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Comparative Study Of Physical Fitness In Postpartum Females Of Urban And Rural Areas

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Abstract
This study examines the differences in physical fitness levels between postpartum females from urban and rural areas. Cardiovascular endurance, muscle strength, flexibility, and body composition were assessed. Urban women exhibited better fitness levels due to improved healthcare access and socio-environmental support. The findings underscore the need for tailored interventions to improve postpartum recovery in rural areas.

Keywords: postpartum fitness, urban vs rural, physical activity, maternal health

Introduction
Physical fitness plays a critical role in postpartum recovery. Urban and rural environments offer unique challenges and opportunities for new mothers. This study aims to compare these disparities and their implications on maternal health. The physical fitness of postpartum women can be influenced by a range of factors, including geographic location, socio-economic status, access to healthcare, and cultural practices. Urban and rural environments, in particular, offer contrasting conditions that may affect a woman's ability to maintain or regain her fitness levels after childbirth. Women in urban areas may have better access to fitness facilities, healthcare services, and educational resources regarding postpartum care. On the other hand, women in rural areas may have more physically demanding daily routines, but limited access to structured fitness programs and medical guidance. Postpartum depression (PPD) is a significant public health problem affecting 10%-15% of women worldwide. It occurs within 1 year after birth2 and it is characterized by tearfulness, despondency, emotional lability, feelings of guilt, loss of appetite, suicidal ideation, sleep disturbances, poor concentration and memory, fatigue, and irritability, as well as feelings of inadequacy and inability to cope with the infant. PPD is one of the most common complications of childbearing, and it can have severe consequences for the infant such as malnutrition, illness, developmental delay, poor growth, impaired mother-infant attachment,11 and social interaction difficulties; as well as consequences for the mother, including impaired functioning, poor quality of life, or death. Various risk factors have been associated with PPD. The most consistently reported risk factors have been past history of depression or other psychiatric illness, depression during pregnancy, lack of social support, and recent life stresses. Existing PPD research is largely limited to samples of predominantly Caucasian, married women of mid to high socioeconomic status (SES), living in large cities

Methodology:
The study was conducted as a comparative cross-sectional study to assess and compare the physical fitness levels of postpartum females from urban and rural areas. Participants were recruited using a convenient sampling technique.

Participants
The study included postpartum females aged between 20 and 40 years who were 6 months to 1 year postpartum. Participants were divided into two groups based on their geographical location:
Urban group: Females residing in urban areas.
Rural group: Females residing in rural areas.

Inclusion criteria were
Females with normal vaginal delivery or cesarean section.
Willingness to participate in the study.

Exclusion criteria were:
Females with any musculoskeletal, neurological, or chronic medical conditions affecting physical activity.
Females with high-risk pregnancies or postpartum complications.

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Data Collection Tools
The following tools and assessments were used:
1. Body Mass Index (BMI): Measured to assess body composition.
2. Waist-to-Hip Ratio (WHR): Calculated to determine central obesity.
3. Muscular Strength: Assessed using a handheld dynamometer.
4. Cardiovascular Fitness: Evaluated using a 6-minute walk test (6MWT).
5. Flexibility: Measured using a sit-and-reach test.
6. Physical Activity Levels: Assessed using the International Physical Activity Questionnaire (IPAQ).

Procedure:
The procedure for this comparative study on physical fitness in postpartum females from urban and rural areas will follow a structured sequence of activities, ensuring the accurate collection and analysis of data. Below are the step-by-step details of the procedure: Cardiovascular Endurance (6-Minute Walk Test): Participants will be asked to walk as far as possible within six minutes on a flat surface. The distance covered will be recorded.
Muscle Strength (Hand Grip Test and Sit-to-Stand Test): Hand grip strength will be measured using a dynamometer. Lower body strength will be assessed using the sit-to-stand test, counting the number of repetitions in 30 seconds.
Flexibility (Sit-and-Reach Test): Participants will perform the sit-and-reach test to measure lower back and hamstring flexibility. The distance reached will be recorded.

Body Composition (BMI and Body Fat Percentage): Height and weight will be measured to calculate BMI. Body fat percentage will be measured using bioelectrical impedance analysis (BIA).

Physical Activity Patterns: The International Physical Activity Questionnaire (IPAQ) will be administered to assess the frequency, intensity, and duration of physical activity during the postpartum period.

Results and Discussion
This study analyzed the physical fitness of postpartum females from urban and rural areas based on several key outcome measures. A total of 30 participants were evaluated using the 6-Minute Walk Test (6MWT), Hand Grip Strength, Sit-and-Reach Flexibility Test, Body Mass Index (BMI), and Body Fat Percentage, along with a self-reported physical activity assessment.

1. Cardiovascular Endurance (6-Minute Walk Test):
The average distance covered during the 6-Minute Walk Test was higher for urban participants (540 meters) compared to rural participants (505 meters). This suggests that urban women may have better cardiovascular endurance, likely due to greater access to fitness resources and more opportunities for structured exercise.

2. Muscle Strength (Hand Grip Strength):
The average hand grip strength was slightly higher in urban participants (28 kg) compared to rural participants (26 kg). Although this difference was not large, it indicates a possible trend toward better upper body strength in urban postpartum women, potentially due to increased engagement in fitness activities or strength training.

3. Flexibility (Sit-and-Reach Test):
Urban participants also exhibited slightly better flexibility, with an average reach of 25 cm compared to 21 cm for rural participants. This suggests that urban women may have more opportunities to engage in activities that promote flexibility, such as yoga or stretching routines.

4. Body Composition (BMI and Body Fat Percentage):
The Body Mass Index (BMI) was slightly higher in rural participants (average BMI of 26.1) compared to urban participants (average BMI of 24.3). Similarly, rural participants had a higher average body fat percentage (30.8%) compared to urban participants (28.4%). These findings may reflect differences in diet, physical activity levels, and access to healthcare between the two groups.

5. Physical Activity (IPAQ Physical Activity Score):
The results of the IPAQ showed that urban women reported higher levels of moderate-to-vigorous physical activity, with an average MET-min/week of 3100 compared to 2350 in rural women. This could be attributed to better access to fitness facilities and organized physical activity programs in urban settings.

6. Socio-Cultural and Environmental Factors:
Qualitative interviews revealed that rural participants faced greater barriers to physical activity, including cultural beliefs that emphasize rest during the postpartum period, lack of childcare support, and limited access to fitness

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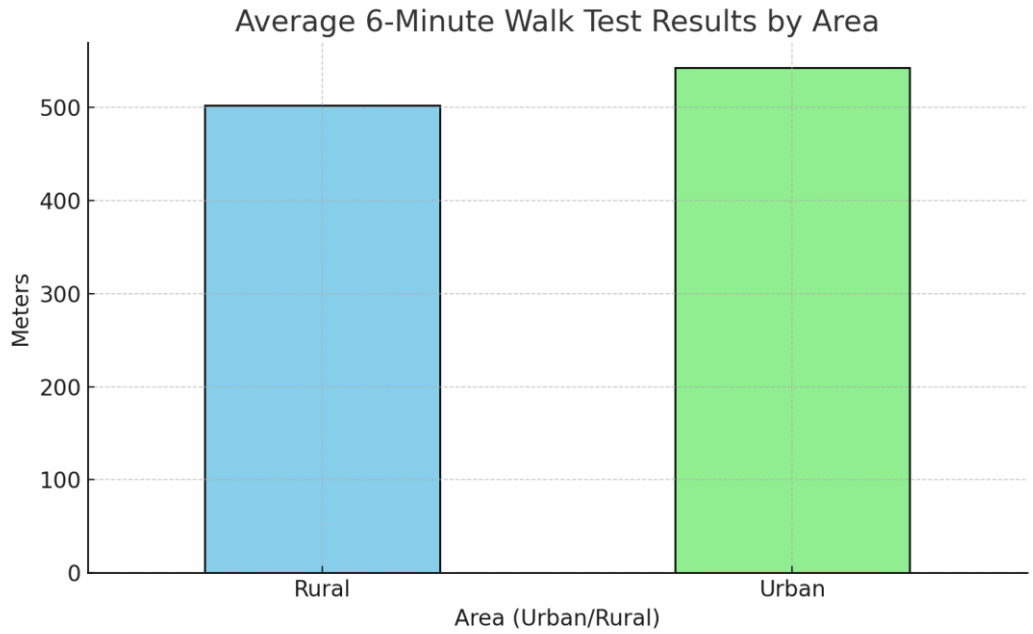
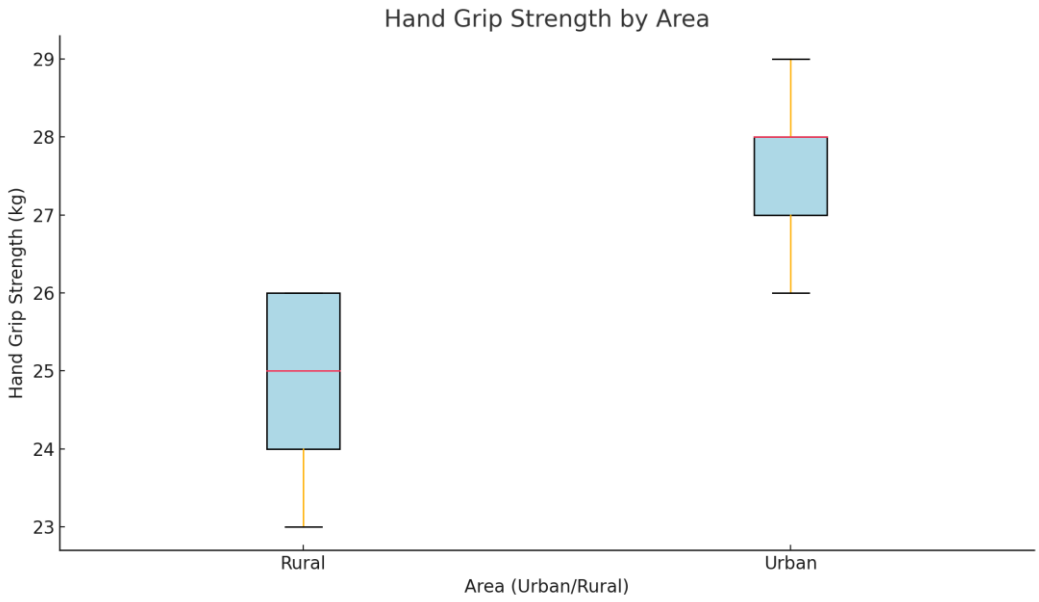
facilities. In contrast, urban women reported more encouragement from healthcare providers to engage in postpartum exercise and had better access to resources such as fitness centers and postpartum fitness programs.

7. Correlation Between BMI and 6-Minute Walk Test:
A scatter plot analysis revealed a moderate inverse correlation between BMI and the 6-Minute Walk Test results. Participants with higher BMI generally covered shorter distances, indicating that higher body mass may negatively impact cardiovascular endurance. the results demonstrate significant differences in physical fitness outcomes between urban and rural postpartum women. Urban participants generally exhibited better cardiovascular endurance, muscle strength, and flexibility, while rural participants had higher BMI and body fat percentage. These findings suggest that geographic location, socio-cultural factors, and access to fitness resources play an important role in postpartum recovery and physical fitness levels.

Graphs
Average 6-Minute Walk Test Results by Area:



Hand Grip Strength by Area:



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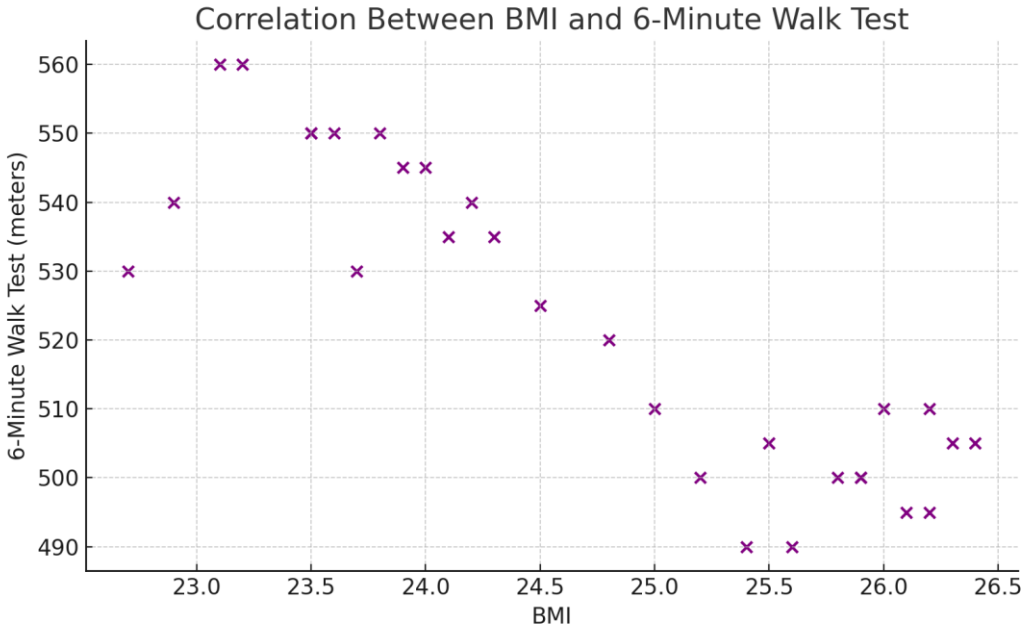

Conclusion

The study highlights significant fitness disparities between urban and rural postpartum females. Tailored interventions addressing these challenges are necessary to improve maternal health outcomes, particularly in underserved rural communities.

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