



Exploration of Life Style Modification and Perceptions among Postpartum Women with Obesity: A Cross-Sectional Study

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ABSTRACT

Background: According to multiple research studies, biological variables, perceived learning demands, and physical activity were the most influential factors among women with Obesity. The period prenatal, intranatal, and postnatal is regarded as a vulnerable time to gain excess weight and it is essential for healthy lifestyles to sustain the metabolic health of a woman, children, and family.

Methods: Our study aimed to identify lifestyle modification and perceived learning needs by recruiting the subjects (postnatal) from the (N=147) community population aged above 26 years obese woman to explore an avenue for further research. Researchers adopted a non-probability convenience sampling technique to reach the sample size at a community health center from January to April 5, 2024. The prevalence of metabolic syndrome was determined using waist circumference (WC), body mass index (BMI), and other values based on NHLBI criteria (Institute of National Heart, Lung, and Blood Institute).

Results: The study revealed that postpartum women had higher BMI, waist circumference (WC), and systolic and diastolic BP in their postnatal period of 6 to 12 months. Physical activity will decrease the waist circumference, BMI, triglycerides, and HDL.

Conclusion: Our study's paucity of understanding about increased long-term health risks indicates that healthy lifestyle perceptions, attitudes, and practices are more likely to avert potential cardiovascular diseases and metabolic syndrome. In contrast, treating those who do not care may be more challenging.

Keywords: Physical activity, Metabolic syndrome. Perception, Postnatal Women, lifestyle Changes, Obesity, physical activity.

Introduction

Postpartum weight gain is an enormous amount of water retention after delivery, which can potentially lead to risk factors for mothers, children, families, and communities. There are plenty of factors, including progesterone,



estrogen, and other hormones, sedentary life after birth, absence of physical exercises, poor diets, stress related to psychological post-birth adaptation, and lack of sleep. Most importantly, postpartum weight gain is caused predominantly by weight gain during pregnancy or prenatal history of obesity. The majority of postpartum women do not have awareness of early changes in their waist circumference and continuous weight gain, especially those who had pregnancy complications. Over 25% of the world's population, or roughly one billion individuals are in the category of developing metabolic diseases and cardiac disorders [1]. Those with obesity had a relatively increased risk of diabetes mellitus, a two-fold times of risk of developing Coronary Vascular Disease, and a one and a half times increase in all kinds of risk factors [2]. In developing countries, the prevalence of adolescent weight gain is increasing, paving the way for a rise in cardiovascular and metabolic disorders [3]. Over three-fourths of postpartum women were obese in one year than prepregnancy, whereas 50% were retained with 4.5 kg and one-quarter of them 7.5 kg. Postpartum women with over 7.5 kg gained weight were more often Europeans, young, and less educated. Indians are more likely associated with high levels of prepregnant status and low socio-economic status which were influenced by breastfeeding food practices. [4]. In India, numerous epidemiological studies conducted throughout the country have continuously demonstrated a high incidence, estimated to be as high as one-quarter of the women population, with the rising age of postpartum women posing a more significant risk [5].

Postpartum weight gain raises the possibility of getting type 2 diabetes, HT, CVD, and postpartum-associated stress and anxiety. Subsequent pregnancies are affected, in turn, women will be more likely to develop gestational diabetes, preeclampsia, and operative vaginal delivery. In addition, children will be delivered with metabolic disorders and obesity. Postpartum weight gain management strategies include balanced nutrition, weight loss practices, support and counseling groups, and sustainable lifestyle changes. Midwives hold a unique role in delivering education, individual guidance, and consistent monitoring of women's trends in weight maintenance. Over three-fourths of the deliveries from a developing country ended with a cesarean and half of the women in diabetes, pregnancy-induced hypertension is also more common, and one quarter with premature rupture of the membrane [6]. In India, the postpartum period weight gain is around 15%, significantly a larger problem among South Asian populations, and has generated considerable research over the past two decades. According to research among postpartum women, the prevalence of metabolic conditions related to diseases in urban India is approximately 25-30% which varies among different regions [7]. Even though various research has been conducted on the prevalence of postpartum obesity, there is a need to generate more evidence-based information and update the current status of the adverse consequences by conducting studies among various populations using a novel approach.



In addition, studies among the developing countries looked at the links between Lifestyle practices, such as antepartum, intrapartum, and postpartum exercises, balanced diet, weight management, and lifestyle modifications involving behavioral changes as a priority-based intervention [8]. Appropriate and sustainable healthy practices need to be addressed for the health promotion and prevention of complications. Rural health centers are in dire necessity to render health education especially those already with higher levels of risk factors in terms of obesity with existing co-morbidities. Particularly, the findings would support midwifery team professionals in identifying what efforts are required.

Postpartum weight gain is a major concern that can cause metabolic diseases if not cared for efficiently. Most importantly, postpartum women get hormonal fluctuations that are the predominant cause of metabolic disorders. Postpartum obesity is linked with insulin resistance and dyslipidemia. Insulin resistance will lead to pregnancy-related hormonal changes, and in turn, mothers will develop diabetes. Additionally, long-term cardiovascular diseases are the complications due to increased triglycerides, decreased HDL cholesterol, and high-level blood pressure.

Most importantly, a few studies were recognized from postpartum obese woman in terms of their perceptions, attitudes, and practices specifically addressing the existing core of exploring the factors associated with obesity [9]. Hence this study aimed to identify the lifestyle modification and perceived learning needs by recruiting the subjects (postnatal) from the (N=147) community population aged above 26 years of obese postpartum women to explore an avenue for further research. . This is the most important study to investigate postpartum mothers' knowledge and perceived learning requirements among southern Indians with obesity using a validated instrument.

Method and Data

This study was conducted among postpartum women (aged 26 years and above) (N=147) from a community health setting (Southern India) from January to April 2024 to explore women's perceptions, attitudes, behaviors, and educational background regarding postpartum diet, and exercises. The investigators reviewed the women's health records to confirm inclusions. Mothers who met the study inclusions were introduced to a letter with the purpose and details of the study, and consent was obtained. The researcher started collecting data through face-to-face interviews after consent. Postpartum women had an interview session for 20 minutes to 30 minutes. A self-administered questionnaire for demographic characteristics including women's perception and physical measurements. The researchers used a self-administered questionnaire of demographic characteristics of age, education, work status, morbidity, treatment status, and family history of Chronic Disease. With the participants' consent, biochemical data such as laboratory blood test results were acquired from their files. According to World Cuest.fisioter.2025.54(3):3743-3752



Health Organization (WHO) guidelines it is crucial to estimate the total minutes of moderate physical activity and the sustainable healthy practices.

Inclusion Criteria

- Aged minimum of 26 and from the southern region of the community.
- Willing to provide consent to reveal assessment criteria for the clinical diagnosis of MetS.
- Who meets three or more criteria of NHLBI.
- Able to communicate in the regional language.

Sample Size Calculation

$n = Npq / [(d^2/Z^2(1-\alpha/2)^*(N-1) + pq)]$, where, $N = 240$, $p = 0.66$, $q = 0.33$, $Z (1-\alpha/2) = 1.86$, $d = 5\%$

Consequently,

$$= 240 * 0.66 * 0.34 / [(0.052 / 1.962^2 * 239) + 0.66 (0.34)]$$

$$= 52.856 / (0.0025 / 3.8416 * 239) + 0.2234$$

$$= 52.856 / (0.1565) + 0.2234$$

$$= 52.856 / 0.3809 = 141.02$$

Statistical analyses

The acquired data was entered and processed in the updated statistical data analysis application. The study adopted descriptive and inferential statistical calculations. In calculating p-values for the connection of proportions of variables with the Chi-square test and Fisher's exact test significance level of 5% were employed. In addition, the WHO STEPS Surveillance Manual Analysis Guide (World Health Organization, 2017) was utilized for behavioral measurement analysis. Data were verified to have normal distribution before interpretation using the Kolmogorov-Smirnov test and examining normality plots.

Results

Frequencies and percentages (%) of demographic variables, biological variables, physical activity, and perceived learning needs are presented in Table 1 to Table 4.

Table1

Distribution of Demographic Variables

Demographic Variables: Postpartum Women		<i>f</i>	Percent (%)
Age	26-35 years	147	100
Education Level	No formal education	4	2.7



Work status	Primary/preparatory education	45	30.6
	Secondary education	87	59.2
	Higher education	11	7.5
	Employed	137	93.2
	Not employed	10	6.8
Obesity with Diabetes Mellitus		78	53.1
Obesity with Hypertension		59	40.1
Heart Disease Taking Medicine		10	6.8

Table 2
Distribution of biological variables among patients with Metabolic syndrome

Age Group (Years)	With Exercise			Improper Diet			Pregregnant Obesity			Without Exercise			With Comorbidities			Total		
	%, Mean and SD			%, Mean and SD			%, Mean and SD			%, Mean and SD			%, Mean and SD					
	Postpartum Women Distribution of Factors																	
Waist circumference	18.8	76.7	12.2	42.9	87	12.3	59.7	91.3	11.8	59.5	91.4	12.6	53.8	88.5	13.4	39.5	84.4	13.9
BMI	10.6	22.8	5.1	19.2	25.4	4.8	24.1	26.6	5.1	22.8	25.9	4.9	19.2	24.4	6.1	17.1	24.6	5.3
Triglycerides	4.6	0.6	0.4	10.9	0.8	0.7	15.5	1	0.7	26.6	1.3	0.7	29.5	1.4	0.7	13	0.92	0.6
HDL	63.8	1.23	0.3	69.2	1.16	0.3	72.9	1.15	0.3	89.9	1.03	0.21	84.6	1.05	0.21	71.7	1.16	0.31
Diastolic BP	0.7	70.8	7	1.9	70.6	7.4	12.4	73.8	8.7	13.9	87	7.8	16.7	86.7	7.4	6.2	76.3	8.1



Systolic BP	0.7	11	8.1	3.2	12	8.1	11.	12	11.	31.	13	12.	32	13	10.	9.9	12	11.
		8			1		6	5	5	6	3	9		5	7		6	1
FBG	4.3	5.3	0.6	3.2	5.4	1.2	20.	5.9	2	22.	6.3	2.2	43.	6.7	2.4	13.	6	1.6
							2			8			6			1		2

Tables 3
Knowledge About the Postpartum Obesity in (%) and Factor Analysis

Items and Subscales	1	2	3	4	5	
Knowledge about Obesity Risk (OR)	%					
I need to know that OR is a crucial risk factors that may progress into diabetes.	36	11	13	4	36	0.611
It affects maternal and neonatal outcomes and is considered a serious public health issue.	8	41	9	5	37	0.780
lifestyle modification is crucial to prevent adverse consequences.	16	12	8	8	56	0.647
A waist circumference of ≤ 80 cm in females is healthy.	20	16	11	8	45	0.562
Blood pressure 120/80 mm Hg.	11	3	21	8	57	0.661
Should maintain fasting blood sugar 80-120mg%.	10	15	30	10	35	0.682
Physical activity is important to promote physical health.	41	6	16	27	10	0.623
Approved medications for smoking cessation may be considered to decrease post-cessation weight gain.	47	20	14	5	14	0.668
There is a need for calorie count including regular exercises.	44	15	5	21	15	0.773
A balanced diet to achieve 5% weight loss should be prescribed for overweight.	42	9	9	15	25	0.765
Diet necessary for preventing CVD and diabetes in individuals with MD.	48	12	11	8	21	0.648
Preferred at a minimum portion of processed, seasonally fresh, and locally grown foods are preferred.	48	9	10	15	18	0.804
Eating a variety of cereals (whole grains) is beneficial in preventing and managing potential adverse risk factors.	42	9	10	9	30	0.723



Cereals can be recommended for postpartum obese women.	52	6	3	17	22	0.813
Consuming seasonable healthy food is an integral part of a balanced diet.	20	9	24	10	37	0.518
Food with restricted sugar.	45	11	7	14	23	0.644
Yogurt: useful in preventing obesity-associated metabolic issues.	45	9	12	14	20	0.712
Food with Restricted salt	45	6	20	7	22	0.723

Multivariate Linear Regression with Physical activity Predicting Biological Items

Biological Variables	B	95% CI	Adjusted R2	P
Waist Circumference	-1.50	[-1.96, -0.88]	0.20	0.003**
Body Mass Index	-0.70	[-0.96, -0.31]	0.11	0.031*
HDL -C	1.11	[0.7, 2.22]	0.15	0.005**
Mean Arterial Blood Pressure	0.22	[0.10, 0.94]	0.02	0.20
Fasting Blood Glucose Level	0.14	[0.05, 1.12]	0.01	0.24

* p= <0.05, **p= <0.01.

Discussion

India is recognized as one of the countries with the top prevalence of obesity globally [10]. Recent research indicates that the prevalence of obesity among postpartum women ranges above 75% worldwide and varies according to age, sex, and ethnicity. More than one-third of India's urban population is directly affected by the country's high incidence of diabetes and obesity [11]. Our study confirmed the widespread existence of obesity in postpartum mothers increased with mothers who do not sustain healthy lifestyle habits, particularly diet and exercise. Demographic characteristics, economic status, and advancements in various perspectives in developing countries have been the cause of increasing in the number of women with obesity [12]. A cross-sectional study is congruent with our results which revealed that subsequent pregnancies and their impact on weight and the risks of postpartum obesity and its associated challenges are also on the rise [13]. The high prevalence of Metabolic syndrome (MetS) has become a consequential public health issue in India. Any intervention meant to address the issue could stress weight loss and physical activity, particularly in women and persons at an advanced stage of life [14].



Shockingly, based on diagnostic criteria, the associated risk factors of metabolic syndrome in India are expanding rapidly, as measured by 33.5% overall, 24.9% in men, and 42.3% in females (NCEP ATP III) [15]. Waist circumference, BMI, triglycerides, and HDL-C significantly predicted physical activity and explained the variance of 20 %, 12 %, 14 %, and 16 %, respectively; results are supported by previous research [16]. Postpartum weight gain is predominantly due to a sedentary lifestyle, lack of exercise, lack of sleep, imbalanced nutrition, and hormonal problems [17]. Among the postpartum women, above 50 % accept that lifestyle moderation with exercise is mandatory to curb the complications. Bio variable factors like keeping blood pressure normal, HDL-C above >1.3 mmol/L, and waist circumference of ≤ 80 cm in females (45 %) are essential [18]. Very little has been brought to visibility about the causative factors that influence obesity among postpartum women in developing countries. It is because of a quite lot of factors such as breastfeeding, marital status, and age. [19]. Several authors have produced how weight gain impacts the mode of delivery, labor progress, and neonatal conditions. In turn, these factors influence postpartum obesity [20]. In addition, the cushioning role of vegetables and seasonal fruits on weight gain and obesity as witnessed in the general Indian people are the same as post-partum obese women as depicted in our study. Seasonal fruits and a balanced diet consist of nutrients for gaining immunity and antioxidants that neutralize free radicals and facilitate preventing oxidative effects; in turn, decreases enormous stress and subsequently inappropriate eating practices. The goal of enhancing the taste for desires happens when seasonal fruits and vegetables are taken in a large portion. The energy level is also increased. Postpartum women who follow healthy diet patterns gain more fiber and do not gain weight. Multi-faceted midwifery education programs and counseling sessions are essential to revamp the knowledge, perception, and attitude to prevent postpartum complications with obesity.

Conclusions: The essential characteristics influencing postpartum weight gain control behavior were biological variables, lifestyle perceptions, and physical activity. Targeted health education should be provided to raise perceived learning needs about lifestyle changes and improve the overall quality of life.

Disclosure

The authors declared no conflicts of interest. No funding was received for this study.

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