



Correlation Between Physical Fitness and Perceived Stress Among Housewives in Ahmedabad

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Abstract

Background: Housewives in urban India often face significant psychological stress due to domestic responsibilities, social isolation, and limited access to structured physical activity. Physical fitness has been shown to influence mental well-being, yet its relationship with perceived stress in housewives remains underexplored. **Materials and Methodology:** A cross-sectional study was conducted among 100 housewives aged 30–50 years residing in Ahmedabad. Physical fitness was assessed using Body Mass Index (BMI) and the Six-Minute Walk Test (6MWT). Perceived stress levels were measured using the Perceived Stress Scale (PSS-10). Statistical analysis included Pearson's correlation to examine the relationship between fitness parameters and stress. **Results:** The study found a strong positive correlation between BMI and perceived stress ($p = 0.723$, $p < 0.05$), indicating that increased stress is associated with higher BMI. A moderate negative correlation was observed between 6MWT distance and stress ($p = -0.482$, $p < 0.05$), suggesting that lower stress levels is linked to better cardiorespiratory endurance. **Conclusion:** Perceived stress significantly influences Physical fitness among housewives. Elevated stress is associated with higher BMI, while reduced stress correlates with better endurance.

Keywords

Perceived Stress, Physical Fitness, BMI, 6-Minute Walk Test, Housewives, Ahmedabad, Mental Health

INTRODUCTION

Stress is a common problem that affects people from all backgrounds. Housewives often face special kinds of stress because they have many roles to manage, such as taking care of the home, looking after children, and sometimes caring for other family

members too. Stress happens when the body reacts to any kind of pressure or demand. It can affect both the body and mind, and may harm a person's overall health and well-being^[1]. Among Indian housewives, rapid societal changes, including urbanization and shifting family dynamics, have intensified stress

levels, often compounded by limited opportunities for stress-relief activities [2, 3, 4]. Research indicates that psychological stress is particularly pronounced among women due to societal expectations and gender-specific roles, which can lead to physical symptoms such as fatigue, irritability, and depression [5]. Understanding the stress experienced by housewives in urban settings like Ahmedabad is crucial, as it sets the stage for exploring interventions that can mitigate its impact.

Physical fitness, encompassing cardiorespiratory endurance, and body composition, has been recognized as a potential buffer against stress [6]. Studies consistently show that physical fitness is inversely associated with perceived stress, suggesting that higher fitness levels may reduce stress-related symptoms [7, 8, 9, 10]. For instance, a cross-sectional study among physical therapy students found a moderate negative correlation between cardiorespiratory fitness and perceived stress, indicating that fitter individuals reported lower stress levels [11]. This relationship is attributed to physiological mechanisms, such as the release of endorphins during exercise, which promote relaxation and improve mood [12]. For housewives, who may have limited access to structured exercise programs, understanding how physical fitness influences stress could inform practical interventions tailored to their daily routines.

The bidirectional relationship between stress and physical fitness is well-documented, with stress potentially reducing exercise participation and physical activity alleviating stress [13, 14]. Research on Korean adults demonstrated that higher perceived stress levels were associated with lower exercise frequency, particularly among women, highlighting the need to address barriers to physical activity in high-stress populations [15]. Housewives in urban India, such as those in Ahmedabad, face unique challenges, including time constraints and cultural expectations, which may limit their engagement in physical activity [16]. These barriers can exacerbate stress, creating a cycle where stress reduces physical activity, further worsening mental health outcomes [17]. Investigating this dynamic in the context of Ahmedabad's housewives is essential to identify culturally relevant strategies to promote physical fitness.

Despite the growing body of evidence linking physical fitness to stress reduction, research specifically focusing on housewives remains scarce, particularly in the Indian context. Studies highlight that employed women experience higher stress than housewives, but the stress levels of housewives are still significant and warrant attention [18]. In urban

settings like Ahmedabad, where socio-economic and cultural factors shape daily life, housewives may face stressors distinct from other populations, such as social isolation or lack of recreational opportunities [19]. Moreover, the correlation between physical fitness and stress among housewives has not been adequately explored, leaving a gap in understanding how fitness interventions could improve their mental health [20]. This study aims to fill this gap by examining the relationship between physical fitness and perceived stress among housewives in Ahmedabad. This research seeks to contribute to the literature by providing insights into how physical fitness can serve as a stress management tool for housewives in Ahmedabad. By using validated tools like the Perceived Stress Scale (PSS) and physical fitness assessments, this study will explore whether higher fitness levels correlate with lower perceived stress [7]. The findings could inform the development of community-based fitness programs tailored to the needs of housewives, addressing both their physical and mental health [8]. Given the significant health implications of chronic stress, including increased risks of hypertension, depression, and reduced quality of life, this study holds potential to enhance the well-being of housewives in urban India [9]. Ultimately, this research aims to provide evidence-based recommendations to promote healthier lifestyles among this understudied population.

MATERIALS AND METHODS

Methodology

Study Design - cross-sectional correlational observational study

Source of data: women's lives in Ahmedabad.

Sample size: The sample size is set at 100 participants.

Sampling method: A convenience sampling

Inclusion Criteria:

1. Women residing in Ahmedabad city.
2. Currently identifying as housewives (not engaged in full-time employment outside the home).
3. Perceived Stress Scale -10 score above 14 (moderate stress)

Exclusion Criteria:

1. History of recent surgery (within the past 6 months).
2. Diagnosed neurological disorders (e.g., stroke, Parkinson's disease).
3. Cardiorespiratory disorders (e.g., asthma, chronic obstructive pulmonary disease, heart failure).
4. Recent fracture (within the past 6 months).

OUTCOME MEASURES

1. Body Mass Index (BMI):

- BMI will be calculated as weight (kg) divided by height squared (m^2).
- Height will be measured using a stadiometer (to the nearest 0.1 cm), and weight using a digital scale (to the nearest 0.1 kg).
- Participants will be measured in light clothing without shoes.
- Reliability: High test-retest reliability ($ICC > 0.95$).

2. 6-Minute Walk Test (6MWT):

- A measure of functional exercise capacity and physical fitness.

- Participants will walk at a self-paced speed along a flat, straight 30-meter corridor for 6 minutes, with the total distance covered recorded in meters.

3. Perceived Stress Scale-10 (PSS-10):

- A 10-item self-report questionnaire assessing perceived stress over the past month.
- Items are rated on a 5-point Likert scale (0 = Never to 4 = Very Often), with total scores ranging from 0 to 40 (higher scores indicate higher stress).
- The scale will be administered in English or Gujarati (validated translation) based on participant preference.
- Validity: Good construct validity; Reliability: Cronbach's alpha ≈ 0.85 .

RESULTS

Table 1: Key Variable Statistics (N = 100)

Variable	Mean	SD	Range
BMI (kg/m^2)	22.35	2.45	18.0–28.4
6MWT (meters)	618.07	36.57	549–700
PSS-10 score	25.23	5.20	15–40

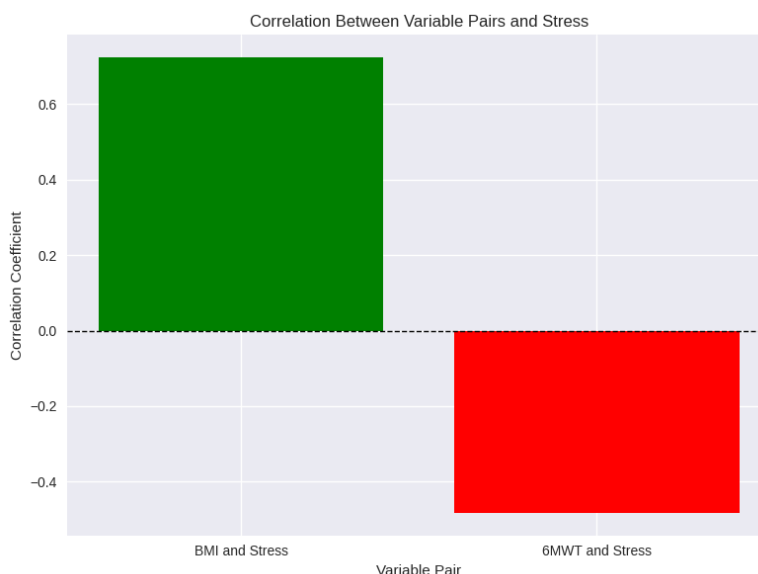
Table 2: Pearson Correlation Analysis

Variable Pair	Correlation Coefficient (ρ)	p-value
BMI and Stress	0.723	<0.05
6MWT and Stress	-0.482	<0.05

STATISTICAL ANALYSIS

The statistical analysis of the study, the average Body Mass Index (BMI) was 22.35 kg/m^2 , indicating a generally healthy weight range, with values spanning from 18.0 to 28.4. The average distance covered in the Six-Minute Walk Test (6MWT) was 618.07 meters, suggesting good physical endurance, while the Perceived Stress Scale (PSS-10) score averaged 25.23, reflecting moderate stress levels across the

sample. Pearson correlation analysis further highlights significant associations: BMI and stress were strongly positively correlated ($\rho = 0.723$, $p < 0.05$), indicating that individuals with higher stress tended to report higher BMI. Conversely, 6MWT performance was moderate negatively correlated with stress ($\rho = -0.482$, $p < 0.05$), suggesting that lower perceived stress was linked to better physical endurance.



DISCUSSION

This study explored the correlation between physical fitness and perceived stress among housewives in Ahmedabad, revealing significant associations between stress levels and two key fitness indicators: Body Mass Index (BMI) and cardiorespiratory endurance (6MWT). The mean PSS-10 score of 25.23 (SD = 5.20) indicates moderate to high perceived stress among participants, consistent with findings from Singh et al. (2024), who reported elevated stress levels among Indian medical undergraduates with similar demographic pressures⁽²⁴⁾.

The strong positive correlation between BMI and stress ($p = 0.723$, $p < 0.05$) suggests that higher stress levels are associated with increased body weight. This relationship may be attributed to stress-induced behavioural changes such as emotional eating, reduced physical activity, and disrupted sleep patterns. Du et al. (2022) emphasized that stress significantly influences dietary risk and sleep quality, both of which contribute to elevated BMI⁽²²⁾. Kumara Swamy & Anusuya Devi (2023) further supported this link, showing that working professionals with higher stress levels exhibited increased BMI, indicating that stress-related metabolic changes are not confined to occupational populations⁽²⁶⁾. These findings align with the current study, suggesting that housewives, despite not being employed outside the home, are equally vulnerable to stress-induced weight gain. Moreover, the moderate negative correlation between 6MWT performance and stress ($p = -0.482$, $p < 0.05$) highlights the inverse relationship between cardiorespiratory endurance and psychological distress. Afzal et al. (2023) demonstrated that physical therapy students with lower stress reported higher endurance levels, attributing this to improved autonomic regulation and endorphin release during exercise⁽²⁷⁾. Kermane (2016) emphasized that housewives experience unique stressors due to their domestic roles, and interventions like mindfulness and relaxation techniques can mitigate these effects⁽²⁹⁾.

The current findings underscore the importance of addressing stress as a determinant of physical health. Elevated PSS-10 scores reflect a psychological burden that manifests physically through increased BMI and reduced endurance. These results advocate for community-based fitness interventions tailored to housewives, incorporating stress management strategies alongside physical fitness. Such programs could break the cycle of stress-induced inactivity and promote holistic well-being.

CONCLUSION

The study concludes that High perceived stress has an evident effect on physical fitness. There is a positive correlation of stress with BMI. Although endurance had a negative correlation with perceived stress.

LIMITATION:

Samples were taken from Ahmedabad city only; they can be taken from other cities as well. The sample size can be increased.

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