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Exploring the burden of obesity and overweight in postpartum women: Evidence from Udaipur city

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Abstract
This study titled "Exploring the Burden of Obesity in Postpartum Women: Evidence from Udaipur City" was focused to assess the prevalence of obesity in postpartum women from 20 to 35 years age group of Udaipur City. For this demographic study sample were taken from rural, semi-urban and urban areas in main city. A purposive sampling is used to draw sample size of 300 postpartum women, and with the help of pre tested self-structured questionnaire which include general information of respondent, their anthropometric measurements and postpartum history. To assess the prevalence of overweight and obesity with the help of WHO guidelines measurements such as Body Mass Index (BMI), Waist Circumference (WC), and Waist-Hip Ratio (WHR) were taken.
This study find out that out of three hundred postpartum women 51% of women were overweight and only 3.7% of women were obese, which shows that although there is only 3.7% of women with obesity but half of the postpartum women were overweight. Further results of waist circumference and waist to hip ration shows that 87.3% of postpartum women have circumference of ≥80 cm out of 300 postpartum women and 84% of postpartum women have waist to hip ratio cut-off ≥80 cm, which according to WHO guideline is high and also shows abdominal obesity in postpartum women.
This study conclude that on the basis of result and findings of the study, postpartum women of Udaipur city show significance of burden of both general and abdominal obesity. It highlights the urgent need for target health interventions and planned postpartum care to address this growing health concern.

Keywords: Postpartum overweight, abdominal obesity, body mass index, waist–hip ratio

Introduction
In India, the prevalence of overweight and obesity among women aged 15 to 49 has significantly increased over time. The 2015-16 National Family Health Survey (NFHS-4) revealed that 20.6% of women were overweight or obese, a significant rise from the 12.6% reported in the NFHS-3 (2005-06). This rising trend indicates that obesity is becoming more common among Indian women, even those who are in the postpartum stage. (Verma *et al.*, 2023) [10], and if we look at latest fact sheet (2019-21, NFHS-5) of India given by The International Institute for Population Sciences (IIPS) estimates that in the prevalence rate of overweight or obese women (BMI>/= 25.0 kg/m2) in India is 24.0% (urban: 33.2% & rural: 19.7%), which is higher than the NFHS-4 (2015-16) data, which is 20.6%. As a result, the prevalence rate of obesity has increased. According to World Health Organization (WHO) reports that in 2016, more than 650 million people were classified as obese and the frequency of obesity has almost tripled worldwide since 1975, this data making it a serious public health issue. In India, women between the ages of 18 and 69 were more likely to be overweight or obese (21.0% overweight and 8.3% obese) than men (19.0% overweight and 4.3% obese). Obesity rates among women in the reproductive age range, namely those aged 18-49, were 6.4%, higher than those among males (4.0%), despite the fact that menopausal-related factors may account for a significant amount of obesity in the 18-69 age group. It was found that the prevalence of overweight and obesity was somewhat higher among women in the reproductive age group who were older, resided in an urban area, and belonged to the wealthiest quintile. (Patel *et al.*, 2023) [8]
An energy imbalance occurs when the body consumes more energy from food than it expends through physical exercise, leading to obesity. It's crucial to keep energy intake and expenditure in balance to avoid the body accumulating too much fat. (Chaudhary *et al.*, 2023) [2]

The complicated condition known as postpartum obesity is impacted by a number of physiological, behavioral, and social variables. During the postpartum period, a healthy diet is crucial for lactation and recuperation. However, in many Indian groups, traditional culinary behaviors around this time may result in overeating. For instance, postpartum diets often stress high-calorie foods, including as dishes that are heavy in ghee, which are thought to help with healing and milk production. Notwithstanding the cultural importance of these foods, overindulging in them without balancing it with exercise could lead to weight retention. Additionally, a study revealed that while 60% of expectant mothers believed that consuming nutrient-dense foods was important, cultural norms limited their access to some nutritious meals. This type of conduct may hinder weight loss and recovery. (Verma *et al.* 2023) [10] A waist circumference of more than 80 cm for women and more than 94 cm for men is considered abdominal obesity. By the time they were 20 to 29 years old, 32.2% of women were found to be abdominally obese. According to the BMI metric, 16.3%, 30.7%, and 35.5% of women aged 20 to 49 are overweight, and the percentage of women who are abdominally obese increases to 49.3% when they are between the ages of 30 and 39 and 56.7% when they are between the ages of 40 and 49. As they mature, women are more prone to develop abdominal obesity than total obesity. This finding is consistent with a longitudinal research conducted in the United States that found abdominal obesity to be almost twice as common as overall obesity. Women are less physically active than men, and a significant portion of the population (57%) is either physically inactive or only moderately active, per a recent study on physical activity trends in India. Because 72% of South Indians are the least physically active, the region is more prone to obesity and chronic illnesses. (Chaudhary *et al.*, 2023) [2] Early examination enables prompt therapies to avert these issues. Many women continue to gain weight after delivering birth, which can lead to chronic obesity if untreated. By assessing postpartum obesity, better weight-management strategies can be implemented. The risk of complications like gestational diabetes, preeclampsia, and cesarean delivery in subsequent pregnancies is increased by postpartum obesity can be controled. The child's health is also affected, increasing the risk of metabolic disorders and childhood obesity. The prevalence of postpartum obesity and diet-related causes of obesity can be studied to assist guide focused interventions in Udaipur, where health care availability and knowledge may differ. A woman's general health is supported by encouraging early detection and treatment, which also enhances her quality of life and has a favorable impact on parenting and family dynamics.

Obesity

- To assess prevalence of overweight and obesity of postpartum women.
- To assess the abdominal obesity of postpartum women.

Operational Definitions

- **Postpartum Woman:** A woman within the postpartum period, defined for this study as up to 1 year post-delivery.
- **Overweight:** Women with a Body Mass Index (BMI) between 25.0-29.9 kg/m².
- **Obesity:** Women with a BMI of 30.0 kg/m² and above.
- **Abdominal Obesity:** Waist circumference ≥80 cm for women.
- **High-Risk WHR:** Waist-Hip Ratio ≥0.80.

Methodology

- **Locale of Study:** The present study will be conducted in the municipal limits of Udaipur City, Rajasthan.
- **Selection of Samples:** For the present study, a total of 300 postpartum women aged between 20 to 35 years having newborn upto age of 1 year will be screened out of which women with obesity will be selected for the study.
- **Questionnaire:** A pretested self-structured questionnaire was used to gather the information of the respondent. It includes general information of the participants or respondents, their postpartum history and anthropometric measurements including weight, height, BMI, waist circumference, Hip circumference, WHR**.**
- **Sampling Technique:** For selection of desired sample size, purposive sampling technique was employed. The data collected from the women using personal interview techniques while considering their willingness for participation in the study.

Delimitations of the Study

- The study was confined to postpartum women aged 20-35 years residing in Udaipur city.
- A sample size of 300 was selected using purposive sampling.
- Data collection tools included structured questionnaires and anthropometric measurements.
- The study focused only on overweight and obesity prevalence and did not evaluate clinical health outcomes or metabolic markers.

Analysis of Data

An Excel sheet was created using the raw data of 300 postpartum women, which was then categorized and coded as needed. In accordance with the study's goal, the necessary statistical approach was applied. The data was analyzed using the following statistical techniques.

- Descriptive analysis
- Chi-square
- ANOVA

Results and Discussion

Exploring the Burden of Obesity and Overweight in Postpartum Women: Evidence from Udaipur City" is the title of the current study. The degree to which the data collected throughout the research is honestly and objectively evaluated determines the success of any investigation. Because the data collected throughout the investigation was appropriately statistically evaluated, tabulated, and methodically presented through supporting and classified materials, the investigator was able to assess the comprehensive results. The conclusions of the inquiry are discussed in the following sections:

- General Information
- Postpartum History
- Anthropometric Measurments

General Information

The findings' relevance, comparability, and actionability are enhanced by the general information provided by respondents. It is essential to ensure that the thesis's conclusions are accurate and relevant to the intended audience. Age, education, family size, family structure, occupation, and marital status were all calculated as percentages and frequencies in this section.

Age: Of the three hundred postpartum women in the study, the majority (n=144; 48%) were in the 26-30 age group, followed by the 20-25 age group (n=121; 40.3%), and the 31-35 age group (n=35; 11.7%) was smaller. Most deliveries took place in the mid to late twenties, as indicated by the mean age of 26.71±3.28 years.

Education: Among the 300 postpartum women, 2.0% (n = 6) had only completed primary school, 2.0% (n = 6) had no formal education, 13.0% (n = 39) had finished secondary school, 29.7% (n = 89) had completed higher secondary education, half of the cohort (51.0%) had a graduate or postgraduate degree, and 2.3% (n = 7) had a professional degree. The majority of women were graduates and postgraduates across all BMI categories, including those who were overweight (54.2%) and obese (45.5%). This suggests that a greater level of education may not always provide protection against postpartum obesity and overweight. The results are consistent with the National Family Health Survey-5 (NFHS-5, 2019-21), which shows that while Indian women are becoming more literate, the prevalence of overweight and obesity is on the rise, especially among educated and urban populations.

Family Size: The median number of family members per household was 7, with a range of 2 to 14. According to the analysis, the majority of postpartum women were from larger families, with 40.3% residing in households with eight or more people and 38.7% in households with five to seven people; just 21.0% were from smaller households with two to four people. This is in line with results from NFHS-5 Rajasthan (2019-21), which showed that the average household size in the state was 5.1 people. In several regions of Rajasthan, especially in joint or extended family systems, such larger home configurations are typical. Postpartum women may have less time for personal health practices like exercise, rest, and food management due to the additional caregiving and domestic duties that larger families can bring. These elements may raise the chance of being overweight or obese and increase postpartum weight retention. In order to ensure that women in bigger homes receive targeted support for self-care and healthy lifestyle choices, postpartum treatments should take into account the family environment and caregiving obligations.

Family Structure: Of the 300 women who had recently given birth, 73.0% (n = 219) were in joint families and 27.0% (n = 81) were in nuclear families. Not a single participant mentioned living with extended family.

Occupation: The majority of participants (83.3%, n = 250) were homemakers, as seen in table 1. 4.0% of women were self-employed (n = 12), 6.0% were students (n = 18), 4.7% were working in the private sector (n = 14), 0.7% were employed in the government sector (n = 2), and 1.3% were employed in other occupational categories. This trend is in line with the NFHS-5 Rajasthan (2019-21) statistics, which showed that 73.3% of women between the ages of 15 and 49 did not work for pay, indicating that women in the state were primarily responsible for taking care of their homes. According to Sharma *et al.* (2020b) [2], who also noted a similar trend of low female workforce involvement in India, approximately 80% of women (apart from teenagers) were housewives, with only 10% working in skilled, semiskilled, or unskilled jobs. Postpartum health practices may be influenced by the prevalence of homemaking responsibilities.

Marital Status: No participant in this study reported being divorced or separated from their spouse, and all postpartum women were married. This result is consistent with social and cultural standards that are common in Rajasthan and most of India, where marriage is the primary setting for births. Married women make up a large portion of the reproductive age group, according to the NFHS-5 Rajasthan (2019-21) data, which reflects comparable demographic trends. Despite being a universal trait in our study, marital status is nevertheless a significant demographic predictor. In light of Indian cultural standards, marital status is still a significant factor determining postpartum health outcomes even if it did not vary in our study.

Postpartum History

Gravidity: According to analysis, 41.7% (n=95) of the postpartum women in this study were primigravida (first pregnant), 17.3% (n=52) had three pregnancies, and nearly half (49.0%, n-147) had two pregnancies. Of those with four or more pregnancies, only 2.0% (n=6) had them. The findings of NFHS-5 Rajasthan (2019-21), which show a dropping total fertility rate of 2.0 children per woman in the state, are consistent with this trend, which represents a change towards smaller family standards in urban and semi-urban Rajasthan. Because higher parity has been linked to cumulative weight gain, an increased risk of postpartum obesity, and unfavorable maternal outcomes, the number of pregnancies is a significant determinant in postpartum health. Therefore, to reduce the risk of obesity associated with multiple pregnancies, it is crucial to pay attention to nutritional counseling and weight management, particularly for multiparous women.

Incidence of Miscarriage: Out of 300 postpartum women, 85.7% (n = 257) reported never having miscarried, 14.0% (n = 42) had miscarried once, and only 0.3% (n = 1) had miscarried four or more times. None of the individuals had experienced two or three miscarriages before. This pattern points to a potential link between the incidence of miscarriage and rising maternal BMI. Not with standing this finding, the study's connection between BMI and miscarriage was not statistically significant (Chi-square = 5.443, df = 4, p = 0.245). The interpretation of this finding is constrained by the small sample size in the obese group and the low expected counts in the statistical test, which weakens the analysis. Similar findings have been documented in earlier research. Metwally *et al.* (2008) [7] showed that hormonal imbalances, insulin resistance, and inflammatory variables are the reasons why a higher BMI is linked to a higher risk of miscarriage.

Parity: A plurality of the 300 postpartum women had two live births (50.3%, n = 151), one live birth (38.3%, n = 115), three live births (10.7%, n = 32), and four or more live births (0.7%, n = 2).

Delivery Method: The majority of postpartum women (n = 222, 74.0%) gave birth vaginally, 25.7% (n = 77) by caesarean section, and only 0.3% (n = 1) with assistance. Crucially, all deliveries took place at government hospitals, suggesting that participants made good use of public health facilities. Cesarean rates in government facilities are normally lower than in the private sector, but they are constantly increasing. The state's overall cesarean rate is 21.5%, according to NFHS-5 Rajasthan (2019-21). Postpartum recuperation is impacted by the mode of delivery. Longer recuperation periods, decreased mobility, and a higher chance of postpartum weight retention are all associated with cesarean sections, which may raise the risk of obesity. These findings highlight the need for postpartum care strategies within government healthcare settings to address nutrition, physical activity, and weight management, particularly for women who undergo cesarean deliveries.

Postpartum Duration: Analysis shows that of the 300 postpartum women, 95.0% (n = 285) were 6-12 months postpartum, 5.0% (n = 15) were under 6 months postpartum, and 0.0% (n = 0) were beyond a year postpartum. This distribution is indicative of the study's emphasis on early postpartum women, a crucial time for weight control, nutritional requirements, and maternal recuperation. The first year after giving birth is seen as a critical time for therapies aimed at preventing postpartum obesity and long-term weight retention.

Preconception Weight: Of the postpartum women in this study, 147 (49.0%) reported weighing between 51 and 60 kg before becoming pregnant, 23.3% (n=70) reported weighing between 61 and 70 kg, and 17.7% (n=53) reported weighing less than 50 kg. 2.0% (n=6) had a pre-pregnancy weight beyond 80 kg, while a lesser percentage (n=24, 8.0%) weighed between 71 and 80 kg. While women with a normal BMI were mostly those whose pre-pregnancy weight was between 51 and 60 kg (52.9%) or less than 50 kg (29.4%), the comparison of BMIs showed that the proportion of women in the overweight and obese groups who weighed more than 61 kg was higher. Notably, 28.8% of women who were overweight and 36.4% of women who were obese weighed between 61 and 70 kg before becoming pregnant, with 13.1% of overweight and 18.2% of obese women falling into the 71-80 kg range. These trends support the idea that women who weigh more before becoming pregnant are more likely to become overweight or obese after giving birth, as they indicate a substantial correlation between higher pre-pregnancy weight and higher postpartum BMI. This underlines the crucial role of preconception counseling, prenatal weight monitoring, and postpartum weight control methods in minimizing long-term health problems linked with mother obesity.

Weight at End of Pregnancy: The study found that most postpartum women (n = 135; 45.0%) weighed between 61 and 70 kg at full term, followed by 32.7% (n = 98) who weighed less than 60 kg, 17.0% (n = 51) who weighed between 71 and 80 kg, and 5.3% (n = 16) who weighed between 81 and 90 kg at full term. A BMI-wise analysis showed clear trends: 44.1% of women with a normal BMI weighed between 61 and 70 kg, and 48.5% of them weighed less than 60 kg at full term. In the overweight group, the majority of women (45.1%) weighed between 61 and 70 kg at full term, but a noteworthy 23.5% weighted between 71 and 80 kg, and 10.5% weighed between 81 and 90 kg. Significant gestational weight gain was observed among postpartum obese women, with over half (54.5%) falling into the 61-70 kg range and 45.5% falling into the 71-80 kg range. These trends point to a significant correlation between greater postpartum BMI and weight at full term.

Anthropometric Measurement

Post-Delivery Weight: Within this study, 48.5% (n=145) of postpartum women were under 60 kg, followed by 36.8% (n=110) who were between 61 and 70 kg, 13.4% (n=40) who were between 71 and 80 kg, and 1.3% (n=5) who were between 81 and 90 kg (Table 1). Different patterns emerged from the BMI comparison: among women with a normal BMI, 30.9% weighed between 61 and 70 kg, and the majority (67.6%) had a current weight below 60 kg. In the overweight group, the majority of women (47.7%) weighed between 61 and 70 kg, with 26.8% weighing less than 60 kg and a noteworthy 21.6% weighing between 71 and 80 kg. These results imply that postpartum BMI and current weight status are strongly correlated, with increased weight retention following delivery being associated with overweight and obesity. This is consistent with data from around the world that shows 15% to 20% of women are obese before becoming pregnant, and nearly 47% of them gain more weight during pregnancy than is advised by the Institute of Medicine. Additionally, 20% of these women keep 1 to 5.5 kg of their weight during the first year after giving birth.

Height: This study reveals that 40.3% (n = 121) of postpartum women were between 151 and 160 cm tall, 39.7% (n = 121) were between 161 and 170 cm tall, 18.0% (n = 54) were under 150 cm tall, and only 2.0% (n = 6) were 171 cm or taller. The comparison by BMI showed distinct trends. Of the women with a normal BMI, 36.0% were between the heights of 151 and 160 cm, 30.9% were between 161 and 170 cm, and 19.9% were over 171 cm. About half (49.0%) of the overweight group were between the heights of 151 and 160 cm, 21.6% were under 150 cm, and 19.0% were between 161 and 170 cm. 36.4% of the obese group were under 150 cm, 36.4% were between 151 and 160 cm, and 27.3% were between 161 and 170 cm. These patterns imply that women in the higher BMI groups—particularly those who are obese—are more likely to be shorter in stature.

BMI: According to Table 2, reveals that none of the 300 postpartum women were underweight (BMI < 18.5). Just over half were overweight (25-29.9; 51.0%, n = 153), nearly half were in the normal range (18.5-24.9; 45.3%, n = 136), and 3.7% (n = 11) were obese (BMI ≥ 30). The majority of individuals (54.7%) were overweight or obese, which emphasizes the rising concern over postpartum weight retention and the trend toward higher BMI categories in this demographic. This supports the body of research showing that pregnancy weight gain, postpartum lifestyle changes, and a lack of organized weight management programs put

postpartum women at higher risk of being overweight or obese, especially in metropolitan and semi-urban areas. The significant prevalence of overweight and obesity in this susceptible group highlights the urgent need for focused postpartum care methods, such as regular BMI monitoring, dietary counseling, and physical activity promotion. No participant in this study was underweight, and the majority of postpartum women (51.0%) were classified as overweight (BMI 25-29.9), 45.3% as normal (BMI 18.5-24.9), and 3.7% as obese (BMI ≥30).

This suggests that during the postpartum phase, over half (54.7%) of the women were overweight or obese. Similar concerns are highlighted in supporting literature. Among Indian women, 58.3% had a normal BMI, 27.2% were overweight, 6.1% were obese, and a significant percentage were undernourished (14.4%), according to a community-based study by L *et al.* (2017) [6]. According to a different study by Bansal *et al.* (2023) [1], 40.53% of women were pre-obese, 18.12% were obese, and just 3.02% were underweight. This highlights the rising prevalence of overweight and obesity in the reproductive age range. This trend is further supported by national data, which show that the nationwide prevalence of obesity among postpartum women was 13%, with over 40% of postpartum women living in 37 districts of India (Chopra *et al.*, 2020) [3]. The following characteristics were found to be important risk factors for obesity in postpartum women: higher wealth quintile, urban domicile, older maternal age, and higher education.

Table 1: Distribution of BMI of participants (n = 300)

BMI	Frequency	Percentage (%)
Underweight (<18.5)	0	0.0
Normal (18.5-24.9)	136	45.3
Overweight (25-29.9)	153	51.0
Obesity (≥30)	11	3.7
Total	300	100.0

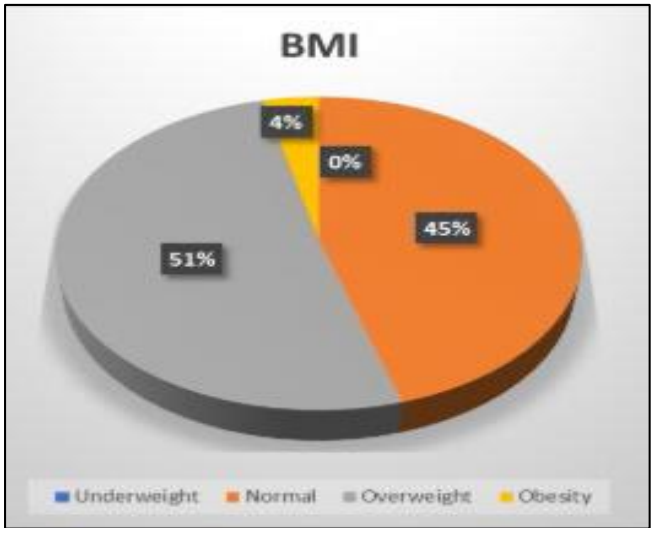

Fig 1: Percent distribution of BMI among postpartum women

Waist Circumference: The cohort's average waist circumference was 82.9±3.9 cm. Women with a "low" waist (less than 80 cm) averaged 78.3±0.9 cm (n = 38, 12.7%) when stratified, while women with a "high" waist (more than 80 cm) averaged 83.7±3.0 cm (n = 262, 87.3%). 87.3% (n = 262) of the 300 postpartum women had a waist circumference of 80 cm or more, while 12.7% (n = 38) had a circumference of less than 80 cm. WHO guidelines state that central (abdominal) obesity, which is a risk factor for metabolic syndrome, cardiovascular illnesses, and long-term obesity, is present in women with a waist circumference of ≥80 cm. The high rate of central obesity in this group suggests that even women with normal BMIs may be at risk for abdominal fat buildup, which is a common pattern seen in postpartum women because of alterations in the distribution of fat brought on by pregnancy.

Hip Circumference: The average hip circumference was 100.8±3.4 cm, with a range of 92 to 112 cm. 12.0% (n = 36) measured less than 98 cm (95.4±1.1 cm), 20.0% (n = 60) measured between 98 and 100 cm (98.2±0.4 cm), 39.3% (n = 118) measured between 100 and 103 cm (100.8±0.9 cm), and 28.7% (n = 86) measured more than 103 cm (105.0±1.8 cm) according to quartile-based categories. Of the postpartum women in this study, 28.7% had a hip circumference ≥103 cm, and 39.3% had one between 100 and 103 cm. Merely 12.0% of the hip circumference was less than 98 cm, while 20.0% was between 98 and 100 cm. Hip circumference was 100.8±3.4 cm on average. In order to calculate the waist-hip ratio (WHR), which is a reliable indication of central fat distribution and cardiovascular risk, hip circumference must be measured in conjunction with waist circumference. According to the statistics, a significant percentage of women had hip circumferences greater than 100 cm, which, when paired with high waist circumferences, may increase the risk of metabolic diseases, particularly when WHR is higher than the typical threshold (0.85 for women). Together with BMI and waist circumference, these results highlight the need of hip measures in postpartum women for obesity and metabolic risk screening in order to provide a thorough evaluation of their health.

Waist-to-Hip Ratio (WHR): The overall mean WHR was 1.09±4.74, as shown in Table 2. When women were categorized at a cut-off of 0.80, 84.0% (n = 252) had a high WHR (≥0.80; mean 1.15±5.18), while 16.0% (n = 48) had a low WHR (<0.80; mean 0.78±0.01). This is important since the WHO advises women to have a WHR of less than 0.85 in order to reduce their risk of cardiometabolic disease. Postpartum weight retention (PPWR) and physical inactivity were significant predictors of cardiometabolic risk (CMR), according to supporting data from Khadilkar *et al.* (2015e). The percentage of android fat (central fat) in postpartum women increased significantly at one year postpartum (47%) compared to one week postpartum (44.3%), and it remained elevated even at three years postpartum (45.6%). Additionally, a study by L *et al.* (2017) [6] found that women who were younger (ages 20-29) and had completed primary or middle school were substantially more likely to have a higher WHR than women who were illiterate, suggesting that sociodemographic characteristics can affect the risk of central obesity. These results highlight the importance of the waist-hip ratio as a key indicator of central obesity and metabolic risk in postpartum women, which is impacted by age, education, and physical inactivity in addition to physiological alterations. This highlights how important it is to include WHR measurement along with BMI and waist circumference in postpartum health assessments in order to identify women who are more likely to experience long-term health issues.

Table 2: Distribution of WHR of participants (n = 300)

WHR	Frequency	Percentage (%)	Mean (ratio)	SD (ratio)
Low (<0.80)	48	16.0	0.78	0.01
High (≥0.80)	252	84.0	1.15	5.18
Total	300	100.0	1.09	4.74

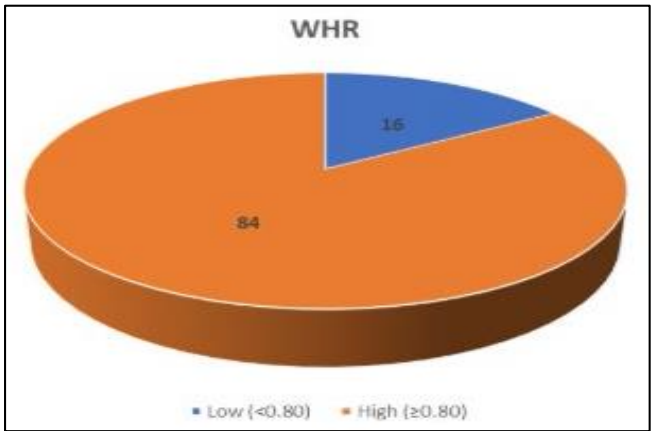

Fig 2: Percent distribution of WHR of postpartum women

Conclusion

The study's conclusions show that postpartum women in Udaipur bear a heavy burden of overweight and obesity. The statistics highlight a serious public health issue, with a combined prevalence of 59% for overweight and obesity and 55.33% for abdominal obesity. The fact that 40% of participants had a high-risk waist-hip ratio highlights how common central obesity is in this group. These obesity markers' correlation with postpartum women indicates that, in order to reduce long-term health concerns, this population has to be the focus of urgent health treatments and awareness campaigns. The study finds that postpartum women in Udaipur city have an unacceptably high frequency of both generalized and abdominal obesity. The findings highlight the pressing need for community-based programs, postpartum care initiatives, and focused health interventions to combat the rising obesity problem in this demographic. The results of this study provide important light on the nutritional and health conditions of women who have just given birth and emphasize the need for organized health care strategies that concentrate on managing and preventing obesity in the postpartum phase.

Reference

1. Bansal V, Babel S, Tiwari G, Rathore H, Singh V, Meena S, *et al.* Nutritional assessment of farm women under Nutri-Smart Village Programme. Int J Environ Clim Change. 2023;13(8):2037-2045. https://doi.org/10.9734/ijecc/2023/v13i82161
2. Chaudhary M, Sharma P. Abdominal obesity in India: Analysis of the National Family Health Survey-5 (2019-2021) data. Lancet Reg Health Southeast Asia. 2023;14:100208. https://doi.org/10.1016/j.lansea.2023.100208
3. Chopra M, Kaur N, Singh KD, Jacob CM, Divakar H, Babu GR, *et al.* Population estimates, consequences, and risk factors of obesity among pregnant and postpartum women in India: Results from a national survey and policy recommendations. Int J Gynecol Obstet. 2020;151(S1):57-67. https://doi.org/10.1002/ijgo.13319
4. International Institute for Population Sciences (IIPS) & ICF. National Family Health Survey (NFHS-5), 2019-21: India Fact Sheet. Mumbai: IIPS; 2021. Available from: https://www.dhsprogram.com/pubs/pdf/OF43/India_National_Fact_Sheet.pdf
5. Khadilkar A, Kajale N, Chiplonkar S, Khadilkar V. Changes in body composition in apparently healthy urban Indian women up to 3 years postpartum. Indian J Endocrinol Metab. 2015;19(4):477-482. https://doi.org/10.4103/2230-8210.159032
6. L MT, Zachariah SM, Venkatesha M, C M, Lakshmi A. Nutritional assessment of women in the reproductive age group (15-49 years) from a rural area, Kolar, Kerala, India. Int J Community Med Public Health. 2017;4(2):542-546. https://doi.org/10.18203/2394-6040.ijcmph20170288
7. Metwally M, Ong KJ, Ledger WL, Li TC. Does high body mass index increase the risk of miscarriage after spontaneous and assisted conception? A meta-analysis of the evidence. Fertil Steril. 2008;90(3):714-726. https://doi.org/10.1016/j.fertnstert.2007.07.1290
8. Patel N, L V, Sagili H, L S. Burden of excessive gestational weight gain and postpartum weight retention among Indian women-A systematic review and meta-analysis. Clin Epidemiol Glob Health. 2023;23:101364. https://doi.org/10.1016/j.cegh.2023.101364
9. Sharma S, Akhtar F, Singh RK, Mehra S. Dietary intake across reproductive life stages of women in India: A cross-sectional survey from 4 districts of India. J Nutr Metab. 2020;2020:9549214. https://doi.org/10.1155/2020/9549214
10. Verma M, Esht V, Alshehri MM, *et al.* Factors contributing to the change in overweight/obesity prevalence among Indian adults: A multivariate decomposition analysis of data from the National Family Health Surveys. Adv Ther. 2023;40:5222-5242. https://doi.org/10.1007/s12325-023-02670-3
11. Wikipedia contributors. Postpartum period. Wikipedia. 2025 Jul 12. Available from: https://en.wikipedia.org/wiki/Postpartum_period#References
12. World Obesity Federation. The economic impact of overweight & obesity in 2020 and 2060. 2nd ed. with estimates for 161 countries. 2022. Available from: https://data.worldobesity.org/publications/WOF-Economic-Impacts-2-V2.pdf. Accessed 2023 Aug 20.