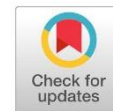


Research Article

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Effect of Health Awareness on Women Knowledge, Attitude and Experience of Primigravida Regarding Common Minor disorders of pregnancy in Northern State – Sudan 2022

Mazahir Geaballah Abdelgani^{1*} and Faiza A.Taha²

² Faculty of Nursing Sciences
University of Khartoum- Sudan

***Corresponding author:**
mazahirgeaballah@yahoo.com
, Faculty of Nursing Sciences
University of Karary - Sudan

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Abstract

Pregnancy is a natural biological process characterized by hormonal, physiological, and emotional changes that support fetal growth and maternal adaptation. However, these changes often result in minor discomforts, including nausea, heartburn, back pain, fatigue, and frequent urination. These discomforts are particularly common among primigravida women, who may have limited knowledge about their management. Therefore, health education and awareness programs are essential to improve women's knowledge and self-care practices. This study aimed to assess effect of a health awareness program on primigravida women's knowledge, attitudes, and experiences regarding common minor disorders of pregnancy. A quasi-experimental one-group pre-posttest design was conducted among 105 primigravida women (≤ 8 weeks gestation). Data was collected through structured interviews before and after three months of the educational intervention. Statistical analysis was performed using SPSS version 21, Descriptive and inferential statistical methods, with significance set at $p < 0.05$. Most participants were aged 20–34 years (60.9%), Primary or secondary education (54.2%), housewives (91.4%), living in extended families (56.2%), majority experiences fatigue (96.2%), low back pain (88.6%), frequent micturition (83.8%), and nausea/vomiting (77.1%). Post-intervention, knowledge improved from (34.6% to 96.3%) with significant gains in self-care practices from (24.4% to 97.2%) and attitudes from (38.4% to 100%) ($p < 0.001$). This study displayed improved women's knowledge, self-care practices, and attitudes, resulting in reduced pregnancy discomfort.

Keywords: Health Awareness, Minor Disorder, Knowledge, Attitude, Self -Care, Pregnancy.

INTRODUCTION

Pregnancy is a normal physiological process characterized by hormonal, anatomical, and psychological changes that support fetal development. These changes commonly result in minor disorders such as nausea, vomiting, heartburn, constipation, back pain, fatigue, and urinary frequency and changes in appetite or food preferences (Cunningham et al., 2018; & Pillitteri, 2017). Despite being classified as minor and typically non-threatening, these discomforts require proper awareness and appropriate management to minimize maternal discomfort and



avoid potential adverse effects (Soma-Pillay et al., 2016; & Verberg et al., 2015). Minor disorders are highly prevalent across all trimesters of pregnancy. Nausea and vomiting affect approximately 50–80% of pregnant women worldwide and may significantly impair daily functioning (Einarson et al., 2018; & Matthews et al., 2015). Gastroesophageal reflux and heartburn are also commonly reported, particularly in the second and third trimesters (Ali , Egan, 2017; & Richter, 2016). Musculoskeletal discomforts such as low back pain and pelvic girdle pain affect nearly half of pregnant women and may persist throughout pregnancy (Wu et al., 2018). Constipation and fatigue are also frequently observed due to hormonal and mechanical factors associated with pregnancy (Cai et al., 2019; & Vazquez, 2016). These findings demonstrate that minor disorders represent a widespread maternal health concern. Despite being classified as “minor,” these conditions can substantially affect maternal wellbeing. Studies have shown that persistent nausea and vomiting are associated with reduced quality of life, emotional distress, and decreased productivity (Lacasse et al., 2017; & Tan et al., 2018). In the same way, untreated back pain and pelvic discomfort may interfere with mobility and sleep, thereby affecting physical and psychological health (Gutke et al., 2018; & Liddle , Pennick, 2015). Gastrointestinal disturbances such as heartburn and constipation may further compromise nutritional status and comfort (Body , Christie, 2016; & Rey et al., 2017). Therefore, inadequate management of minor disorders can negatively influence the overall pregnancy experience. Primigravida women are particularly vulnerable because they lack prior pregnancy experience and may have limited knowledge regarding physiological changes and self-care strategies. Research has demonstrated that knowledge levels among primigravida mothers regarding minor disorders and their management are often insufficient (Ibrahim , Elgzar, 2018; & Othman et al., 2017). Other studies have reported gaps in awareness and inappropriate self-care practices among antenatal mothers (Abd El-Hameed , Mohamed, 2019; & Aboushady, El-Saidy, 2018). Insufficient knowledge may result in anxiety, misconceptions, and improper home remedies, highlighting the need for structured educational support.

Educational and health awareness programs have been shown to significantly improve pregnant women’s knowledge, attitudes, and self-care practices. Educational interventions have demonstrated positive effects on knowledge enhancement and anxiety reduction among primigravida women (Badr , Zauszniewski, 2017; & Kafaei-Atrian et al., 2019). Structured teaching programs during antenatal care visits have also been effective in promoting safe management practices and improving maternal confidence (Bäckström et al., 2018; & Gagnon , Sandall, 2018). Therefore, health awareness interventions delivered by nurses play a crucial role in empowering women and enhancing positive pregnancy experiences. Minor disorders of pregnancy are highly prevalent and affect many pregnant women worldwide (Einarson et al., 2018; & Wu et al., 2018). Although these conditions are generally not life-threatening, they can significantly impair daily functioning if not properly managed (Gutke et al., 2018; & Lacasse et al., 2017). Evidence indicates that many primigravida women possess inadequate knowledge and demonstrate unsatisfactory self-care practices regarding minor pregnancy discomforts (Aboushady , El-Saidy, 2018; & Othman et al., 2017). In many healthcare settings, antenatal education focuses primarily on major obstetric complications, while limited emphasis is placed on minor disorders that substantially affect maternal comfort and psychological wellbeing (Badr , Zauszniewski, 2017; & Gagnon , Sandall, 2018). The absence of structured health awareness programs may contribute to misconceptions and improper management practices among first-time mothers. Enhancing knowledge and promoting positive attitudes toward self-care can reduce discomfort, prevent complications, and improve pregnancy experiences (Badr , Zauszniewski, 2017; & Kafaei-Atrian et al., 2019). The findings of this study may support the integration of structured health awareness programs into routine antenatal care services. Improving primigravida wom-

en's knowledge and experiences and empower them to manage minor disorders effectively, reduce unnecessary anxiety, and enhance maternal satisfaction with pregnancy care.

MATERIALS AND METHODS

Study Design: Quazi- experimental study design was used.

The study conducted in Northern state of Sudan at two hospitals: Karima Teaching Hospital located in karima city, it is teaching hospital, include clinics of (Medicine, Surgery, Pediatric, ENT, Ophthalmologists and Obstetrics and Gynecology), three operation rooms, four major words (Medicine, Surgery, Pediatric and Obstetrics and Gynecology) medical laboratory, labor room , I.C.U, N.I.C.U and Hemodialysis unit. And Merowe Military Hospital located in Merowe, in northern Sudan near the city of Dongola, 350 km from Khartoum. The hospital include clinics of (Medicine, Surgery and Obstetrics and Gynecology), medical laboratory, labor room, operation room, three major words (Medicine, Surgery and Obstetrics and Gynecology) and N.I.C.U.

Study population: including all primigravida mothers in the first trimester, came to the antenatal clinics in the outpatient departments and were invited to participate in the study. From: Nov 2021- March 2022

Inclusion criteria for participants: Apparent health pregnant women in the first trimester of pregnancy (8 weeks or less). Mother in first trimester and have comorbidity were excluded.

Sampling procedure: Primigravida mothers were selected from the two hospitals according to the proportion to size (According to frequency of hospital visits by pregnant women – 70% of the participants from Karima while 35% from Merowe hospital women respectively) and women were recruited consecutively.

Sample size: was calculated using the single population proportion formula. Based on a previous study conducted in India, (Vincent et al., 2015), which reported that only 12% of primigravida mothers had adequate knowledge of self-management of minor disorders of pregnancy, P was taken as 0.12. At 95% confidence level and margin of error 6.5%, the calculated sample size was 96. After adding 10% for non-response, $(N = (1.96^2) (0.12) (0.88) / (0.065^2) = 96 + \text{add } 10\% = 9)$ the final size was 105 participants.

Dependent variables: change in the level of knowledge, attitude and self – care experience of primigravida mother regarding selected common minor disorders.

Independent variables: Teaching program on common minor disorders for primigravida mothers and sociodemographic characteristics.

Data collection tools: Data were collected using a structured interviewer-administered questionnaire developed by the researcher and consisting of three parts:

- Socio-demographic characteristics: Included age, educational level, occupation, marital status, and family type.
- Past and present obstetric history: gravidity, antenatal follow-up, and timing of the first visit.
- Assessment of selected minor pregnancy discomforts and women's perceptions and management practices using yes/no questions. Pre and post intervention .

- knowledge, self-care and Attitude scale: Comprised eight positively worded statements measured on a five-point Likert scale ranging from strongly agree to strongly disagreement. Were used pre and post interventions.

The design of the program was based on the pre-existing women's knowledge regarding common minor discomforts. An educational intervention providing information on minor disorders, their management, self-care practices, and health promotion.

The program schedule was developed by the researcher, then the groups under the study were divided into subgroups, Group1: Karima teaching Hospital, Group 2: Merowe Military Hospital. The program was implemented in a clear, concise and simple manner using Arabic language and it focused on the point to be learned, using different methods of instruction such as lectures, pictures, role play, discussion, and videotapes. Evaluation Phase, after three months post- test was obtained using the same tool of data collection.

Statistical analysis: Data were analyzed using the Statistical Package for Social Sciences (SPSS) version 21. Descriptive and inferential statistics were applied, and a p-value < 0.05 was considered statistically significant.

Ethical considerations: Ethical approval was obtained from the Faculty of Nursing Research Ethics Committee at Karari University. Administrative permission was secured from the hospital's authorities. Written informed consent was obtained from each participant prior to enrollment. Confidentiality and privacy were strictly maintained, and participants were informed of their right to withdraw at any time without penalty.

RESULTS

Table 1 show that: The respondents were married at a young age, most were housewives, and had primary or secondary education. Many lived in extended families and were in the first trimester of pregnancy. Although maternal attendance at antenatal care was high, the provision of health education was reported to be limited.

Table (1). Socio-Demographic and Obstetrics Characteristics of Respondents (N = 105)

Item	Category	Frequency	Percent (%)
Mother age (years)	< 20	38	36.2
	20–34	64	60.9
	≥ 35	3	2.9
Education level	No regular education	6	5.8
	Primary and secondary	57	54.2
	Graduate	42	40.0
Marital status	Married	105	100
Employment	Employed	9	8.6
Residence	Housewives	96	91.4
	Urban	52	49.5
Family type	Rural	53	50.5
	Nuclear family	46	43.8
	Extended family	59	56.2
Age of pregnancy / (weeks)	1–4	15	14.3
	5–8	90	85.7
Type of visits	Initial	69	65.7
	Follow – up	36	34.3
Health education provided during ANC	Yes	0	00
	No	105	100

Table 2: Showed significant improvement of participant Knowledge after receiving Health awareness program.

Table (2). Distribution of Mothers' Knowledge Regarding Minor Disorders of Pregnancy Pre and Post Training (N = 105)

Item	Key Findings (Summary)	Pre N (%)	Post N (%)	P-value
Minor disorders of pregnancy definition	Normal physiological, anatomical and psychological changes; not dangerous or requiring hospitalization	19.1	100.0	<0.001
Nausea & vomiting	Most women presented with nausea; morning sickness; exact cause unknown; due to pregnancy hormones; psychological factors may have role	49.9	96.5	<0.001
Heartburn	Awareness of heartburn; burning sensation; reflux; food-related; hormonal factors	26.7	93.5	<0.001
Frequency of micturition	Frequent urination; urgent; strong urge; bladder pressure; hormonal changes	57.2	98.3	<0.001
Constipation	Awareness of constipation; straining; hard stool; incomplete evacuation; hormonal/smooth muscle causes; low activity	17.8	90.3	<0.001
Low back pain	Lumbar pain; due to pregnancy hormone; ligament relaxation; excessive bending, walking, lifting	44.3	96.8	<0.001
Fatigue	Feeling tired; physiological/hormonal causes; more common in early pregnancy; increased metabolic requirement	33.5	97.3	<0.001
Fainting	Feeling weak; morning occurrence; sudden position changes	12.9	96.4	<0.001
Pica	Ingestion of non-nutritive substances; soil/clay; soft white stone; coffee grind; monitoring iron	50.0	97.2	<0.001
Overall Average		34.6	96.3	<0.001

Table (3). Management and Self- care of common Minor Disorders among participants Pre and Post training (N = 105)

Item	Key Findings of Mothers' Responses	Pre N (%)	Post N (%)	P-value
Nausea & vomiting	Avoid empty stomach; frequent small meals; no food before bedtime; start day with high-carbohydrate food; avoid brushing teeth immediately; eat small high-protein meals; anti-emetic drugs	21.0	96.6	<0.001
Heartburn	Avoid spicy/fatty foods; avoid heavy food before bed; upright position after eating; small frequent meals; antacids	23.4	97.3	<0.001
Frequency of micturition	Increased fluid intake; avoid caffeine; limit fluid before bed; empty bladder when urge felt; Kegel exercises	17.1	96.7	<0.001
Constipation	Drink 8–12 cups of fluid; warm milk; fruits and vegetables; walking; high-fiber foods; stool softener	17.5	96.7	<0.001
Low back-ache	Avoid prolonged standing/sitting; pillow support when lying; pillow support when sitting; rest with feet elevated; avoid lifting heavy loads; low-heeled shoes	40.6	97.7	<0.001
Fatigue	Nap/rest daily; sleep 7–8 hours; go to bed early; family support; take rest when tired	41.5	98.4	<0.001
Fainting	Frequent rest; avoid prolonged standing; avoid lying flat on the back; lying on the side; maintain proper posture	8.0	96.4	<0.001
Pica	Chewing gum; nutritional supplements; take the craved food; monitor iron and vitamins	26.4	97.9	<0.001
Average		24.4	97.2	<0.001

Table 3: Showed significant improvement of participant self-care management after receiving Health awareness program.

Table (4). Participant attitude Pre and Post receiving Health awareness program. (N=105)

Item	Choice	Pre N (%)	Post N (%)	P-value
I think that minor's disorders is not a life threatening.	Strongly agree	11 (10.5)	96 (91.4)	< 0.001
	Agree	6 (5.7)	9 (8.6)	
	Neither	0	0	
	Disagree	22 (21.0)	0	
	Strongly disagree	66 (62.9)	0	
I think that primigravida women with minor disorder did able to fulfill the responsibilities in home.	Strongly agree	6 (5.7)	90 (85.7)	< 0.001
	Agree	9 (8.6)	15 (14.3)	
	Neither	6 (5.7)	0	
	Disagree	28 (26.7)	0	
	Strongly disagree	56 (53.3)	0	
I think that minors disorders is not disease need to see doctor's always.	Strongly agree	7 (6.7)	95 (90.5)	< 0.001
	Agree	7 (6.7)	10 (9.5)	
	Neither	3 (2.9)	0	
	Disagree	28 (26.7)	0	
	Strongly disagree	60 (57.1)	0	
I think that minor's disorders is a simple problem.	Strongly agree	7 (6.7)	92 (87.6)	< 0.001
	Agree	6 (5.7)	13 (12.4)	
	Neither	7 (6.7)	0	
	Disagree	28 (26.7)	0	
	Strongly disagree	57 (54.3)	0	
I think that primigravida women have need support from family and relative when minors disorders occur.	Strongly agree	14 (13.3)	96 (91.4)	< 0.001
	Agree	33 (31.4)	9 (8.6)	
	Neither	20 (19.0)	0	
	Disagree	21 (20.0)	0	
	Strongly disagree	17 (16.2)	0	
I think that if the primigravida women have cope and awareness minors disorders, did not grounds for fear and worries	Strongly agree	22 (21.0)	95 (90.5)	< 0.001
	Agree	41 (39.0)	10 (9.5)	
	Neither	15 (14.3)	0	
	Disagree	17 (16.2)	0	
	Strongly disagree	10 (9.5)	0	
I think that minors disorders can relief by life style change (Diet and Exercise).	Strongly agree	34 (32.4)	100 (95.2)	< 0.001
	Agree	40 (38.1)	5 (4.8)	
	Neither	10 (9.5)	0	
	Disagree	11 (10.5)	0	
	Strongly disagree	10 (9.5)	0	
I think that health promotion and counseling regarding minor disorders for primigravida mother have important.	Strongly agree	31 (29.5)	102 (97.1)	< 0.001
	Agree	49 (46.9)	3 (2.9)	
	Neither	6 (5.7)	0	
	Disagree	11 (10.5)	0	
	Strongly disagree	8 (7.6)	0	
Average		38.4	100	< 0.001

Table 4: Showed significant improvement of participant attitude after receiving Health awareness program.

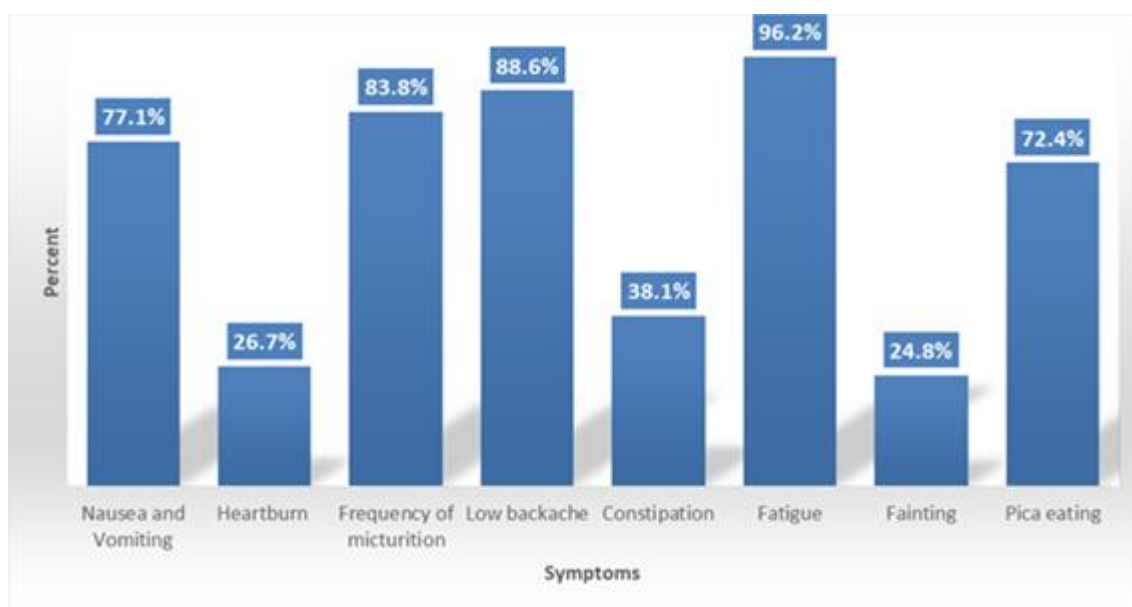


Figure (1). Distribution of the Studied Sample according to experience of primigravida minor disorder occurring during current pregnancy

DISCUSSION

The present study evaluated socio-demographic characteristics, the occurrence of minor pregnancy discomforts, and the impact of a structured health awareness program on primigravida women's knowledge, self-care practices and attitudes. Consistent with prior research, many participants were young (20–34 years), housewives, married, and living in extended family structures, reflecting typical social and cultural patterns in Sudanese and similar contexts (Aldossary, et al., 2018; & Taha, 2022). High antenatal care (ANC) attendance in this study suggests that women are accessing formal health services early in pregnancy, yet inadequate delivery of health education during these visits as reported by the women highlights significant missed opportunities within routine ANC services. Similar gaps in health education and counseling have been documented in Sudanese hospital settings, where pregnant women often receive limited structured information about normal pregnancy changes (Taha, 2022).

Occurrence of Minor Disorders: Common minor pregnancy discomforts in this study such as fatigue, low back pain, frequent micturition, nausea/vomiting, pica and constipation aligns with global and regional studies. These disorders were experienced by large proportions of the sample (Figure 1), consistent with evidence from both Egyptian and Indian cohorts where maternal discomforts in early gestation were reported as near-universal (Rosy, 2014; & Heitmann et al., 2017). Physiological changes including hormonal fluctuations, increased metabolic demand, and biomechanical strain are widely recognized determinants of these symptoms (Lacasse, et al., 2009). In the Sudanese context, moreover findings were reported by (Taha, 2022), who documented high rates of constipation and associated discomfort among pregnant women at a university hospital in Khartoum, demonstrating how minor disorders can significantly affect maternal perception of well-being. Additionally, in other stated that untreated or poorly managed discomforts may extend beyond physical symptoms to psychological distress and reduced daily functioning, highlighting the importance of anticipatory guidance (Smith et al., 2021).

Knowledge Before and After Intervention: At baseline, overall participant knowledge about

minor pregnancy discomforts was low (34.6%), mirroring earlier research in both Gulf and African settings, where primigravida women often underestimate the normalcy and etiology of minor discomforts (Kaur et al., 2017; & Aldossary et al., 2018). Lack of clear understanding about physiological causes can fuel anxiety, unnecessary clinical visits, and misconceptions about danger signs. In Sudan, (Taha, 2022), in the same way found that pregnant women's perception of constipation often conflated normal discomfort with pathological conditions, underscoring a need for clearer education. Following the health awareness intervention, knowledge levels increased significantly to 96.3% ($p < 0.001$). This dramatic improvement supports the effectiveness of structured health education programs, consistent with findings from (Hashem et al., 2020; & Elzeblawy Hassan et al., 2020), who reported that targeted teaching significantly enhanced primigravida women's awareness of normal versus concerning pregnancy symptoms (Chavan, 2020), likewise demonstrated that planned teaching significantly improved knowledge of minor ailments among primigravida women in a selected hospital, further supporting the utility of structured educational programs across different cultural contexts. Increased maternal knowledge is critical for promoting self-efficacy and reducing reliance on major health facilities for normal discomforts, especially in low-resource settings where health care systems may be overburdened.

Improvement in Self-Care Practices: Baseline self-care practices were notably low (24.4%), indicating a gap in participants' ability to manage symptoms effectively before training. This pattern is in line with findings by (Ayoub et al., 2018) who observed insufficient self-management skills among pregnant women facing common discomforts. In this study after receiving the structured program, self-care practices increased markedly to 97.2% ($p < 0.001$). The intervention's focus on practical methods (such as frequent small meals for nausea, adequate hydration for urinary symptoms, and ergonomic advice for back pain) reflects evidence-based recommendations in obstetric nursing literature (Perry et al., 2014). Empowering women with self-care tools contributes not only to symptom relief but also enhances autonomy and confidence in managing pregnancy changes. Research shows that women who engage in self-management experience lower symptom severity and feel more in control of their pregnancy journey (Johnson, Tanner, 2020). This finding is in line with (Sonwane, 2020), who reported improvements in maternal ability to manage minor discomforts after educational interventions. (Chavan, 2020), likewise observed significant enhancement in self-care practices among primigravida women following a planned teaching program. In regions like Sudan, improved self-care capabilities can reduce unnecessary medical visits and improve quality of life.

Attitudinal Changes: Before intervention, only 38.4% of participants held positive attitudes toward minor discomforts, often viewing them as burdensome or signs of abnormality. This reflects a common misconception in settings where pregnancy is surrounded by cultural beliefs and fear of complications as stated by (Rosy, 2014). Post-intervention positive attitudes increased to 100% ($p < 0.001$), indicating that structured education can significantly shift perceptions toward understanding normal physiological changes. Positive attitudes are essential because they influence behaviors such as adherence to self-care practices and appropriate help-seeking when necessary. (Smith et al., 2021) reported that educational support not only reduced fear but also improved coping attitudes among primigravida women, emphasizing the psychosocial benefits of prenatal education. In the same way, (Cunningham et al. 2018) highlighted that women with adaptive attitudes are more likely to implement recommended self-care behaviors and less likely to misinterpret normal symptoms as pathological. In addition, (El-Refaey et al., 2020) and (Sonwane, 2020) further reported attitudinal improvements post-intervention, with reduced anxiety and better coping.

CONCLUSION

This study revealed that minor pregnancy discomforts are highly common among primigravida women, with symptoms such as fatigue, low back pain, frequent urination, nausea and vomiting, pica, and constipation being most frequently reported. Before the intervention, participants had limited knowledge, poor self-care practices, and mostly negative or neutral attitudes toward these minor ailments, highlighting gaps in routine antenatal education.

After implementing a structured health awareness program, there was a marked improvement in participants' knowledge, self-care practices, and positive attitudes toward minor pregnancy discomforts. These results demonstrate that structured educational interventions are highly effective in increasing awareness, empowering women to manage symptoms, and enhancing a more positive perception of normal physiological changes during pregnancy.

ETHICS: Ethical approval was obtained from the Faculty of Nursing Research Ethics Committee at Karary University. Administrative permission was secured from the hospital's authorities. Confidentiality and privacy were strictly maintained, and participants were informed of their right to withdraw at any time without penalty.

Duality of interest: The authors declare that there are no potential conflicts of interest related to this work.

Author contributions: contribution was equal between authors

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