

# Statistical Bulletin on Overweight/ Obese Women in the Southern States of India

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# Introduction

Health is a major concern across the globe, and among them overweight/obesity is one of the leading non-communicable disease which cause multiple morbidities. World Health Organization (WHO) defines adult overweight and obesity as follows: overweight are those adults with a Body Mass Index (BMI) greater than or equal to 25; and obese are those adults whose BMI is greater than or equal to 30. BMI is a simple index of weight-for-height that is commonly used to classify overweight and obesity in adults. It is defined as a person's weight in kilograms divided by the square of his height in meters ( $\text{kg}/\text{m}^2$ ). BMI is calculated similarly for both sexes and all ages of adults and is hence considered a useful population-level measure of overweight and obesity.

Since 1975, the incidence of obesity has tripled as per the WHO. In the year 2016, among adults, more than 1.9 billion were overweight. Among these, 650 million were obese. In other words, more than one-third of adults (18 years and above) (39%) were overweight and 13% were obese. In fact, overweight and obese individuals live in those countries where this phenomenon killed more people than those who are underweight. Interestingly, in India, the prevalence of overweight and obesity has been increasing at a fast pace than the world average. Incidence of being overweight increased from 8.4% to 15.5% among women between 1998 and 2015; obesity increased to 5.1% from 2.2%.<sup>1</sup> The incidence has been high among adult women and the disparities vary among socio-economic-geographic indicators. In this bulletin, we investigate the incidence of overweight/obese women (aged 15-49 years) in the Southern States of India. We make use of the findings from the National Family Health Survey (NFHS)-5 (2019-2021).<sup>2</sup> NFHS defines BMI as the ratio of weight in kilograms to the square of height in meters ( $\text{kg}/\text{m}^2$ ). The analysis excludes pregnant women and women with a birth in the preceding 2 months. We examine the socio-economic and geographic context of obese/overweight women in India in general and Southern States in particular. The performance of 120 districts in South India (depicted in the table below) is also focused on.

<sup>1</sup> Luhar, S et al. (2020): "Forecasting the Prevalence of Overweight and Obesity in India to 2040", *PLoS ONE*, 15 (2): e0229438. <https://doi.org/10.1371/journal.pone.0229438>.

<sup>2</sup> For India and other Southern States mentioned in the current bulletin, NFHS report mentions 2019-21, except for the state of Karnataka (2019-20). NFHS-4 refer to 2015-16.

Statistical Bulletin on Overweight/Obese Women in the Southern States of India

S.No.	Name of the States	Name of the Districts	Number of Districts
1	Telangana	Adilabad, Bhadradi Kothagudem, Hyderabad, Jagtial, Jangaon, Jayashankar Bhupalpally, Jogulamba Gadwal, Kamareddy, Karimnagar, Khammam, Kumuram Bheem Asifabad, Mahabubabad, Mahabubnagar, Mancherial, Medak, Medchal-Malkajiri, Nagarkurnool, Nalgonda, Nirmal, Nizamabad, Peddapalli, Rajanna Sircilla, Rangareddy, Sangareddy, Siddipet, Suryapet, Vikarabad, Wanaparthy, Warangal Rural, Warangal Urban, Yadadri Bhuvanagiri	31
2	Karnataka	Yadgiri, Raichur, Bidar, Koppal, Kalaburagi (Gulbarga), Dakshina Kannada, Uttara Kannada (Karwar), Udupi, Belagavi (Belgaum), Chikkaballapur, Ballari (Bellary), Vijayapura (Bijapur), Kolar, Bagalkote, Haveri, Tumakuru (Tumkur), Shivamogga (Shimoga), Chamarajanagar, Gadag, Bangalore Rural, Chikkamagaluru (Chikmagalur), Dharwad, Kodagu, Hassan, Mysuru (Mysore), Ramanagara, Chitradurga, Davangere, Mandya, Bengaluru	30
3	Andhra Pradesh	Ananthapuramu, Chittoor, East Godavari, Guntur, Krishna, Kurnool, Prakasam, Srikakulam, Sri Potti Sriramulu Nellore, Visakhapatnam, Vizianagaram, West Godavari, YSR	13
4	Kerala	Wayanad, Kasargod, Kozhikode, Kannur, Palakkad Idukki, Malappuram, Ernakulam, Kottayam, Alappuzha, Thrissur, Kollam, Pathanamthitta, Thiruvananthapuram	14
5	Tamil Nadu	Ariyalur, Chennai, Coimbatore, Cuddalore, Dharmapuri, Dindigul, Erode, Kancheepuram, Kanniyakumari, Karur, Krishnagiri, Madurai, Nagapattinam, Namakkal, Perambalur, Pudukkottai, Ramanathapuram, Salem, Sivaganga, Thanjavur, The Nilgiris, Theni, Tiruvallur, Tiruvarur Thoothukudi, Tiruchirappalli, Tirunelveli, Tiruppur, Tiruvannamalai, Vellore, Viluppuram, Virudhunagar	32
		<b>Total</b>	<b>120</b>

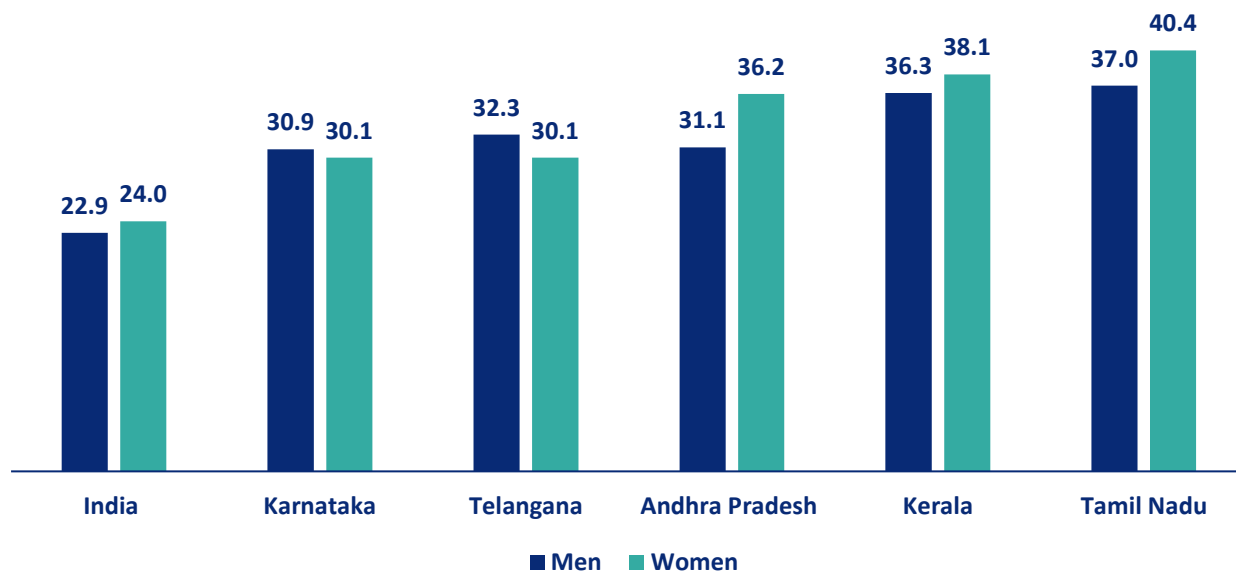
Source: NFHS-5

## Weight of Being Overweight/Obese – Incidence among Women

The incidence of being overweight/obese is more among women than men in the age group of 15-49 years. At the national level, around one-fourth of women are overweight/obese (women 24%), marginally higher than men (22.9%). In the states of Andhra Pradesh, Kerala and Tamil Nadu too, one can observe that the incidence was higher among women than men. In Karnataka and Telangana, the incidence is marginally lower among women in comparison with men. The levels were also higher than the national average in all the Southern States for both men and women. This is a cause of concern.

A comparison of data on incidence of overweight/obesity among women between NFHS-4 and 5 reveals interesting facts. At national level, it increased by 3.3% and similar pattern can be found across Southern States as well. In Tamil Nadu, the increase is highest (by 9.5%), closely followed by Karnataka and Kerala (an increase of 6.9% and 5.7% respectively) whereas it is least in Telangana (by 2%).

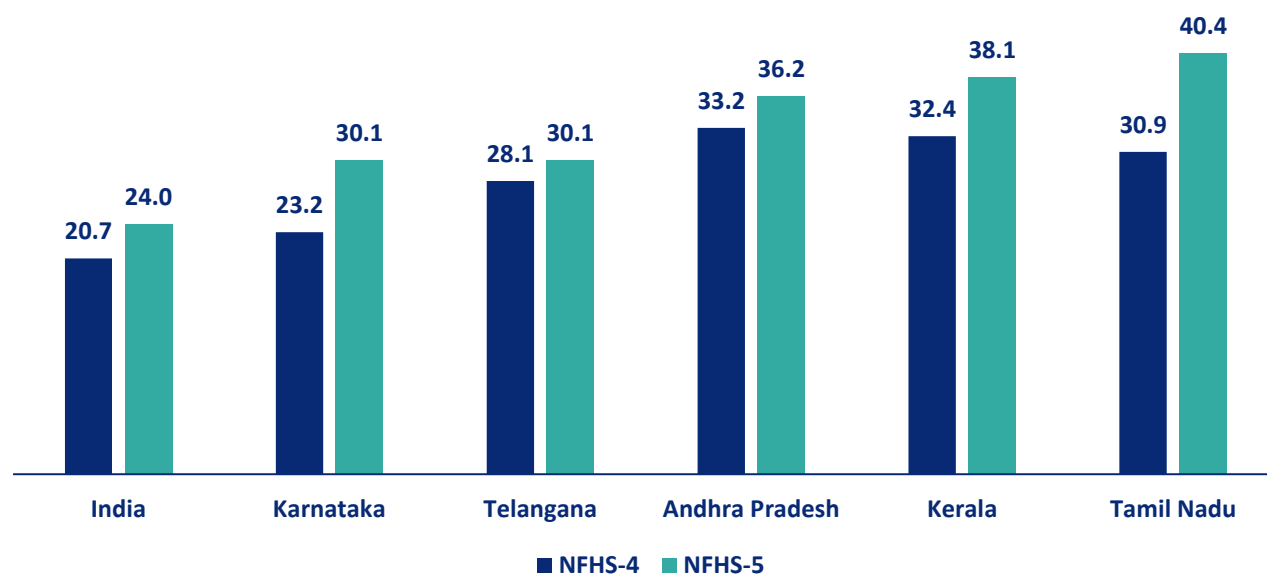
### Incidence of Overweight/Obesity among Adults in India & Southern States



Source: NFHS-5



## Incidence of Overweight/Obese Women in NFHS-4 and NFHS-5



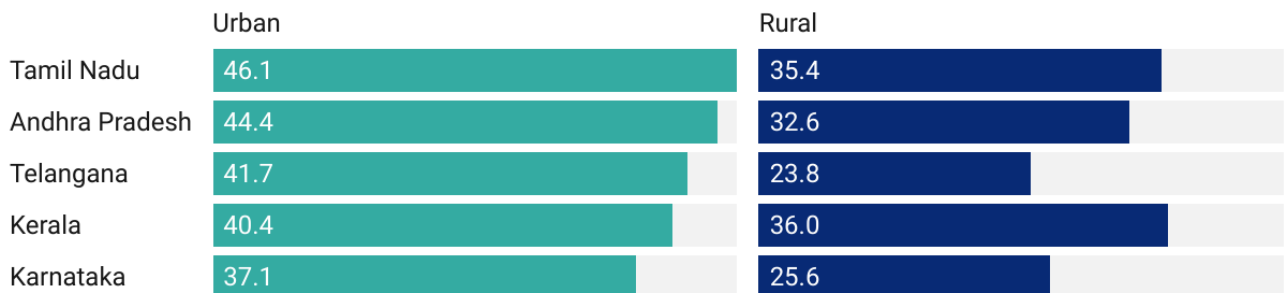
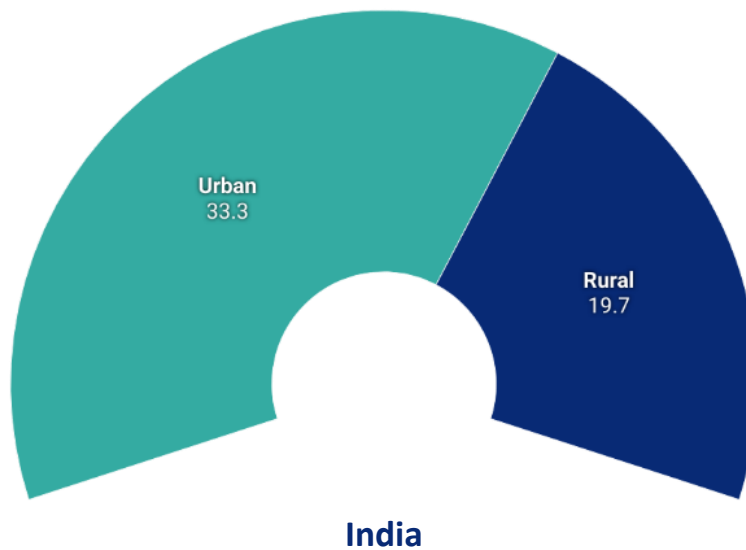
Source: NFHS-4 and NFHS-5

In the following sections, we delve deeper into the different aspects of the incidence of overweight/obesity among women. The different axes of categorisation based on location (rural/urban), social (religion/caste/tribe) and wealth (based on five quintiles) are discussed at national and state level for South India.



## More of an Urban Phenomenon

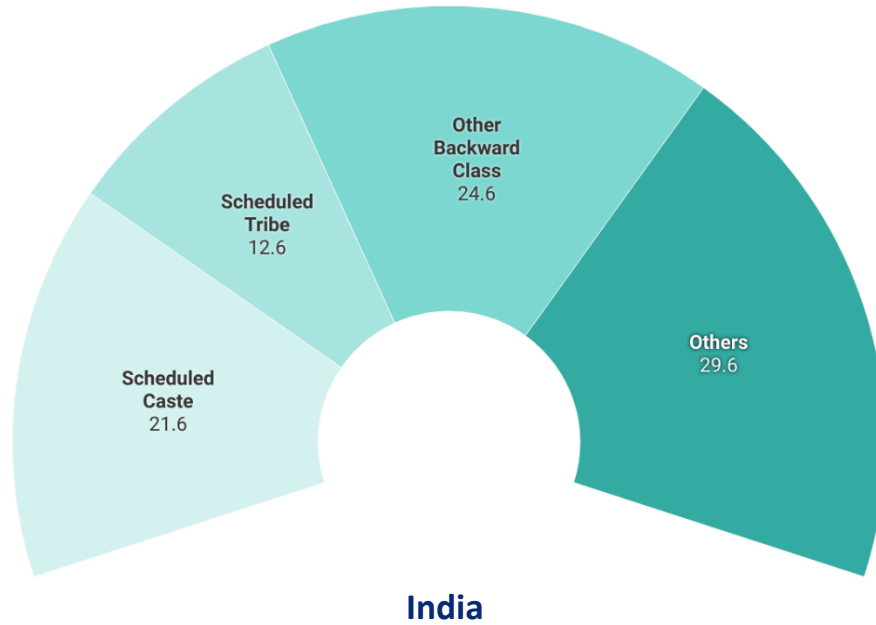
Southern States represent high levels of overweight/obesity among urban women, much higher than the national level. The prevalence among rural areas is also quite higher than national, with around one-fourth of women reporting to be overweight/obese in Karnataka and Telangana, while it is one-third or more in the rest of the south Indian states.



Source: NFHS-5

## Socio – Religious Angle

Social category wise prevalence of overweight/obesity among women indicates higher incidence among Others (29.6%) followed by Other Backward Classes (24.6%), Scheduled Caste (21.6%) and Scheduled Tribe (12.6%) at all India level. Similar pattern may be observed among Southern States too.



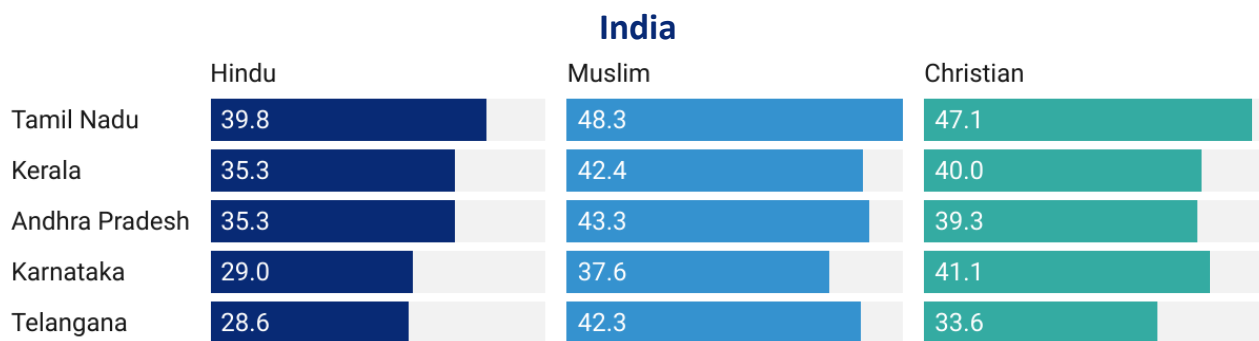
	Scheduled Caste	Scheduled Tribe	Other Backward Class	Others
Tamil Nadu	36.1	30.2	42.6	42.4
Kerala	33.9	20.4	38.6	39.9
Andhra Pradesh	33.3	22.0	34.6	45.9
Karnataka	26.8	25.1	31.5	34.2
Telangana	28.3	23.0	30.2	41.2

Source: NFHS-5



## Statistical Bulletin on Overweight/Obese Women in the Southern States of India

Religion wise data indicates that at national level, the prevalence of overweight/obesity is high among Christians (31.2%). Even among Muslims and Hindu women, the prevalence is more than or around one-fourth. In Southern States , however, the prevalence is more among Muslims in Tamil Nadu, Andhra Pradesh, Kerala and Telangana.

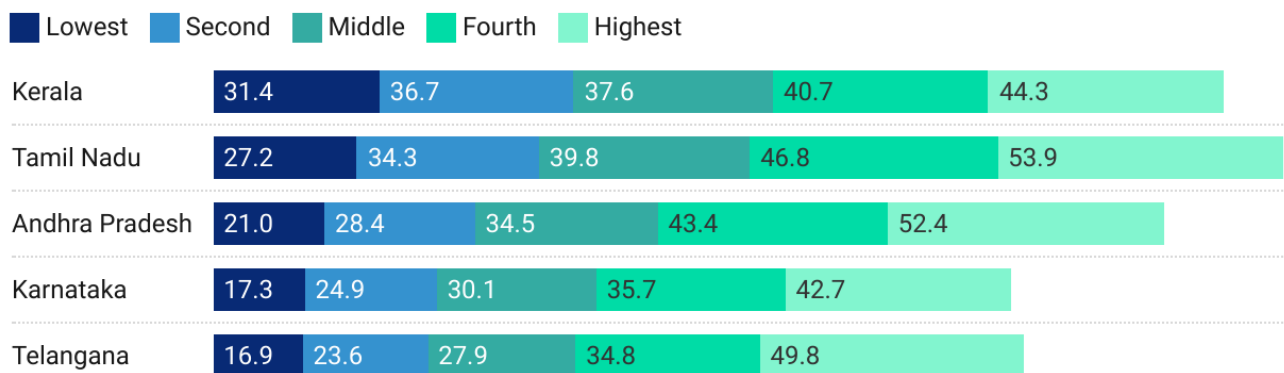
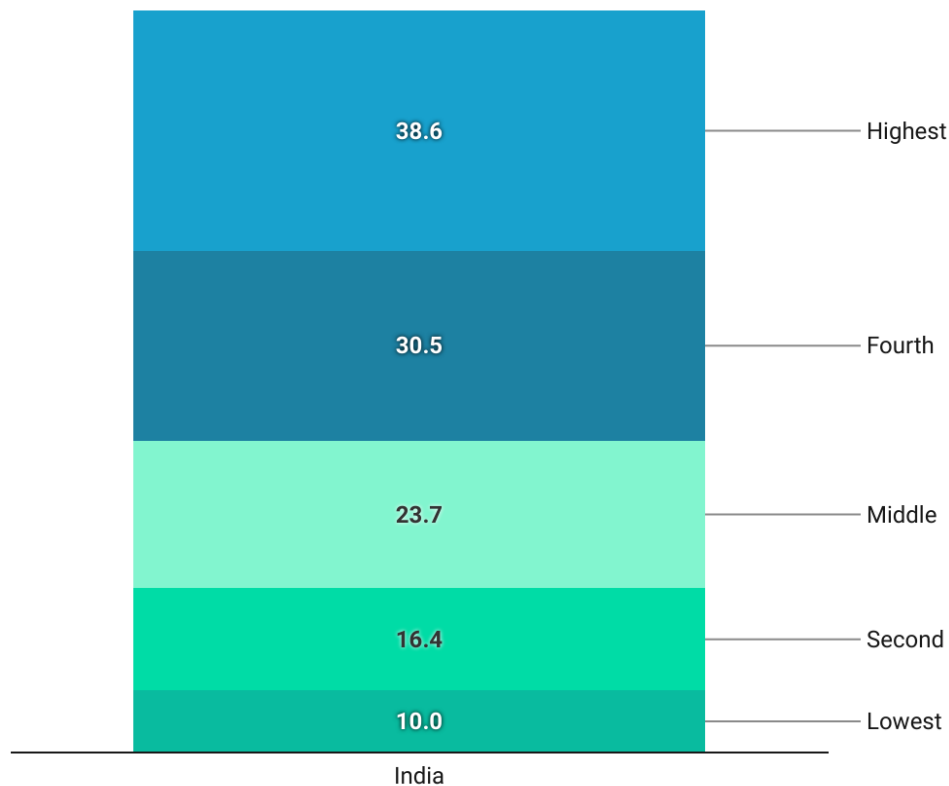


Source: NFHS-5



## From the Highest Wealth Category

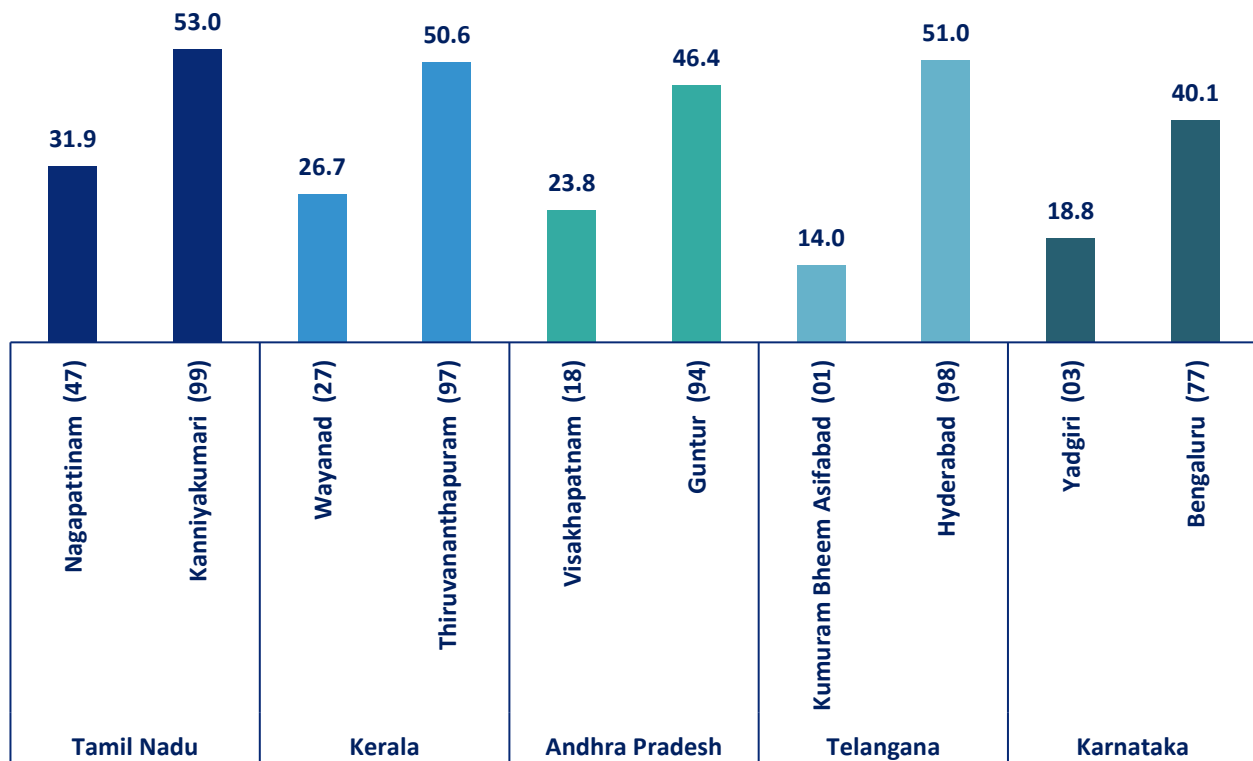
Wealth index categorization shows very interesting facts – the prevalence is more among the highest wealth category (38.6%) closely followed by fourth (30.5%) and middle (23.7%) groups. In Southern States, the incidence is alarmingly high (nearly or more than half of the women), and is highest in the states of Tamil Nadu, Andhra Pradesh and Telangana.



Source: NFHS-5

## Prevalence in Districts – South India Level

The ranking of districts based on prevalence of overweight/obesity (higher the value of rank, lower the performance i.e., high prevalence of overweight/obesity) indicate that the bottom most districts of Tamil Nadu (Kanniyakumari – 99), Telangana (Hyderabad – 98), Kerala (Thiruvananthapuram – 97) and Andhra Pradesh (Guntur – 94) are among the bottom most districts of South India. Interestingly, the top district of Telangana with lowest prevalence of overweight/obesity among women (Kumuram Bheem Asifabad) is also the top district within South India. The evidence from the districts also indicate huge disparities – such as the top district in Telangana fares much better (less than half the prevalence) than the top district of Tamil Nadu (31.9%). This is a cause of concern.



Source: NFHS-5

Note: 120 Districts are categorised into 99 ranks as some districts have similar values

## Ranking of Districts (in Southern States )

S.No.	State Name	District Name	Women who are Overweight/obese (BMI $\geq$ 25.0 kg/m <sup>2</sup> ) (%)	Rank
1	Telangana	Kumuram Bheem Asifabad	14.0	1
2	Telangana	Adilabad	15.7	2
3	Karnataka	Yadgiri	18.8	3
4	Karnataka	Raichur	19.9	4
5	Karnataka	Bidar	20.8	5
6	Telangana	Kamareddy	21.0	6
7	Karnataka	Kalaburagi (Gulbarga)	21.8	7
8	Telangana	Jogulamba Gadwal	21.9	8
9	Karnataka	Koppal	21.9	8
10	Karnataka	Dakshina Kannada	22.2	9
11	Telangana	Jayashankar Bhupalpally	22.4	10
12	Telangana	Nirmal	22.5	11
13	Karnataka	Uttara Kannada	22.6	12
14	Telangana	Nagarkurnool	22.8	13
15	Karnataka	Udupi	22.9	14
16	Telangana	Medak	23.3	15
17	Telangana	Wanaparthy	23.5	16
18	Telangana	Mahabubabad	23.7	17
19	Telangana	Rajanna Sircilla	23.8	18
20	Karnataka	Belagavi (Belgaum)	23.8	18
21	Andhra Pradesh	Visakhapatnam	23.8	18
22	Telangana	Mahabubnagar	24.0	19
23	Telangana	Jangaon	24.1	20
24	Telangana	Mancherial	24.6	21
25	Telangana	Yadadri Bhuvanagiri	24.6	21

Statistical Bulletin on Overweight/Obese Women in the Southern States of India

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26	Telangana	Vikarabad	25.7	22
27	Telangana	Jagtial	26.0	23
28	Telangana	Peddapalli	26.1	24
29	Telangana	Warangal Rural	26.4	25
30	Karnataka	Chikkaballapur	26.6	26
31	Kerala	Wayanad	26.7	27
32	Telangana	Siddipet	26.8	28
33	Andhra Pradesh	Srikakulam	27.2	29
34	Karnataka	Ballari (Bellary)	27.3	30
35	Karnataka	Vijayapura (Bijapur)	27.4	31
36	Telangana	Nizamabad	27.5	32
37	Karnataka	Kolar	27.9	33
38	Kerala	Kasargod	28.4	34
39	Telangana	Nalgonda	28.5	35
40	Karnataka	Bagalkote	28.6	36
41	Telangana	Karimnagar	28.8	37
42	Andhra Pradesh	Vizianagaram	28.8	37
43	Andhra Pradesh	Kurnool	29.0	38
44	Karnataka	Haveri	29.1	39
45	Andhra Pradesh	Ananthapuramu	29.3	40
46	Telangana	Sangareddy	29.4	41
47	Karnataka	Shivamogga (Shimoga)	30.3	42
48	Karnataka	Tumakuru (Tumkur)	30.4	43
49	Karnataka	Chamarajanagar	30.6	44
50	Karnataka	Gadag	30.6	44
51	Kerala	Kozhikode	30.7	45
52	Telangana	Bhadradri Kothagudem	31.0	46

Statistical Bulletin on Overweight/Obese Women in the Southern States of India

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53	Tamil Nadu	Nagapattinam	31.9	47
54	Telangana	Warangal Urban	32.0	48
55	Tamil Nadu	Pudukkottai	32.0	48
56	Kerala	Kannur	32.4	49
57	Kerala	Palakkad	32.9	50
58	Tamil Nadu	Perambalur	32.9	50
59	Karnataka	Bangalore Rural	33.2	51
60	Karnataka	Chikkamagaluru (Chikmagalur)	33.2	51
61	Tamil Nadu	Ariyalur	33.3	52
62	Andhra Pradesh	Chittoor	33.4	53
63	Tamil Nadu	Dharmapuri	33.4	53
64	Tamil Nadu	Sivaganga	33.4	53
65	Tamil Nadu	Tiruchirappalli	33.5	54
66	Karnataka	Dharwad	33.8	55
67	Telangana	Suryapet	33.9	56
68	Andhra Pradesh	YSR	33.9	56
69	Tamil Nadu	Ramanathapuram	34.1	57
70	Tamil Nadu	Krishnagiri	34.5	58
71	Karnataka	Kodagu	34.7	59
72	Tamil Nadu	Karur	34.7	59
73	Tamil Nadu	Cuddalore	35.1	60
74	Telangana	Khammam	36.1	61
75	Karnataka	Hassan	36.1	61
76	Kerala	Idukki	36.3	62
77	Karnataka	Mysuru (Mysore)	36.4	63
78	Karnataka	Ramanagara	36.5	64
79	Kerala	Malappuram	36.6	65



Statistical Bulletin on Overweight/Obese Women in the Southern States of India

S.No.	State Name	District Name	Women who are Overweight/obese (BMI $\geq$ 25.0 kg/m <sup>2</sup> ) (%)	Rank
80	Tamil Nadu	Viluppuram	37.0	66
81	Tamil Nadu	Erode	37.1	67
82	Tamil Nadu	Tiruvarur	37.2	68
83	Karnataka	Chitradurga	37.4	69
84	Tamil Nadu	Virudhunagar	37.4	69
85	Tamil Nadu	Tiruvannamalai	37.8	70
86	Karnataka	Davangere	38.1	71
87	Tamil Nadu	Dindigul	38.5	72
88	Karnataka	Mandya	38.7	73
89	Andhra Pradesh	Prakasam	39.5	74
90	Andhra Pradesh	Sri Potti Sriramulu Nellore	39.5	74
91	Tamil Nadu	The Nilgiris	39.5	74
92	Kerala	Ernakulam	39.6	75
93	Kerala	Kottayam	39.8	76
94	Karnataka	Bengaluru	40.1	77
95	Tamil Nadu	Tirunelveli	40.2	78
96	Tamil Nadu	Salem	40.3	79
97	Telangana	Rangareddy	40.6	80
98	Andhra Pradesh	Krishna	40.6	80
99	Tamil Nadu	Madurai	40.8	81
100	Telangana	Medchal-Malkajgiri	41.8	82
101	Kerala	Alappuzha	41.9	83
102	Tamil Nadu	Chennai	41.9	83
103	Kerala	Thrissur	42.8	84
104	Tamil Nadu	Thanjavur	42.8	84
105	Tamil Nadu	Namakkal	43.2	85
106	Tamil Nadu	Thoothukudi	43.4	86

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107	Kerala	Kollam	43.5	87
108	Kerala	Pathanamthitta	43.8	88
109	Andhra Pradesh	East Godavari	44.4	89
110	Tamil Nadu	Tiruppur	45.0	90
111	Tamil Nadu	Theni	45.2	91
112	Andhra Pradesh	West Godavari	45.3	92
113	Tamil Nadu	Vellore	45.4	93
114	Andhra Pradesh	Guntur	46.4	94
115	Tamil Nadu	Kancheepuram	46.4	94
116	Tamil Nadu	Tiruvallur	48.6	95
117	Tamil Nadu	Coimbatore	50.0	96
118	Kerala	Thiruvananthapuram	50.6	97
119	Telangana	Hyderabad	51.0	98
120	Tamil Nadu	Kanniyakumari	53.0	99

Source: NFHS-5

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