Effectiveness of an Educational Package in Improving the Lifestyle of Primiparous Mothers during the Postpartum Period

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Abstract

Background : The postpartum period is a vulnerable phase to primiparous mothers, marked by significant physical, psychological, and social adjustments. However, it remains one of the most neglected phases in terms of health education and support. The purpose of this study was to assess how an educational package affected the postpartum lifestyle of primiparous mothers. **Setting:** The Women's Health Hospital's Emergency Room and Postpartum Department served as the study's locations., Assiut University, Egypt, which provides maternal care services to a large population from both urban and rural areas. **Methods:** A quasi-experimental design (pretest/posttest) was conducted involving 110 primiparous women recruited from the study setting. Participants were randomly allocated to the intervention and control groups. The intervention group was given a structured educational package covering key lifestyle components, while the control group was given standard postpartum care. Data was collected using the Health Promotion Lifestyle Profile-II (HPLP-II) before and after the intervention. **Results:** Following the intervention, the results demonstrated statistically significant improvements in all aspects of the intervention group's lifestyle, including interpersonal relationships, physical activity, spiritual development, and nutrition. Furthermore, there was a significant correlation between lifestyle scores and occupation, gravidity, and neonatal gender. **Conclusion:** the educational package significantly enhanced the lifestyle of primiparous mothers during the postpartum phase, with improvements across all HPLP-II dimensions. Structured postpartum education should be integrated into routine maternal healthcare services to support first-time mothers in achieving optimal health outcomes.

Key Words: Educational package, lifestyle, primiparous mothers, postpartum period.

Introduction:

The puerperium, commonly known as the postpartum period or the "fourth trimester," spans from the delivery of the placenta to approximately six to eight weeks after childbirth. This stage is essential for maternal recuperation, has lasting effects on the mother's health and well-being, and provides the basis for the infant's early development **(Cheng et al., 2023).**

Effective education provides childbearing mothers with the skills, information, and self-care techniques they need to meet their health needs, encourage wellness, fend off illness, recover their health, stay out of the hospital, and get help when needed. Perineal care, comfort measures, infection prevention, fundus checking, the significance of early immobilization after labor, and appropriate technique and early initiation of breastfeeding are among the health instructions that the mother will need as part of postpartum care. **(Ari et al., 2019).**

Mothers should maintain a healthy lifestyle during the postpartum phase. It encompassed The degree of physical activity, nutritional status, and health-related behaviors of the mother are largely determined by her knowledge of healthy eating and health-related issues, the educational attainment of both herself and her spouse, the family's income, the values they've picked up from their mothers and mothers-in-law, as well as from books, periodicals, and friends, family, and so on. **(Khodabandeh et al., 2017).**

The objective of care is to enhance the physical well-being of both mother and infant within the post-natal period, while fostering the developing bond between the baby and their parents and relatives. Furthermore, it may facilitate the advancement of infant feeding skills and bolster the mother's confidence

and understanding regarding her own health and that of her baby. **(Beraki et al., 2020).**

As the primary caregivers for their newborns, mothers should receive adequate training regarding the health status of both themselves and their children. This includes teaching them about the importance of feeding, hygiene, vaccinations, and recognizing symptoms of illness. Additionally, they should be aware of the care they need for their own health, which can help lower the morbidity and mortality rate for mothers. **(Finlayson, 2020).**

Although the postnatal phase is recognized as a critical stage for maternal recovery and adaptation to new responsibilities, many primiparous mothers lack adequate knowledge and support to adopt healthy lifestyle practices during this time. Previous research has largely focused on medical or physiological outcomes of postpartum care, with limited attention given to structured educational interventions targeting lifestyle modification. Furthermore, most existing studies emphasize multiparous mothers or general maternal populations, leaving a gap in evidence regarding the specific needs of primiparous women. Therefore, there is a need to evaluate the effectiveness of tailored educational packages on lifestyle practices to promote better health outcomes for both mother and newborn.

The role of nursing in the postpartum period immediately following childbirth is distinct due to the fact that parturition is one of the most vulnerable periods in a mother's life. During this period, nurses are required to focus on serving, protecting, uplifting, and motivating women. This includes monitoring the health of both mother and infant to ensure the child's development and the mother's recovery. **(Said etal.,2022)**

Significance of study:

Postpartum period is a very important stage of the mother's life, since most maternal and neonatal deaths take place during this period **(Ahmed et al., 2023).**

About two-thirds of maternal deaths in low- and middle-income countries take place during the postpartum phase due to insufficient postnatal care. In Egypt, the maternal mortality rate during the postpartum period was reported as 17 per 100,000 live births in 2020. Notably, the country has witnessed a steady decline in maternal mortality, decreasing from 76 per 100,000 in 2001 to 17 per 100,000 in 2020 **(WHO, 2023).**

This study is significant because it addresses the crucial yet often overlooked needs of primiparous mothers during the postpartum phase. By evaluating the effectiveness of a structured lifestyle educational package, the findings will provide evidence-based guidance to improve maternal recovery, promote healthy behaviors, and enhance overall well-being for first-time mothers. Moreover, the study contributes to filling the gap in postpartum care research by focusing on lifestyle interventions rather than solely medical management. The results may also inform nursing practice, maternal health policies, and educational programs aimed at supporting both mothers and newborns in the critical “fourth trimester

Health education programs play a vital role in improving postpartum outcomes by enhancing women's knowledge and empowering them—especially primiparous mothers—to care for themselves effectively. Educational support increases women's confidence in managing postpartum changes and encourages timely medical consultations, which are essential for maintaining health and promoting a speedy recovery **(Sendas & Freitas, 2024).**

Aim of the study:

The purpose of this study was to assess how an educational package affected the postpartum lifestyle of primiparous mothers.

Research Hypothesis:

H1 Compared to those who do not receive the package, primiparous mothers who receive the structured educational package will show notable improvements in their lifestyle behaviors during the postpartum phase

H_0 (Null Hypothesis): There will be no significant difference in lifestyle behaviors between primiparous mothers who receive the educational package and those who do not during the postpartum period

Subjects and methods

Study design:

A quasi-experimental design (pretest/posttest) was conducted to determine the effect of educational package on lifestyle of primiparous mothers during postpartum phase.

Setting:

The study will take place at Women's Health Hospital, Assist University, specifically in the emergency and postpartum departments. It was made up of three rooms: an initial assessment room (with three offices, two for doctors and one for nurses), an examination room (with four examination beds), and an ultrasonography room. There are two diploma nurses. This setting was chosen because of the hospital's role as a central hub for pregnant women from various governorates across upper Egypt, which provides free services in both urban and rural regions.

Subjects:

Type: a quasi-experimental design (pretest/post test).

Sample size:

The sample for this study, which involved 110 postpartum women, was determined using the following formula:

$$n = [DEFF*Np(1-p) \;|/\; [(d^2//Z^2_{1-\alpha/2} *(N-1) + P*(1-p)]$$

DEFF (Design effect) = 1

N (population) = 1000000

p (Hypothesized %) = 28.4%+/-5

d (tolerated margin of error) = 0.05

Z (level of confidence) = 1.96

α (Alpha)= 0.05

Inclusion criteria:

- Women who delivered normally and cesarean.

-Singelton birth, having a healthy and full-term newborn.

-Willingness to come back to the hospital at the end of 6 weeks.

Exclusion criteria:

- women who declined to take part in the study; women with any health issues were not allowed to participate.

Administrative design:

The continuation of the study was formally approved by the Ethical Committee of the Assiut University Faculty of Nursing and the director of Women's Health Hospital.

Study instruments

Tool I: Questionnaire for Structured Interviews

The researchers created this tool following a review of pertinent national and international literature. **(Mwilike et al., 2018).**

It includes questions regarding

1. Sociodemographic characteristics such as years of marriage, occupation, education, age, and place of residence
2. History of obstetrics including gravidity, history of abortion, mode of delivery, and neonatal gender

Tool II: Walker, Sechrist, and Pender (1987) provided the Health-Promoting Lifestyle (HPLP-II), which Walker and Hill-Polerecky (1996) later updated.

and further validated in different populations (Kuan et al., 2019), which includes **50 items** across **six subscales**:

1. **Health Responsibility** – awareness and accountability for personal health.

2. **Physical Activity** – regular exercise and physical fitness behaviors.
3. **Nutrition** – eating habits that support health.
4. **Spiritual Growth** – sense of purpose, personal development, and inner fulfillment.
5. **Interpersonal Relations** – maintaining supportive and healthy relationships.
6. **Stress Management** – strategies to cope with and reduce stress.

Each item is evaluated using a 4-point Likert scale (1 being never, and 4 being regularly), with higher scores denoting healthier lifestyles. The mean of the responses was used to determine the final score, which was then interpreted as follows: Poor: less than 50% Fair: 50–less than 75 percent Good: ≥ 75%

The Pender's Health Promotion Model serves as the foundation for HPLP-II, which has been extensively translated and validated in numerous languages. Cronbach's Alpha coefficient, which demonstrated strong internal consistency, was used to validate the study's reliability. ($\alpha = 0.979$).

Use of this tool aligns with the Guidelines from the World Health Organization for encouraging self-care, exercise, and a healthy diet during the postpartum phase (WHO, 2020).

Validity and Reliability of Tools: The educational package was examined and validated by three obstetrics and gynecology nursing specialists for completeness, appropriateness, and readability. They were changed in response to the panel's evaluation of the item sequence, scoring accuracy, content appropriateness, and sentence clarity. Reliability was evaluated using Cronbach's Alpha coefficient test, which relieved that the items in each tool were comparatively uniform. The tools' reliability was demonstrated by their scores of 0.979

for the Health Promoting Lifestyle Profile II and 0.750 for sociodemographic characteristics.

Pilot study:

Ten postpartum women, or roughly 10% of the entire sample under study, participated in a pilot study to assess the feasibility, applicability, and clarity of the data collection instruments employed in the study. Additionally, to determine the tools' applicability and content validity and to estimate the precise amount of time required to answer the questions. Every participant was given a thorough explanation of the study's objectives. Since the data collection tool was left unchanged, the mothers who participated in the pilot were added to the main study sample.

Ethical Considerations:

Study obtained all required ethical approvals from faculty of Nursing, Assiut University prior to data collection (IRB No1120230706. 27-11-2023) in addition to the hospital approval.

The chosen study setting formally granted permission for the study to be conducted. Before using the instruments, the researcher gave a brief explanation of the study's purpose and significance in order to win the trust and confidence of the women. Women gave their oral consent to participate in the study, and confidentiality was guaranteed. The women were given the assurance that all information would be used exclusively for research purposes, and the data were gathered and handled in a confidential manner, with no personal information shared. The women could leave the study at any moment. Participants in the study did not face any risks to their physical, social, or mental health.

Field works

The research was conducted over a six-month period, from December 2023 to May 2024. The researcher spent three days a week (Sunday, Tuesday, and Thursday) from 9 a.m.

to 3 p.m. at the previously mentioned location until the predefined sample size was reached.

Preparatory phase: Reviewing recent and relevant literature was part of the study's initial phase. Additionally, theoretical understanding of different study facets through use of books, articles, periodicals, magazines, and the internet to create data collection instruments

Assessment phase: Women were interviewed as part of this phase in order to gather baseline data. In order to ensure adherence to the chosen interventions, the researcher greeted each woman at the start of the interview, introduced herself, and explained the purpose of the study as well as the times and frequency of the sessions. Women gave the researcher their verbal consent to take part in the study. The investigator dispersed, **A structured Interview Questionnaire** to gather sociodemographic information and personal data. It took about ten to fifteen minutes on average to complete the questionnaire. The researcher then gave out the Health Promoting Lifestyle Profile II questionnaire (Pretest) to gather information about women's lifestyles. The questionnaire took an average of ten to fifteen minutes to complete.

Three days a week, from 9 to 12 p.m., the interview process was conducted. Every woman was interviewed separately. Nine to fifteen women (three to five women per day) were interviewed each week. The women's average time taken. Every woman received assurances that the data they provided would be kept private and utilized exclusively for the study.

Planning Phase: The study carried out to assess the impact of an educational package on the lifestyle of first-time mothers during the postpartum phase. (study group) were divided into five groups, with each group comprising 14-15

mothers. The researcher and participants visited the data collection location 3 times every week (Sunday, Tuesday, and Thursday). The educational program spanned 4 weeks for each group. The program consisted of four sessions, each designed to deliver targeted information on healthy lifestyles for postpartum women through 3 primary components: diet, exercise, and stress management, utilizing a booklet. The actual duration of each session was forty to sixty minutes. These sessions took place in the waiting area of the Obstetric and Gynecological Outpatient Clinic, Women's Health Hospital, Assuit University. The phone number was collected from women to enable communication if they missed their scheduled program

Implementation Phase

- The investigator monitored women in the study group. (110 mothers) participated in the educational program, split evenly into five groups, across four sessions. At the start of every session, the researchers provided a recap of the last session and outlined the aim of the current one, utilizing straightforward Arabic to match the women's comprehension level

Initial session: focused on nutrition included employing various techniques such as examples for daily eating, visual support "depicted images", and dialogue. Women advised to adopt healthy eating practices (foods high in Omega-3, along with fruits and vegetables that exhibit anti-inflammatory, antioxidant, and anti-estrogen properties)

The second session: concentrated on exercises that were illustrated by various types performed by women, such as walking, jogging, cycling, and aerobics. In this instructional session, different approaches like role play, demonstration, and re-demonstration were utilized.

Third session: included stress

management will consist of instruction for, breathing exercises. Breathing exercises are simple, safe, and effective techniques that help new mothers after childbirth to reduce stress and anxiety, improve blood circulation, strengthen the diaphragm and abdominal muscles, increase relaxation and energy levels. Sit or lie down in a comfortable position. Place one hand on your abdomen. Inhale slowly through your nose, allowing your abdomen to rise. Hold your breath for 2 seconds. Exhale slowly through your mouth as if you are whistling. Repeat 5–10 times At the conclusion of the sessions, the researcher handed the educational booklet to the women.

Pause stage:

The investigator reached out to mothers in the intervention group via phone to confirm that they adhered to the guidelines and implemented the care provided effectively. The researcher offered any necessary assistance or support to mothers during the break.

Women were monitored by phone to prevent their dropout from the study, but no care was given to them during breaks to avoid bias in the study.

The Evaluation stage:

Using the health-Promoting Lifestyle Profile II questionnaire, a posttest was administered two months after the program's implementation to gauge how the educational package affected first-time mothers' lifestyles. Women in the control group were given booklets by the researcher. In order to evaluate how well the program was implemented, the researcher finally examined the pretest and posttest results of both groups.

Statistical Analysis:

The statistical package for social sciences (SPSS), version 26, was used to code, organize, categorize, tabulate, and analyze the collected data. Data were displayed as numbers, percentages, means, and

standard deviations in tables and figures, and a relationship between the variables was assessed using the chi-square test. Statistical significance was indicated by a P-value of less than 0.05**.**

Results:

Tabel (1): This table represent women's characteristics, it observed that 81.8% in age group more than 20 years, more than fifty percent of them (63.6%) from rural area, as regarded to the level of education higher than fifty percent of them (55.5%) have a secondary education and 70.9% were housewife, most of women were married with average marriage duration 1.78±0.96148.

Table (2): The present table represents women's obstetric history. It was show that, 85.5% of women were primigravida and had no history of abortion and more than half of them were delivered by CS.

Table (3): the current table illustrated women's distribution according to their Spiritual Growth dimension in pre and post intervention, it was observed that was a statistical significant relation between all domains

Table (4): the present table represents distribution of women according to their Interpersonal Relations dimension in pre and post intervention, it was observed that an improvement in all aspect of domains between women's condition in pre and post intervention with statistical significant relation.

Table (5): show distribution of women according to their Nutrition dimension in pre and post intervention, it was observed an improvement in women's nutrition in post intervention than in before intervention with a significant statistically relation.

Table (6): The present table reflects distribution of women according to their Physical Activity dimension in pre and post intervention, it is

represent an improvement in women's physical activity after appalling a program for life style modification.

Table (7): Shows a marked improvement in mothers' health responsibility after the intervention, with more routine reporting of symptoms, seeking health information, and consulting professionals. These changes were highly significant ($p \leq 0.001$), confirming the intervention's effectiveness

Table (8): Revealed highly significant improvements in mothers' stress management practices, with notable differences observed between the pre- and post-intervention assessments ($p \leq 0.001$)

Table (9): The present table shows the relation between mean and SD of health promotion lifestyle profile dimensions in pre and post intervention, which reflect an improvement in women's life style during postpartum period in relation to all domain elements.

Figure (1) This table reflect distribution of the studied women according to comprehensive health enhancement lifestyle profile-II before and after intervention, more than three quarter of women (78.2%/) with a good level of promote their health style after intervention.

Table (10): This table shows the study between the total health promotion lifestyle profile-II prior to intervention and personal characteristics prior to intervention. Only women's occupation was found to have a statistically significant relationship with total health styles.

Table (11): As regard to relation between total health promotion lifestyle profile-II before intervention and obstetric history before intervention. It was clarified that there is a statistical relation between number of gravidity and neonatal gender only.

Table (1): Distribution of the studied mothers based on their personal characteristics (n=110)

Personal characteristics	N	%
Age group/ years: ≤20 years	20	18.2
>20 years	90	81.8
Age (mean ± Years Old)	**23.07±2.86**	
Residence: Urban	40	36.4
Rural	70	63.6
Educational level: read & not read	2	1.8
Preparatory	7	6.4
Secondary	61	55.5
Bachelor	40	36.3
Occupation: Housewife	78	70.9
Employees	32	29.1
Years of marriage: ≤2 years	93	84.5
>2 years	17	15.5
Years of marriage (mean±SD)	**1.78±0.96148**	

Table (2): Distribution of the studied mothers based on their obstetric history (n=110)

The Obstetric history	N	%
Gravidity: Primigravida	94	85.5
Multigravida	16	14.5
History of abortion: Yes	16	14.5
No	94	85.5
Mode of delivery: Normal labor	42	38.2
Cesarean section	68	61.8
Gender of baby: Male	44	40.0
Female	66	60.0

Table (3): Distribution of the studied mothers based on Spiritual Growth dimension in pre and post intervention (n=110)

Spiritual Growth dimension Ranged from (9-36)	Pre intervention				Post intervention				p-value
	Never	Sometimes	Often	Routinely	Never	Sometimes	Often	Routinely	
	N(%)	N(%)	N(%)	N(%)	N(%)	N(%)	N(%)	N(%)	
I feel like I'm developing and changing for the better.	37(33.6)	52(47.3)	14(12.7)	7(6.4)	5(4.5)	25(22.8)	13(11.8)	67(60.9)	**0.001****
Believe that my life has purpose.	39(35.5)	36(32.7)	31(28.2)	4(3.6)	4(3.6)	6(5.5)	31(28.2)	69(62.7)	**0.001****
Look forward to the future	43(39.1)	41(37.2)	20(18.2)	6(5.5)	5(4.5)	12(10.9)	20(18.2)	73(66.4)	**0.001****
I Feel content and at peace with myself.	38(34.6)	55(50.0)	15(13.6)	2(1.8)	5(4.5)	37(33.6)	16(14.5)	52(47.4)	**0.001****
I'm Work toward long-term goals in my life.	49(44.6)	35(31.8)	26(23.6)	0(0.0)	5(4.5)	8(7.3)	25(22.7)	72(65.5)	**0.001****
Find each day interesting and challenging.	49(44.5)	39(35.5)	20(18.2)	2(1.8)	8(7.3)	26(23.6)	19(17.3)	57(51.8)	**0.001****
Aware of what is important to me in life.	44(40.0)	47(42.7)	17(15.5)	2(1.8)	3(2.7)	32(29.1)	16(14.5)	59(53.7)	**0.001****
I Feel connected with some force greater than myself.	53(48.2)	36(32.7)	19(17.3)	2(1.8)	7(6.4)	18(16.4)	18(16.4)	67(60.8)	**0.001****
I'm Expose myself to new experiences and challenges.	59(53.6)	40(36.4)	11(10.0)	0(0.0)	5(4.5)	25(22.7)	10(9.1)	70(63.7)	**0.001****

McNemar-test

(**) Extremely statistical significant difference

Table (4): Distribution of the studied mothers based on Interpersonal Relations dimension in pre and post intervention (n=110)

Interpersonal Relations dimension (50)	Pre intervention				Post intervention				p-value
	Never	Sometimes	Often	Routinely	Never	Sometimes	Often	Routinely	
	N(%)	N(%)	N(%)	N(%)	N(%)	N(%)	N(%)	N(%)	
Discuss my problems and concerns with people close to me.	30(27.3)	60(54.5)	17(15.5)	3(2.7)	13(11.8)	59(53.7)	15(13.6)	23(20.9)	**0.001****
Praise other people easily for their achievements.	32(29.1)	39(35.5)	34(30.9)	5(4.5)	15(13.6)	36(32.7)	32(29.1)	27(24.6)	**0.001****
Maintain meaningful and fulfilling relationships with others.	36(32.7)	37(33.6)	20(18.2)	17(15.5)	16(14.5)	31(28.2)	23(20.9)	40(36.4)	**0.001****
Spend time with close friends.	42(38.2)	35(31.8)	26(23.6)	7(6.4)	11(10.0)	38(34.5)	30(27.3)	31(28.2)	**0.001****
Find it easy to show concern, love and warmth to others.	42(38.2)	41(37.3)	24(21.8)	3(2.7)	7(6.4)	30(27.3)	32(29.1	41(37.2)	**0.001****
Touch and touched by people I care about.	46(41.8)	37(33.6)	20(18.2)	7(6.4)	13(11.8)	23(20.9)	27(24.6)	47(42.7)	**0.001****
I'm Find ways to meet my needs for intimacy.	46(41.8)	47(42.7)	17(15.5)	0(0.0)	10(9.1)	40(36.4)	28(25.4)	32(29.1)	**0.001****
I Get support from a network of caring people.	44(40.0)	43(39.1)	21(19.1)	2(1.8)	6(5.5)	33(30.0)	31(28.1)	40(36.4)	**0.001****
Settle conflicts with others through discussion and compromise.	50(45.5)	36(32.7)	21(19.1)	3(2.7)	13(11.8)	25(22.7)	19(17.3)	53(48.2)	**0.001****

McNemar-test (**) Highly statistical significant difference

Table (5): Distribution of the studied mother based on Nutrition dimension in pre and post intervention (n=110)

Nutrition dimension (36)	Pre intervention				Post intervention				p-value
	Never	Sometimes	Often	Routinely	Never	Sometimes	Often	Routinely	
	N(%)	N(%)	N(%)	N(%)	N(%)	N(%)	N(%)	N(%)	
I Choose a diet low in fat, saturated fat, and cholesterol.	35(31.8)	53(48.2)	17(15.5)	5(4.5)	7(6.4)	21(19.1)	16(14.5)	66(60.0)	**0.001****
Limited use of sugars and food containing sugar (sweets).	38(34.5)	51(46.4)	18(16.4)	3(2.7)	3(2.7)	28(25.5)	18(16.3)	61(55.5)	**0.001****
Consume six to eleven portions of bread, cereal, rice, and pasta daily	26(23.7)	33(30.0)	35(31.8)	16(14.5)	4(3.6)	8(7.3)	33(30.0)	65(59.1)	**0.001****
I'm Eat 2-4 servings of fruit each day.	42(38.2)	20(18.2)	37(33.6)	11(10.0)	6(5.5)	9(8.2)	32(29.1)	63(57.2)	**0.001****
Eat three to five servings of vegetables each day.	38(34.5)	39(35.5)	24(21.8)	9(8.2)	4(3.6)	18(16.4)	22(20.0)	66(60.0)	**0.001****
I Eat 2-3 servings of milk, yogurt or cheese each day.	42(38.2)	35(31.8)	23(20.9)	10(9.1)	6(5.5)	6(5.5)	22(20.0)	76(69.0)	**0.001****
Eat only two - three servings from the meat, poultry, fish, dried beans, eggs, and nuts group each day.	34(30.9)	46(41.9)	27(24.5)	3(2.7)	3(2.7)	46(41.9)	24(21.8)	37(33.6)	**0.001****
Read labels to identify nutrients, fats, and sodium content in packaged food.	77(70.0)	25(22.7)	6(5.5)	2(1.8)	9(8.2)	18(16.3)	9(8.2)	74(67.3)	**0.001****
Eat breakfast.	30(27.3)	27(24.5)	24(21.8)	29(26.4)	6(5.5)	20(18.2)	16(14.5)	68(61.8)	**0.001****

McNemar-test

(**) Extremely statistical significance difference

Table (6): Distribution of the studied women based on their Physical Activity dimension (pre and post intervention) (n=110)

Physical Activity dimension (32)	Pre intervention				Post intervention				p-value
	Never	Sometimes	Often	Routinely	Never	Sometimes	Often	Routinely	
	N(%)	N(%)	N(%)	N(%)	N(%)	N(%)	N(%)	N(%)	
Follow a planned exercise program.	64(58.2)	36(32.7)	10(9.1)	0(0.0)	3(2.7)	7(6.4)	10(9.1)	90(81.8)	**0.001****
At least three times a week, engage in vigorous exercise for 20 minutes or longer, such as brisk walking, cycling, aerobic dancing, or using a stair climber.	52(47.4)	47(42.6)	10(9.1)	1(0.9)	5(4.5)	22(20.0)	9(8.2)	74(67.3)	**0.001****
Engage in mild to moderate exercise five or more times a week, such as walking for 30 to 40 minutes at a time	64(58.2)	39(35.5)	5(4.5)	2(1.8)	4(3.6)	14(12.7)	6(5.5)	86(78.2)	**0.001****
Participate in recreational physical activities during your free time, such as dancing, swimming, and cycling.	94(85.5)	14(12.7)	2(1.8)	0(0.0)	2(1.8)	6(5.5)	3(2.7)	99(90.0)	**0.001****
Do stretches at least three times every week.	92(83.7)	14(12.7)	3(2.7)	1(1.9)	19(17.3)	12(10.9)	4(3.6)	75(68.2)	**0.001****
Exercise during daily activities (e.g., walking during lunch, parking a car far from your destination, taking the stairs rather than the elevator, etc.).	58(52.7)	44(40.0)	8(7.3)	0(0.0)	15(13.6)	26(23.6)	6(5.5)	63(57.3)	**0.001****
Check pulse rate when exercising.	79(71.8)	18(16.4)	13(11.8)	0(0.0)	7(6.4)	8(7.3)	6(5.5)	89(80.8)	**0.001****
Attain my desired heart rate while working out	77(70.0)	20(18.2)	13(11.8)	0(0.0)	0(0.0)	6(5.5)	14(12.7)	90(81.8)	**0.001****

McNemar-test

(**) Extremely statistically significance difference

Table (7): Distribution of the studied mothers based on their Health Responsibility dimension (pre/ post intervention) (n=110)

Health Responsibility dimension (9-36)	Pre intervention				Post intervention				p-value
	Never	Sometimes	Often	Routinely	Never	Sometimes	Often	Routinely	
	N(%)	N(%)	N(%)	N(%)	N(%)	N(%)	N(%)	N(%)	
Reporting any unusual signs or symptoms to a physician or other health professional	34(30.9)	40(36.4)	25(22.7)	11(10.0)	4(3.6)	24(21.8)	22(20.0)	60(54.6)	**0.001****
I'm Read or watch TV programs about improving health	43(39.1)	49(44.6)	15(13.6)	3(2.7)	7(6.4)	30(27.3)	13(11.8)	60(54.5)	**0.001****
Ask a health professionals in order to understand their instructions.	38(34.5)	31(28.2)	24(21.8)	17(15.5)	3(2.7)	10(9.1)	24(21.8)	73(66.4)	**0.001****
When I disagree with my healthcare provider's advice, I seek a second opinion.	48(43.6)	40(36.4)	17(15.5)	5(4.5)	8(7.3)	12(10.9)	13(11.8)	77(70.0)	**0.001****
Talk to medical professionals about my health issues.	42(38.3)	40(36.4)	18(16.4)	10(9.1)	4(3.6)	16(14.5)	16(14.5)	74(67.4)	**0.001****
Check my body for physical changes or warning indications at least once a month.	47(42.8)	35(31.8)	23(20.9)	5(4.5)	4(3.6)	11(10.0)	21(19.1)	74(67.3)	**0.001****
Ask for information from health professionals about how to take good care of myself.	34(30.9)	41(37.3)	25(22.7)	10(9.1)	4(3.6)	27(24.5)	22(20.0)	57(51.9)	**0.001****
Participate in personal health care education programs.	65(59.1)	36(32.7)	6(5.5)	3(2.7)	11(10.0)	24(21.8)	3(2.7)	72(65.5)	**0.001****
Seek guidance or counseling when necessary.	38(34.5)	40(36.4)	28(25.5)	4(3.6)	6(5.5)	7(6.4)	26(23.6)	71(64.5)	**0.001****

McNemar-test

(**) Extremely statistically significance difference

Table (8): Distribution of the studied women based on their Stress Management dimension in pre and post intervention (n=110)

Stress Management dimension (8-32)	Pre intervention				Post intervention				p-value
	Never	Sometimes	Often	Routinely	Never	Sometimes	Often	Routinely	
	N(%)	N(%)	N(%)	N(%)	N(%)	N(%)	N(%)	N(%)	
Get enough sleep.	33(30.0)	38(34.6)	27(24.5)	12(10.9)	3(2.7)	10(9.1)	25(22.7)	72(65.5)	**0.001****
I Take some time for relaxation per day.	43(39.1)	46(41.8)	17(15.5)	4(3.6)	4(3.6)	8(7.3)	14(12.7)	84(76.4)	**0.001****
I have to accept the things in my life that I cannot alter	43(39.2)	36(32.7)	27(24.5)	4(3.6)	6(5.5)	12(10.9)	23(20.9)	69(62.7)	**0.001****
Concentrate on pleasant thoughts at bedtime.	52(47.3)	41(37.3)	14(12.7)	3(2.7)	3(2.7)	22(20.0)	12(10.9)	73(66.4)	**0.001****
Use targeted techniques to manage my stress.	49(44.6)	45(40.9)	14(12.7)	2(1.8)	8(7.3)	22(20.0)	12(10.9)	68(61.8)	**0.001****
Balance time between work and play.	44(40.0)	40(36.4)	23(20.9)	3(2.7)	8(7.3)	25(22.7)	22(20.0)	55(50.0)	**0.001****
Practice relaxation or meditation for 15-20 minutes daily.	67(60.9)	32(29.1)	11(10.0)	0(0.0)	8(7.3)	10(9.1)	10(9.1)	82(74.5)	**0.001****
Pace myself to prevent tiredness.	47(42.8)	36(32.7)	24(21.8)	3(2.7)	5(4.5)	12(10.9)	21(19.1)	72(65.5)	**0.001****

McNemar-test

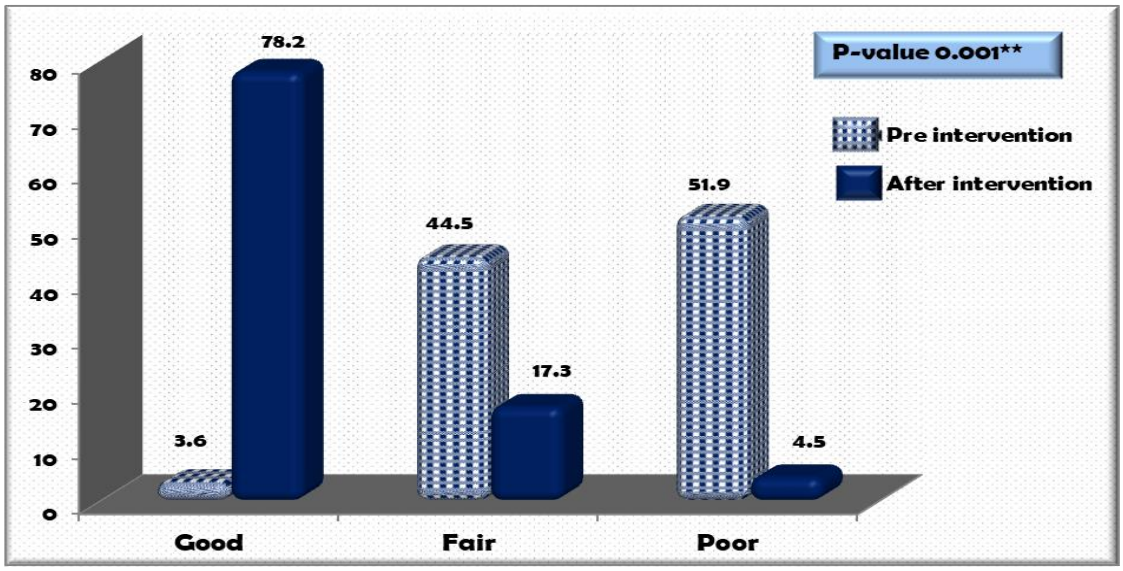
(**) Extremely statistically significant difference

Table (9): Mean and SD of Health Promotion Lifestyle Profile dimensions in pre / post intervention (n=110):

Dimensions	pre intervention	post intervention	P-value
	Mean±SD	Mean±SD	
Spiritual Growth	16.29±5.98	29.75±5.26	**0.001****
Interpersonal Relations	17.33±6.31	25.28±5.93	**0.001****
Nutrition	18.23±5.78	29.78±4.69	**0.001****
Physical Activity	11.38±3.56	28.14±4.49	**0.001****
Health Responsibility	17.35±6.12	30.23±5.01	**0.001****
Stress Management	14.55±5.44	27.31±4.53	**0.001****
Total	**95.13±30.37**	**170.49±24.63**	**0.001****

T-test

(**) Extremely statistical significant difference



McNemar-test
(**) Extremely statistical significant difference

Figure (1) Distribution of the studied women based on total health promotion lifestyle profile-II before and after intervention (n=110)

Table (10): relation between total health promotion lifestyle profile-II before intervention and personal characteristics before intervention (n=110)

Personal characteristics	Total health promotion lifestyle profile-II before intervention						p-value
	Good (4)		Fair (49)		Poor (57)		
	N	%	N	%	N	%	
Age group/ years:							
≤20 years	0	0.0	11	22.4	9	15.8	0.426
>20 years	4	100.0	38	77.6	48	84.2	
Residence:							
Urban	0	0.0	18	36.7	22	38.6	0.299
Rural	4	100.0	31	63.3	35	61.4	
Educational level:							
Read-and-write or illiterate	0	0.0	0	0.0	2	3.5	0.058
Fundamental instruction	0	0.0	5	10.2	2	3.5	
Secondary schooling	0	0.0	25	51.0	36	63.2	
Higher education	4	100.0	19	38.8	17	29.8	
Occupation:							
Housewife	0	0.0	34	69.4	44	77.2	**0.004****
Employees	4	100.0	15	30.6	13	22.8	
Years of marriage:							
≤2 years	3	75.0	45	91.8	45	78.9	0.162
>2 years	1	25.0	4	8.2	12	21.1	

Chi-square test
(**) Extremely statistically significant difference

Table (11): relation between total health promotion lifestyle profile-II before intervention and obstetric history before intervention (n=110)

Obstetric history	Total health promotion lifestyle profile-II before intervention						p-value
	Good (4)		Fair (49)		Poor (57)		
	N	%	N	%	N	%	
Gravidity:							
Primigravida	0	0.0	44	89.8	50	87.7	**0.001****
Multigravida	4	100.0	5	10.2	7	12.3	
History of abortion:							
Yes	2	50.0	5	10.2	9	15.8	0.088
No	2	50.0	44	89.8	48	84.2	
Mode of delivery:							
Normal labor	0	0.0	23	46.9	19	33.3	0.099
Cesarean section	4	100.0	26	53.1	38	66.7	
Gender of Baby							
Male	4	100.0	23	46.9	17	29.8	**0.009****
Female	0	0.0	26	53.1	40	70.2	

Chi-square test

(**) Extremely statistically significant difference

Discussion

The postnatal phase is a transitional period in a mother's life characterized by physical, emotional, and social alterations, starting after delivery and continuing for a maximum of six months. It is commonly divided into three main phases: the first, or acute phase, which lasts six to twelve hours after giving birth; the second, or subacute, postpartum period, which lasts two to six weeks; and the third, or delayed, postpartum period, which can last up to six months **(Al Rehaili etal.,2023)** This study was aimed to determine the impact of educational materials about primiparous mothers' postpartum lifestyles.

The majority of women in the current study were over 20, with a mean age of 23.07±2.86. These were the general characteristics of the study participant

to ascertain the impact of group consultation on primiparous mothers' postpartum health promotion practices. These results were consistent with those of **Parsa et al. (2017**), who examined the impact of group consultation on primiparous mothers' postpartum health promotion practices. The mean age of mothers in the experimental group was 23.46±4.75 and the mean age of mothers in the control group was 23.77±4.98, according to a randomized controlled trial conducted on 112 primiparous mothers in Hamadan, Iran.

Age is the primary factor impacting the health of women. In the current study, findings could beneficially influence women's knowledge due to their youthful age, as they had the chance to engage with the researcher and possessed a significant capacity to gain additional information. Regarding education, Seventy-nine percent of them were housewives, and over half had completed secondary school. In a randomized controlled clinical trial

to investigate the impact of educational packages on the lifestyle of primiparous mothers during the postpartum period, **Khodabandeh et al. (2017)** found that 27.7% of the mothers in the intervention group and 13% of the mothers in the control group had college degrees. This finding is somewhat consistent with their findings. In both the intervention group (90.2%) and the control group (92.6%), the majority of mothers were housewives.

Study's results showed that the overall scores and the experimental group's lifestyle dimensions considerably increased. post-intervention, while the mean scores of the control group did not exhibit any significant difference. In other terms, counselling focused on health-promoting behaviors had a notable positive impact during the postpartum phase. The results of this study align with the results of **Kamalifard et al. (2016),** who assessed the impact of a lifestyle educational package on preventing postnatal health issues in nulliparous mothers

On the same line **Parsa etal., (2017)** who find out how group consulting affected the health-promoting behaviors of postpartum primiparous mothers, 112 primiparous mothers in Hamadan, Iran took part in a randomized controlled trial. The intervention group got three weekly sessions of health-promoting counseling, while the control group got nothing. The results demonstrated that counseling helped mothers adopt healthier habits.

Additionally, this result was comparable to that of **Mohaddesi et al. (2016),** who evaluated the impact of counseling on health promotion behaviors in mothers with gestational diabetes in a randomized controlled trial involving 60 mothers. The intervention group received five counseling sessions, while the control group did not receive any

intervention. A week following the conclusion of the intervention, a post-intervention assessment was carried out. According to the results, The HPLP-II score of the intervention group was considerably higher than that of the control group, and more than four out of five study participants lacked sufficient knowledge about postpartum care.

This result contradicted that of **Al Kalash et al. (2022),** who evaluated postpartum care knowledge, attitudes, and practices among mothers enrolled in an Egyptian family health unit. They discovered that over half of their sample in the EL-Behera Governate's Damanhur District possessed good knowledge. One possible explanation for the discrepancy between this study and others could be the different study environment.

This study looked at nutrition as a component of behaviors that promote health. The findings demonstrated a significant nutritional difference between the two groups after counseling. The findings of this investigation corroborate those of **Parsa et al. (2017),** who found that lifestyle education improved the adoption of healthy eating practices during and after pregnancy. The results of this study showed that the post-intervention levels of physical activity among women in the two groups differed significantly. The findings align with those of **McIntyre et al. (2012),** who discovered that women with a history of gestational diabetes who received early postpartum intervention were more physically active.

Moreover, **Mailey et al. (2019**) investigated the relative effectiveness of general and specific exercise recommendations in promoting physical activity among postpartum mothers within the framework of a behavior change intervention. They discovered that both forms of training significantly improved these factors, though the

general exercise group experienced a greater increase in self-efficacy than the specific exercise group. The findings of **van der Pligt et al. (2016),** who examined the impact of clinical recommendations on dietary practices and physical activity in 448 nulliparous women during pregnancy and after delivery, did not coincide with these findings. Training and counseling had no discernible impact on these behaviors, according to their findings.

The two studies' different educational approaches may be the cause of this discrepancy in results; whereas **Mailey et al. (2019)** provided strategies for organizing exercise and overcoming barriers to regular performance, the current study only recommended exercise and described the different kinds of postpartum exercise that were good for moms.

The findings of this study demonstrated how health-promoting behaviors can foster a sense of personal accountability for one's health, spiritual development, and self-actualization in the postpartum phase. **Chen CM et al.** also discovered that counseling enhanced health. Self-actualization, spiritual development, and accountability in Taiwanese postpartum women

Strengths:

1. Targeted Population:

Focusing on primiparous mothers provided a unique opportunity to address a vulnerable group often in need of structured postpartum education and support.

2. Comprehensive Educational Package:

The intervention covered multiple dimensions of practices that promote health, such as good diet, exercise, spiritual development, and interpersonal relationships, offering a holistic approach to lifestyle improvement.

3. Statistical Significance in Multiple Domains:

The study demonstrated statistically significant improvements across several domains, highlighting the effectiveness of the intervention.

Limitations:

1. Limited Generalizability: The results may not be as applicable to other groups with different sociocultural contexts due tothe research was carried out in a particular region.

2. Short Follow-up Duration:

The duration of the follow-up period post-intervention was quite brief, restricting the evaluation of the long-term maintenance of lifestyle adjustments

Conclusion:

This study concluded that the educational package significantly enhanced the lifestyle of primiparous mothers during the postpartum period, with improvements across all HPLP-II dimensions.

Recommendations: the following recommendations are proposed

1. Early Initiation of Educational program

Educational sessions should begin during the pregnancy's third trimester and continue through the postnatal phase to ensure continuity of care and reinforcement of healthy behaviors.

2. Customization of Educational Content

Educational packages should be tailored based on the mother's age, educational level, occupation, and obstetric history to increase their effectiveness and relevance.

3.Utilization of Multimedia Tools

Health promotion materials (videos, brochures, mobile apps) should be developed to enhance mothers' engagement and accessibility to knowledge.

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