3	6	25	50	22	44	8	16	2	4	40	80	8.91	0.003**
	After-application	48	96	1	2	1	2	2	4	2	4	46	92	42.67	0.001**

χ^2 = Chi-square test. P-value: Level of significance. **P < 0.01 Highly significance (HS)

Table (6): Before implementation of CCM, the pre-eclamptic women in both groups demonstrated inadequate self-care practices related to pre-eclampsia, with most of them reporting that they “sometimes” or “never” performed. Following the implementation, almost all the pre-eclamptic women in the study group reported “always” performing every self-care activity, while slightly improvement was detected in the control group. The difference between the study and control groups after the application was highly statistically significant ($p < 0.001$).

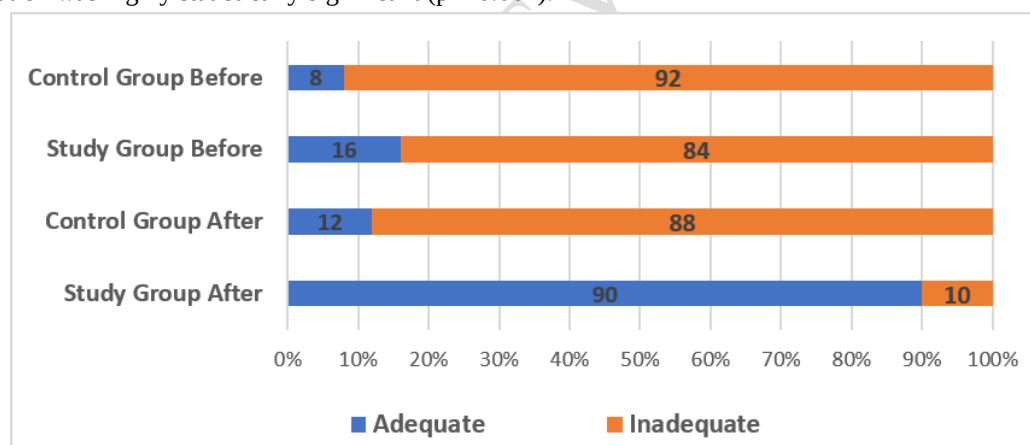


Figure 2: Comparison Between Self-Care Reported Practices Levels of the pre-eclamptic women Between Study and Control Groups before and after the application of the continuous care model (n=100).

Figure (2): illustrates a marked improvement in the study group's practices adequate level increasing from 16% pre-implementation to 90% following the implementation of the CCM. In contrast, the control group's practices remained relatively stable, showing only a slight change from 8% pre-implementation to 12% post-implementation. The statistical analysis revealed a highly statistically significant difference between the two groups post-application ($\chi^2 = 145.16$, $p < 0.001$).

Table (7): Mean and standard deviation of total quality of life (WHOQOL-BREF) domains scores among the pre-

eclamptic women before and after the application of continuous care model.

Domains		Study group (n=50)	Control group (n=50)	Independent t-test	p-value
		Mean $\pm$ SD	Mean $\pm$ SD		
Physical health	Before-application	28.0 $\pm$ 6.5	27.5 $\pm$ 5.9	0.37	0.711 (ns)
	After-application	95.0 $\pm$ 4.2	29.0 $\pm$ 6.3	49.62	<0.001**
Psychological	Before-application	31.2 $\pm$ 7.1	30.8 $\pm$ 6.9	0.28	0.781 (ns)
	After-application	92.4 $\pm$ 5.0	32.1 $\pm$ 6.5	44.37	<0.001**
Social relationships	Before-application	34.2 $\pm$ 5.8	33.6 $\pm$ 6.0	0.42	0.67(ns)
	After-application	88.5 $\pm$ 4.6	35.1 $\pm$ 5.9	28.93	< 0.001**
Environment	Before-application	40.2 $\pm$ 6.0	41.0 $\pm$ 6.1	0.64	0.52 (ns)
	After-application	88.1 $\pm$ 3.9	42.4 $\pm$ 6.0	26.37	< 0.001**
Overall Quality of Life& General Health	Before-application	33.9 $\pm$ 5.6	34.1 $\pm$ 5.8	0.18	0.86 ns
	After-application	89.2 $\pm$ 4.4	35.0 $\pm$ 5.9	31.46	< 0.001**

T= independent t-test, P-value: Level of significance, ns = Non-significant $P > 0.05$, * $P < 0.05$ Significance (S)
 **P Highly significance (HS) < 0.0

Table (7) Before the implementation, no statistically significant differences were observed between both groups in any QOL domain ($p > 0.05$), indicating their homogeneity at baseline. However, following the implementation, the study group showed a highly significant improvement ($p < 0.001$) across all domains—physical, psychological, social, environmental, and overall QOL—compared to the control group.

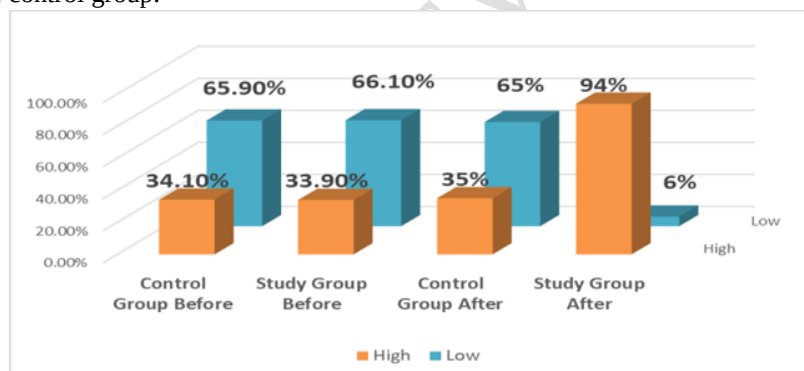


Figure (3): Comparison Between Study and Control Groups Regarding Total Quality of Life (WHOQOL-BREF). Preeclamptic women's before and after the application of the continuous care model (n=100).

Figure (3): illustrates a manifest improvement in the study group's QOL level increasing from 33% pre-implementation to 94% following the implementation of the CCM. In contrast, the control group's practices remained relatively stable, showing only a slight change from 34% pre- implementation to 35% post- implementation. The difference between groups post- implementation was highly statistically significant ($t = 31.46$, $p < 0.001$).

Table 8: Relation between socio-demographic characteristics of the pre-eclamptic women and their self-care reported practice after application of continuous care model (n=50).

Variables	Self-care reported practice of the pre-eclamptic women (n=50)				χ^2 test	p-value
	Competent (n=45)		Incompetent (n=5)			
	N	%	N	%		
Marital status						
Married	41	91.1	2	40	31.55	0.001**HS
Divorced	4	8.9	0	0		
Widow	0	0	3	60		

Educational level						
Primary Education	1	2.2	0	0		
Preparatory Education	10	22.2	0	0		
Secondary Education	28	62.2	2	40	8.57	0.03*S
Highly educated	6	13.3	3	60		
Income adequacy						
Enough	1	2.2	1	20		
Not Enough	44	97.8	4	80	6.62	0.03*S

χ^2 = Chi-square test.
P-value:
Level of significance.
*P < 0.05
Significance (S) **P < 0.01 Highly significance

(HS)

Table (8) shows that there was a highly statistically significant relationship between marital status and self-care reported practices ($p < 0.001$), while a statistically significant relationship was found between educational level and self-care practices, as well as between income adequacy and self-care practices ($p < 0.05$ for both).

Table 9: relation between socio-demographic characteristics of the pre-eclamptic women and their total quality of life after application of the continuous care model (n=50).

Variables	Quality of Life of the pre-eclamptic women (n=50)				χ^2 test	p-value
	High(n=47)		Low(n=3)			
	N	%	N	%		
Age (years)						
18 – 23	25	53.2	1	33.3	6.41	0.04*S
24 – 29	16	34	0	0		
≥ 30	6	12.8	2	66.7		

χ^2 = Chi-square test. P-value: Level of significance. *P < 0.05 Significance (S)

Table (9) shows the relationship between socio-demographic characteristics and QOL among the pre-eclamptic women. The Chi-square test revealed that age ($p = 0.04$) was statistically significantly associated with QOL.

Table (10): Correlation between total knowledge, total self-practice, and total quality of life among preeclamptic the pre-eclamptic women after application of continuous care model (n=50).

Variables		Total Knowledge		Total self-care reported Practice		Total quality of life	
		R	p	R	p	R	P
Total Knowledge	Control group	1.00	---	0.15	0.31	0.12	0.41
	Study group	1.00	---	0.85	< 0.001**	0.78	< 0.001**
Total self-care reported Practice	Control group	0.15	0.31	1.00	---	0.18	0.22
	Study group	0.85	< 0.001**	1.00	---	0.82	< 0.001**
Total quality of life	Control group	0.12	0.41	0.18	0.22	1.00	---
	Study group	0.78	< 0.001**	0.82	< 0.001**	1.00	---

*Significant $p \leq 0.05$

**Highly significant $p \leq 0.001$

*Small effect size ($0.20 < 0.50$)

Medium effect size ($0.50 < 0.80$) *Large effect size (≥ 0.80)

Table (10) reveals a strong correlation between the study and control groups after implementation of the CCM. In the control group, there was non-significant correlations were observed among knowledge, self-care practices, and QOL ($r = 0.12$ to 0.18 , $p > 0.05$). Conversely, the study group demonstrated highly significant positive correlations: knowledge was strongly linked to self-care practices ($r = 0.85$, $p < 0.001$), self-care practices were strongly associated with QOL ($r = 0.82$, $p < 0.001$), and knowledge was also strongly correlated with QOL ($r = 0.78$, $p < 0.001$).

Discussion: -

Preeclampsia is a major contributor to maternal and perinatal morbidity and mortality, highlighting the need for effective educational and supportive interventions. Continuous care, regular follow-up, and ongoing patient counseling are essential to improve women's self-care practices and quality of life. (Nuampa et al., 2026). From this perspective, the present study aimed to evaluate the effect of the continuous care model on self-practices and QOL

among preeclamptic women.

In relation to the sociodemographic characteristics of the preeclamptic women the findings of the present study showed that the mean age of the study and control groups was 22.8 ± 5.2 and 23.0 ± 5.4 years, respectively. More than half of the study and control groups had a secondary education. Also, more than two-thirds of both groups had not enough monthly income. Concerning residence more than half of both groups living in rural areas. Approximately two third of study and control groups housewife. There was no statistically significant difference between both groups regarding demographic characteristics. The findings of the current were in agreement with recent studies conducted by Garbo et al. (2025), titled with “*determinants of preeclampsia among pregnant and laboring mothers managed at Wolaita Sodo University Comprehensive Specialized Hospital, South Ethiopia: an unmatched case-control study*”; which reported that the mean age of women with preeclampsia was 25.73 ± 4.7 years, while that of the control group was 25.26 ± 4.6 years. Regarding educational level and residence in rural areas was around half of study and control groups had secondary education and living in rural area. Furthermore, more than two-thirds of both groups housewife and had not enough monthly income.

Furthermore, the present study findings demonstrated that around half of both groups were primigravida, and more than half of multigravida suffering from preeclampsia in the previous pregnancy in two groups. This was suggested that the study and control groups were well-matched at baseline, and reflects the Egyptian women has a problem for how to manage or prevent pre-eclampsia. The current study findings were in agreement with Wang et al. (2025) which titled with “*Trends and adverse pregnancy outcomes associated with preeclampsia: a multi-center cross-sectional study in Hebei, China*”; reported that nulliparity and previous adverse pregnancy outcomes and previous obstetric complications were significant risk factors for preeclampsia. Conversely, Nandagopal et al. (2025) titled with “*Unveiling the risks and outcomes of preeclampsia: a case-control study in the UAE*”; reported variations in parity distribution across different populations, suggesting that multiparity may also be observed in some settings depending on population characteristics and underlying risk profiles.

Hypertension is the hallmark clinical manifestation of preeclampsia, and elevated systolic and diastolic blood levels indicate an increased risk of serious maternal and fetal complications. The current study found no statistically significant difference in mean systolic and diastolic blood pressure and body mass index measurements, indicating that the women between both groups were overweight (BMI >25), and had mild preeclampsia. WHO (2025) supported these results, confirming that overweight and obese women are more likely to experience preeclampsia. This finding was supported through cohort study by Zhang et al. (2025) in China titled “*Maternal pre-pregnancy BMI and risk of hypertensive disorders of pregnancy: a multicenter cohort study*”, reported that elevated BMI was significantly associated with the development of preeclampsia and hypertensive disorders during pregnancy. In contrast, Horner et al. (2025) in Denmark this study titled with “*A metabolomic signature of maternal BMI was associated with pregnancy complications across two independent pregnancy cohorts*”, reported that BMI alone may not be a strong independent predictor of preeclampsia when adjusted for confounding factors such as age, parity, and underlying metabolic status.

Within the CCM, nutritional education is a key component of continuous support and self-management. The present study found no significant differences between the study and control groups in baseline dietary patterns, with nearly half of the women consuming two carbohydrate-rich meals daily. As most participants were from rural areas, these findings highlight the need for nutritional education focusing on affordable, balanced meal planning using locally available food resources. This finding is consistent the study with Odei-Quansah et al., (2025) entitled “*Incidence of Pre-eclampsia and Its Associated Factors among Pregnant Women Attending Antenatal Clinic at the 37 Military Hospital in Ghana*”, conducted in Ghana, which found that pregnant women generally exhibited comparable dietary habits before intervention and emphasized that nutritional behaviors are strongly influenced by socioeconomic and demographic factors. This means that the participant groups were homogenous and there was no confounding impact on the intervention. From the researcher point of view the assessment of the sociodemographic characteristics is very important to assess the level of retention knowledge and implementation of the CCM at the end of the study period.

Regarding the **total knowledge score** for pregnant women about preeclampsia management; the present study results revealed that there was no statistically significant difference between the two groups which was more than third quarter unsatisfactory level of the total knowledge score before implementing of the CCM for both groups This may be attributed to a lack of knowledge among pregnant women about managing preeclampsia. After two months of implementing the CCM, the control group demonstrated no significant improvement in knowledge, whereas the vast majority (ninety-four percentages) of the preeclamptic women in the study group achieved a satisfactory level

of knowledge. This finding may be attributed to the structured educational intervention delivered through the CCM, which incorporated interactive educational sessions supported by audiovisual materials and an illustrated educational booklet. The use of simple, clear, and culturally appropriate language, together with continuous follow-up and reinforcement, likely enhanced participants' understanding of preeclampsia and its management. Furthermore, the educational booklet provided a permanent source of information that enabled participants to review the content as needed, thereby facilitating knowledge retention and promoting effective self-management. Thus, the first hypothesis was achieved through the current study result related to the knowledge of preeclamptic women regarding Preeclampsia.

The current study result was in agreement with Alhassan et al. (2025) in Ghana who studied *"Effect of educational intervention on knowledge and self-care practices among pregnant women with preeclampsia: a randomized controlled trial"* pointed out that the mean knowledge score regarding preeclampsia was decreased pre-nursing intervention implementation. While there was an increase in the mean score of knowledge score with statistical significance immediately and after one month of nursing intervention implementation. In the other hand, Lee et al. (2025) in South Korea provided the research titled with *"Knowledge retention following antenatal educational interventions among high-risk pregnant women: does education alone improve outcomes?"* reported that there was initial improvement in knowledge was observed, but retention declined over time without continuous reinforcement.

The CCM aims to strengthen **self-care practices**, enhance adherence to treatment recommendations, and promote the early recognition of warning signs, thereby increasing women's confidence and active participation in managing their condition. The present study found no statistically significant differences between the study and control groups in any of the preeclampsia-related self-care practice items at baseline. Moreover, more than three-quarters of the preeclamptic women in both groups demonstrated an incompetent level of overall self-care practices before implementation of the CCM. This finding may be attributed to inadequate self-care behaviors, which could be associated with insufficient antenatal care attendance and limited access to appropriate health education regarding the management of preeclampsia. On the other hand, there was improvement after implementation of the CCM about more than four of fifth pregnant women in the study group has the adequate level of self-care reported practices and it was significantly higher compared with the control group which was still as before taken the routine hospital care. This may be due to the continuing sensitization process that motivated, encouraged, and empowered these women to adhere to healthy self-care practices to control and reduce the complications of preeclampsia. In addition, the effect of regular attendance at sessions followed by weekly follow-up care organized by phone calls. So, the second hypothesis was achieved through the current study result related to the self-care practices of preeclamptic women regarding Preeclampsia.

These present study findings were consistent with Moustfa, et al., (2024) in Egypt study titled *"Effect of Continuous Care Model on Lifestyle Modification and Pre-eclampsia Control among Pregnant Women"* which reported that women with preeclampsia had poor baseline self-care practices before the educational intervention, while significant improvements were observed after implementing the Continuous Care Model through continuous follow-up and counseling. Furthermore, Rahman, et al., (2025) in Bangladesh study titled *"Digital Health Education and Maternal Knowledge Regarding Hypertensive Disorders of Pregnancy: A Quasi-Experimental Study"* demonstrated that women who practiced home blood pressure monitoring and received regular educational reminders showed significantly better adherence to self-care measures and earlier recognition of preeclampsia warning signs. In contrast, Lee, et al., (2025) reported that although educational interventions improved women's knowledge immediately after implementation, long-term adherence to self-care practices declined over time when regular follow-up and continuous reinforcement were not maintained.

Preeclampsia has a substantial negative impact on the **Quality of Life** of affected pregnant women. Frequent hospital visits, the need of continuous monitoring, uncertain regarding pregnancy outcome, and possibility of pre-term birth may increase anxiety and psychological distress. The CCM provides an effective framework to address these challenges through continuous education, regular follow up, counselling and individualized support, thereby improving women's knowledge and self-management of preeclampsia (WHO 2025). Regarding the QOL among women with preeclampsia, the findings of the current study revealed low mean QOL scores across all domains in both the study and control groups before implementation of the CCM. However, following CCM implementation, the study group demonstrated a significant improvement in QOL scores, with the vast majority (ninety-four percent) of women achieving high scores across all QOL domains, whereas the control group showed only slight improvement compared with baseline. This improvement may be attributed to the effective implementation of the CCM, which facilitated the identification of women's needs and concerns, provided relevant knowledge and skills,

and enhanced self-care practices for monitoring and preventing preeclampsia-related complications. Consequently, these improvements contributed to better disease management and enhanced overall quality of life. Therefore, the third hypothesis was achieved through the current study result related to the quality of life among preeclamptic women regarding Preeclampsia.

These present study results were in the same line with Molla, et al., (2024) in Ethiopia review titled “*Maternal and Fetal Neurocognitive Outcomes in Preeclampsia and Eclampsia: A Narrative Review of Current Evidence*” concluded that preeclampsia has substantial negative effects on women’s physical and psychological health, resulting in poorer QOL and long-term emotional distress. A significant difference was noted in the total QOL score ($p = 0.003$). Additionally, Xing, et al., (2025) in China titled with “*Pregnancy stress in women at high risk of preeclampsia with their anxiety, depression, self-management capacity: a cross-sectional study*” reported that better self-management capacity and adherence to healthy behaviors were significantly associated with improved psychological wellbeing and QOL among women at risk of preeclampsia. In contrast, some studies have suggested that educational and supportive interventions alone may not fully improve QOL unless broader psychosocial and socioeconomic barriers were addressed. Lee, et al., (2025) reported that although educational interventions enhanced knowledge and short-term coping abilities, long-term quality-of-life improvements were limited in women experiencing persistent psychological stress and inadequate social support. Likewise, Duarte, et al., (2024) title with “*A qualitative study of how maternal morbidities impact women’s quality of life during pregnancy and postpartum in five countries in sub-Saharan Africa and South Asia*” indicated that despite improvement in self-care behaviors, some women continued to experience impaired QOL due to economic difficulties, anxiety about pregnancy outcomes, and limited family support.

Furthermore, the current study findings shows that there was a highly statistically significant relationship between marital status and self-care reported practices ($p < 0.001$); thus, married women may benefit from greater emotional and practical support. While a statistically significant relationship was found between educational level and self-care practices, as well as between income adequacy and self-care practices ($p < 0.05$ for both). These current study findings were supported by the study conducted by Muhindo et al. (2025) in Ugandan study entitled “*Barriers and Enablers of Early Health-Seeking Behaviour among Women with Preeclampsia and Eclampsia*” showed that marital support, family encouragement, and financial capability played major roles in improving women’s healthcare-seeking behaviors and compliance with follow-up care. On the other hand, the current findings disagree with the study conducted by Mohamed et al. (2025) by Egyptian study entitled “*Effectiveness of Nursing Intervention Session on Health Locus of Control and Self-Efficacy for Women with Preeclampsia*” found no statistically significant association between some socio-demographic characteristics; such as, marital status and women’s awareness levels regarding preeclampsia.

Regarding the education level, some researchers support the current result Alsabi et al., (2025), study in Saudi Arabia titled with “*Knowledge and Attitude of Pregnant Women About Preeclampsia in King Abdulaziz Medical City, Western Region: A Cross-Sectional Study*” which reported that women with higher educational levels achieved significantly better knowledge and self-care practices following an educational intervention for preeclampsia. On the other hand, some recent evidence suggests that educational level alone may not fully explain differences in self-care behaviors. Hussien et al., (2025), study in Egypt titles with “*Effect of Comprehensive Educational Program on Preeclamptic Women’s Risk Perception of Cardiovascular Disease, Self-Efficacy, and Adherence to Healthy Lifestyle Behaviors*” found that structured educational programs significantly improved self-efficacy and healthy lifestyle behaviors regardless of participants’ baseline characteristics, indicating that continuous nursing education and follow-up can enhance self-care even among women with lower educational levels.

Additionally, there were some researches support the current study result related to the income, Elshabory et al., (2025), present Egyptian study entitled “*Effectiveness of Nursing Intervention Session on Health Locus of Control and Self-Efficacy for Women with Preeclampsia*” reported that women with better health literacy and greater access to health resources (highly financial resources) demonstrated significantly higher healthy lifestyle behavior scores, highlighting the contribution of socioeconomic advantages to self-care practices. In contrast, Kolcu et al., (2025), study in Turkey title with “*The Relationship Between Health Literacy and Healthy Lifestyle Behaviors of Women with Preeclampsia*” suggest that income alone may not be an independent determinant of self-care practices. found that health literacy was a stronger predictor of healthy lifestyle behaviors than sociodemographic characteristics, indicating that women with limited financial resources may still achieve good self-care when they receive adequate health education and continuous professional support.

Besides the relationship between socio-demographic characteristics and QOL among the pre-eclamptic women. This

positive relationship may be explained by the influence of maternal age on women's physical and psychological adaptation to pregnancy complications. Younger women may have limited experience in coping with pregnancy-related stressors, while advanced maternal age may increase physical and emotional burdens associated with preeclampsia, thereby negatively affecting QOL and overall well-being (Rahman, et al., 2025). In agreement with the current study conducted by Setyawati et al. (2025) in Indonesia entitled "*The Quality of Life among Women with Pre-eclampsia: A Pilot Descriptive Study*" reported that age had a statistically significant relationship with QOL among women with preeclampsia. Furthermore, the study conducted by Bukhari, et al. (2025) in Pakistan entitled "*Association of Risk Factors, Clinical Presentation, and Treatment with Neonatal Outcomes among Pre-eclamptic and Eclamptic Women: A Cross-Sectional Study*" demonstrated that advanced maternal age was significantly associated with poorer maternal and neonatal outcomes among preeclamptic women. In contrast, the study conducted by Barrientos Gómez, et al. (2024) in Colombia entitled "*Quality of Life in Severe Preeclampsia: An Observational Study*" found that QOL impairment among women with severe preeclampsia was mainly associated with disease severity and hospitalization rather than maternal age. Likewise, the study conducted by Nandagopal et al. (2025) in the United Arab Emirates entitled "*Unveiling the Risks and Outcomes of Preeclampsia: A Case-Control Study in the UAE*" emphasized that clinical and obstetric factors had greater influence on maternal outcomes than age differences among participants.

Additionally, the current study finding demonstrated a significant positive correlation between the total score of knowledge and self-care reported practices regarding preeclampsia and QOL in both groups before and after continuous care model implementation. This may be attributed to the fact that promoting with preeclampsia appropriate knowledge contributes to an improved self-care practice. Similarly, Dlamini, et al. (2025) in South Africa study titled "*Self-Care Practices and Health-Related Quality of Life among Women with Hypertensive Disorders of Pregnancy: A Cross-Sectional Study*" found that improved maternal knowledge and engagement in self-care activities were positively associated with better physical wellbeing, emotional stability, and overall QOL among women diagnosed with preeclampsia. Corresponding, Karimi et al. (2025) in Iran, in their study "*The Association between Dietary Habits and Self-Care Behavior of Pregnant Women with Pregnancy Complications*," reported that higher maternal awareness was significantly associated with better self-care behaviors and improved maternal health status. These findings further support the present study results and highlight the importance of maternal education in promoting self-care and enhancing QOL. On the other hand, some studies have reported partial disagreement with the present findings. For example, Munyungula and Shakwane (2025) in South Africa, in their study "*Self-monitoring of blood pressure for preeclampsia patients: Knowledge and attitudes*," found that although women demonstrated willingness to engage in self-care practices and QOL, their knowledge about preeclampsia was limited and did not always translate into effective self-management behaviors.

Conclusion: -

Based on the results of the current study, it can be concluded that implementing the continuous care model had a positive effect on exhibit satisfactory level of the total score knowledge, adequate self-care practices and demonstrate high total score of the quality of life regarding preeclampsia management. Hence, the study aim was achieved, and the research hypothesis was supported.

Limitations: -

The study was conducted in a single healthcare setting, which may limit the generalizability of the findings to women with preeclampsia in different healthcare systems and cultural contexts.

Recommendations: -

The following recommendations are suggested, considering the findings of the study:

A. Recommendations for clinical and nursing practices:

- 1- Integrate digital health technologies, such as telehealth and mobile health applications, into the continuous care model to improve follow-up, self-care adherence, and timely professional support for women with preeclampsia.
- 2- Promote patient-centered care by combining face-to-face education with virtual follow-up to ensure continuity of care and address women's educational and psychological needs.

B. Recommendations for healthcare organizations:

- 1- Establish electronic multidisciplinary care pathways to improve coordination among healthcare professionals managing women with preeclampsia.
- 2- Provide ongoing training for maternity healthcare providers in digital health, telemedicine, remote monitoring, and patient education.

C. Recommendations for health policy and clinical Practice guidelines:

- 1- Develop and implement standardized evidence-based guidelines for integrating telehealth and mobile health interventions into the management of hypertensive disorders during pregnancy.

D. Recommendations for further research:

- 1- Conduct randomized controlled trials to evaluate technology-enhanced continuous care models for improving self-care practices and quality of life among women with preeclampsia.
- 2- Investigate the role of artificial intelligence and predictive analytics in early risk identification and individualized care planning.
- 3- Undertake multicenter and international studies to assess the effectiveness and scalability of technology-supported continuous care models across different healthcare settings.

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