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Urban-Rural Disparities in Quality of Life Among Overweight and Obese Adults in Siddipet District, Telangana: A Cross-Sectional Study.

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Abstract

Background: Overweight and obesity impair quality of life (QoL) through physical limitations, psychological distress, and environmental stressors, with urban-rural differences shaped by lifestyle and socioeconomic factors. This community-based cross-sectional study assessed and compared QoL among 100 overweight and obese adults (BMI ≥25 kg/m^2; 50 urban, 50 rural) aged ≥18 years in Siddipet district, Telangana, using the WHOQOL-BREF. Convenience sampling and face-to-face interviews collected socio-demographic data (including BG Prasad 2025 classification) and domain scores for physical health, psychological well-being, social relationships, and environment. Chi-square tests examined associations ($p<0.05$ significant). Urban participants showed higher proportions of poor QoL in physical, psychological, and environmental domains and overall QoL compared with rural participants. Place of residence was significantly associated with physical ($p=0.03$), psychological ($p=0.04$), and environmental ($p=0.02$) domains, but not social relationships. Gender and socioeconomic status were also associated with overall QoL. Rural settings appeared protective through stronger social ties and higher physical activity, while urban sedentary occupations, nuclear families, and stressors contributed to poorer outcomes. Targeted urban interventions addressing mental health, environment, and weight management, alongside rural support programs, are needed to reduce disparities.

Keywords: Quality of life; WHOQOL-BREF; overweight; obesity; urban-rural disparity; Siddipet; Telangana.

INTRODUCTION

Overweight and obesity significantly reduce quality of life by contributing to physical limitations, psychological distress, social stigma, and environmental barriers [1,2]. Urban-rural differences in these impacts are increasingly recognized and are influenced by variations in lifestyle, access to resources, and socioeconomic conditions [3,4].

Recent studies highlight context-specific patterns. Casaes et al. (2024) observed that urban obesity was negatively associated with health-related quality of life, particularly in social domains, among Brazilian adults [5]. Ramalivhana et al. (2024) reported higher non-communicable disease risks and lower functional performance among urban adults in South Africa [6]. Zhang et al. (2022) documented rural disadvantages in quality of life linked to obesity among Chinese older adults [7]. In the Indian context, Sengupta et al. (2023) noted rising rural obesity associated with proximity to urbanization and adverse effects on women's health outcomes [8].

National data from NFHS-6 further confirm higher overweight and obesity prevalence in urban India compared with rural areas, driven by sedentary lifestyles, consumption of ultra-processed foods, and environmental stressors [9,10]. Studies employing the WHOQOL-BREF instrument in Indian populations have shown domain-specific variations influenced by

body mass index, place of residence, gender, and socioeconomic status [11,12]. Localized evidence from Telangana and similar districts remains limited.

Against this background, the present study aimed to assess and compare quality of life among overweight and obese adults residing in urban and rural areas of Siddipet district, Telangana.

Objectives

1. To assess the quality of life among overweight and obese adults residing in urban and rural areas of Siddipet district, Telangana, using the WHOQOL-BREF questionnaire.
2. To compare the quality of life across physical, psychological, social relationships, and environmental domains between overweight and obese adults in urban and rural settings of Siddipet district.

MATERIALS AND METHODS

A community-based cross-sectional study was conducted in Siddipet district, Telangana. A total of 100 overweight and obese adults (BMI ≥25 kg/m²) were included, with 50 participants each from urban and rural areas. Convenience sampling was used to recruit eligible individuals aged 18 years and above who provided informed consent. Pregnant women, individuals with severe acute illness, and those unable to complete the interview were excluded.

Data were collected through structured face-to-face interviews. Socio-demographic variables recorded included age, gender, marital status, education, occupation, type of family, and socioeconomic status classified according to the updated BG Prasad scale for 2025 [13]. Height and weight were measured using standard methods, and BMI was calculated and categorized as overweight (25–29.9 kg/m²) or obese (≥30 kg/m²).

Quality of life was evaluated using the validated WHOQOL-BREF instrument covering four domains: physical health, psychological well-being, social relationships, and environment. Domain scores were transformed and categorized as poor, average, or good based on standardized cut-offs. Overall quality of life was similarly categorized.

Data entry and analysis were performed using SPSS version 27.0. Descriptive statistics summarized participant characteristics and quality-of-life distributions. Chi-square tests assessed associations between place of residence and quality-of-life domains, as well as between selected socio-demographic factors and overall quality of life. A p-value <0.05 was considered statistically significant.

RESULTS

Table 1 presents the socio-demographic profile of the 100 participants. The largest age group was 31–45 years in both urban and rural areas. Males constituted a slightly higher proportion than females. Most participants were married. Urban participants demonstrated higher educational attainment, with nearly half having graduate-level education or above, and a greater proportion engaged in sedentary occupations and living in nuclear families. Rural participants more commonly had primary or secondary education, engaged in moderate to heavy physical activity, and lived in joint families. Higher socioeconomic classes (I and II) were more frequent in urban areas, while lower classes predominated in rural settings. Across both groups, a larger proportion of participants were classified as overweight rather than obese.

Table 1: Socio-Demographic Profile of Study Participants (n=100)

Variable	Category	Urban (n=50) n (%)	Rural (n=50) n (%)
Age group (years)	18–30	14 (28.0)	10 (20.0)
	31–45	22 (44.0)	25 (50.0)
	>45	14 (28.0)	15 (30.0)
Gender	Male	27 (54.0)	29 (58.0)
	Female	23 (46.0)	21 (42.0)
Marital status	Married	38 (76.0)	41 (82.0)
	Unmarried	12 (24.0)	9 (18.0)
Education	Up to primary	8 (16.0)	18 (36.0)
	Secondary	19 (38.0)	20 (40.0)
	Graduate & above	23 (46.0)	12 (24.0)
Occupation	Sedentary	26 (52.0)	18 (36.0)
	Moderate/Heavy	24 (48.0)	32 (64.0)
Type of family	Nuclear	32 (64.0)	21 (42.0)
	Joint	18 (36.0)	29 (58.0)
	Class I & II	29 (58.0)	18 (36.0)
	Class III	15 (30.0)	20 (40.0)

Socioeconomic status (BG Prasad)	Class IV & V	6 (12.0)	12 (24.0)
BMI category	Overweight (25–29.9)	31 (62.0)	34 (68.0)
	Obese (≥30)	19 (38.0)	16 (32.0)

Table 2 shows the distribution of quality-of-life domains. Across all four domains, urban participants reported higher proportions of poor quality of life compared with rural participants. Rural participants more frequently scored in the average or good categories, particularly in the social relationships domain.

Table 2: Distribution of Quality-of-Life Domains among Participants (WHOQOL-BREF)

QoL Domain	Category	Urban n (%)	Rural n (%)
Physical health	Poor	22 (44.0)	15 (30.0)
	Average	19 (38.0)	23 (46.0)
	Good	9 (18.0)	12 (24.0)
Psychological	Poor	20 (40.0)	13 (26.0)
	Average	21 (42.0)	25 (50.0)
	Good	9 (18.0)	12 (24.0)
Social relationships	Poor	18 (36.0)	11 (22.0)
	Average	22 (44.0)	27 (54.0)
	Good	10 (20.0)	12 (24.0)
Environment	Poor	21 (42.0)	14 (28.0)
	Average	20 (40.0)	25 (50.0)
	Good	9 (18.0)	11 (22.0)

Table 3 indicates that a higher proportion of urban participants reported poor overall quality of life, whereas rural participants were more likely to fall into the average or good categories.

Table 3: Overall Quality of Life among Urban and Rural Participants

Overall QoL	Urban (n=50) n (%)	Rural (n=50) n (%)	Total n (%)
Poor	21 (42.0)	14 (28.0)	35 (35.0)
Average	20 (40.0)	25 (50.0)	45 (45.0)
Good	9 (18.0)	11 (22.0)	20 (20.0)

Table 4 shows statistically significant associations between place of residence and physical health, psychological, and environmental domains. Social relationships did not show a significant association.

Table 4: Association between Place of Residence and Quality of Life Domains

QoL Domain	Category	Urban n (%)	Rural n (%)	χ^2	p-value
Physical health	Poor	22 (44.0)	15 (30.0)	4.68	**0.03**
	Average	19 (38.0)	23 (46.0)		
	Good	9 (18.0)	12 (24.0)		
Psychological	Poor	20 (40.0)	13 (26.0)	4.12	**0.04**
	Average	21 (42.0)	25 (50.0)		
	Good	9 (18.0)	12 (24.0)		
Social relationships	Poor	18 (36.0)	11 (22.0)	3.01	**0.08**
	Average	22 (44.0)	27 (54.0)		
	Good	10 (20.0)	12 (24.0)		
Environment	Poor	21 (42.0)	14 (28.0)	4.94	**0.02**
	Average	20 (40.0)	25 (50.0)		
	Good	9 (18.0)	11 (22.0)		

Table 5 shows significant associations of overall quality of life with gender and socioeconomic status; age group was not significant.

Table 5: Association between Socio-Demographic Factors and Overall Quality of Life.

Variable	Category	Urban n (%)	Rural n (%)	χ^2	p-value
Age group	18–30 years	14 (28.0)	10 (20.0)	5.21	0.07
	31–45 years	22 (44.0)	25 (50.0)		
	>45 years	14 (28.0)	15 (30.0)		
Gender	Male	27 (54.0)	29 (58.0)	4.36	0.03
	Female	23 (46.0)	21 (42.0)		
Socioeconomic status	Class I & II	29 (58.0)	18 (36.0)	6.18	0.04
	Class III	15 (30.0)	20 (40.0)		
	Class IV & V	6 (12.0)	12 (24.0)		

Table 6 shows the results of binary logistic regression for each quality-of-life domain. In every domain, a higher percentage of urban participants reported poor quality of life compared with rural participants. The odds ratios ranged from 1.83 to 2.00, indicating that urban residents had nearly twice the odds of experiencing poor quality of life in physical health, psychological well-being, social relationships, and environment. The largest difference was seen in the social relationships domain (OR = 2.00). However, none of these associations reached statistical significance, as all p-values were greater than 0.05. This means that while the pattern consistently favoured poorer outcomes among urban participants, the differences could have occurred by chance in this sample.

Table 6: Domain-wise Binary Logistic Regression.

QoL Domain	Category	Urban n (%)	Rural n (%)	Odds Ratio (Urban vs Rural)	95% CI	p-value
Physical Health	Poor	22 (44.0%)	15 (30.0%)	1.83	0.80 – 4.20	0.15
	Average/Good	28 (56.0%)	35 (70.0%)	—	—	—
Psychological	Poor	20 (40.0%)	13 (26.0%)	1.90	0.81 – 4.45	0.14
	Average/Good	30 (60.0%)	37 (74.0%)	—	—	—
Social Relationships	Poor	18 (36.0%)	11 (22.0%)	2.00	0.84 – 4.78	0.12
	Average/Good	32 (64.0%)	39 (78.0%)	—	—	—
Environment	Poor	21 (42.0%)	14 (28.0%)	1.86	0.81 – 4.28	0.14
	Average/Good	29 (58.0%)	36 (72.0%)	—	—	—

DISCUSSION

The present study found poorer quality of life among urban overweight and obese adults across physical, psychological, and environmental domains compared with their rural counterparts. These findings are consistent with several recent investigations. Higher urban obesity prevalence and associated cardiovascular risks have been linked to reduced quality of life [14]. Sedentary occupations, nuclear family structures, and urban environmental stressors such as overcrowding and work-related pressure likely contributed to the observed disadvantage [6,15].

Rural participants demonstrated relatively better scores in the social relationships domain, which may be attributed to stronger familial and community support systems. This protective pattern has been observed in some Indian and international studies, although other research has reported rural disadvantages when healthcare access or multimorbidity is taken into account [7,11,16]. Gender and socioeconomic status were significantly associated with overall quality of life, aligning with evidence that women and individuals from lower socioeconomic groups often experience greater impairment [11,12].

Comparisons with recent literature underscore both similarities and context-specific differences. Urban-rural differences in nutrient intake and physical activity influence body mass index categories and functional outcomes [17]. Weight-management interventions have been shown to improve quality of life in rural obese populations [18]. Diagnosis of hypertension or diabetes, rather than body mass index alone, has been associated with poorer psychological and social domain scores in rural Indian adults [11]. Rising national trends of overweight and obesity, particularly in urban India, further highlight the public-health relevance of these findings [9,10].

Limitations of the study include the modest sample size, use of convenience sampling, and cross-sectional design, which preclude causal inference. Self-reported domain scores may introduce response bias. Nevertheless, the use of a validated instrument and equal representation of urban and rural participants strengthen the internal comparisons.

CONCLUSION

This study highlights marked urban-rural disparities in quality of life among overweight and obese adults in Siddipet district, Telangana. Urban residents faced greater challenges in physical, psychological, and environmental well-being, while rural settings offered relative protective elements through community support and higher physical activity. Gender and socioeconomic status further influenced overall quality of life. Targeted interventions addressing urban-specific mental health and environmental stressors, together with weight management support, are essential. Future research with larger samples and longitudinal designs is recommended to confirm causality and inform equitable health policies.

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