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Original Article

# Comparative Evaluation of Prevalence and Distribution of Obesity in Various Districts of the Union Territory of Jammu and Kashmir in 2015–2016 and 2019–2020: An Observational Study

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## Abstract

**Background:** In recent times, obesity in India has become a major concern. It causes loss of health, environment and increases financial burden of an individual.

**Aims:** The aim of this study was to assess the prevalence and distribution of obesity intake among individuals of more than 15 years of age in union territory of Jammu and Kashmir, India.

**Materials and Methods:** District-wise data from National Health Survey-5 and 4, Ministry of Health, and Family welfare were collected, analyzed, and measured. Data collected were entered and statistically analyzed using the Statistical Package for the Social Sciences version 24.0 software (IBM, Armonk, NY, USA). Various districts were diagrammatically color coded and described as Figures 1 and 2.

**Results:** Out of all the districts in the union territory of J and K, prevalence of obesity among females was highest in Srinagar district and lowest in Kishtwar district in 2015–2016 whereas highest in Jammu district and lowest in Mirpur and Muzaffarabad district in 2019–2020.

**Conclusion:** Females should be made more aware about the ill effects of obesity. Although the Government of India started Program to control obesity in 2010, its reduction lies in our hands and same should be discussed with general masses by making them aware about the ill effects on mental and health of individual.

**Key words:** Distribution, Females, Ill effects, Jammu and Kashmir, Obesity, Obesity control

## INTRODUCTION

With world becoming more developed, obesity has emerged as a greater public health issue across the globe. The prevalence of people living with either overweight or obesity is increasing worldwide, and since 1975, this has almost tripled.[1] Obesity is defined as abnormal or excessive fat accumulation that presents a risk to health. A body mass index (BMI) over 25 is considered overweight and over 30 is obese.[2] Overweight and obesity have been found to be an important risk factor for various non-communicable diseases, and more recently, obesity has been recognized as a disease in itself.[3]

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## MATERIALS AND METHODS

Data from National Family Health Survey-4 and 5, Ministry of Health, and Family welfare[4,5] were studied, analyzed, and measured for the prevalence and distribution of obesity in females aged 15 years and above in various districts of union territory of Jammu and Kashmir, India. Data collected were entered and statistically analyzed using the Statistical Package for the

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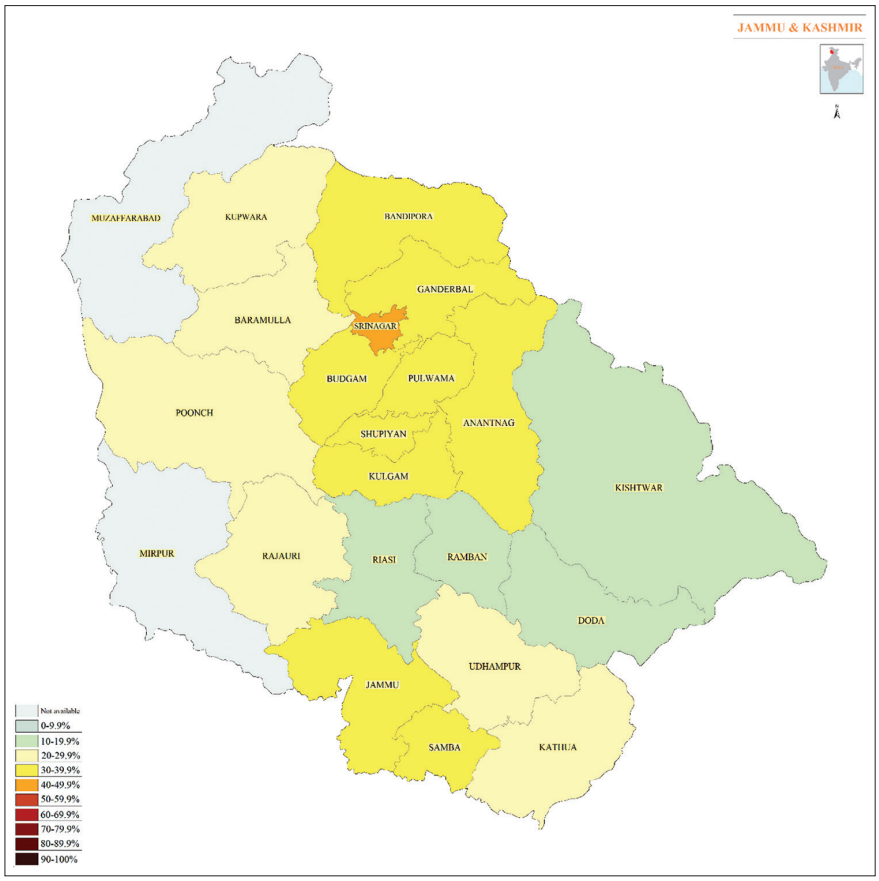


**Figure 1: Distribution of obesity among females in various districts of the union territory of Jammu and Kashmir for year 2015–2016**

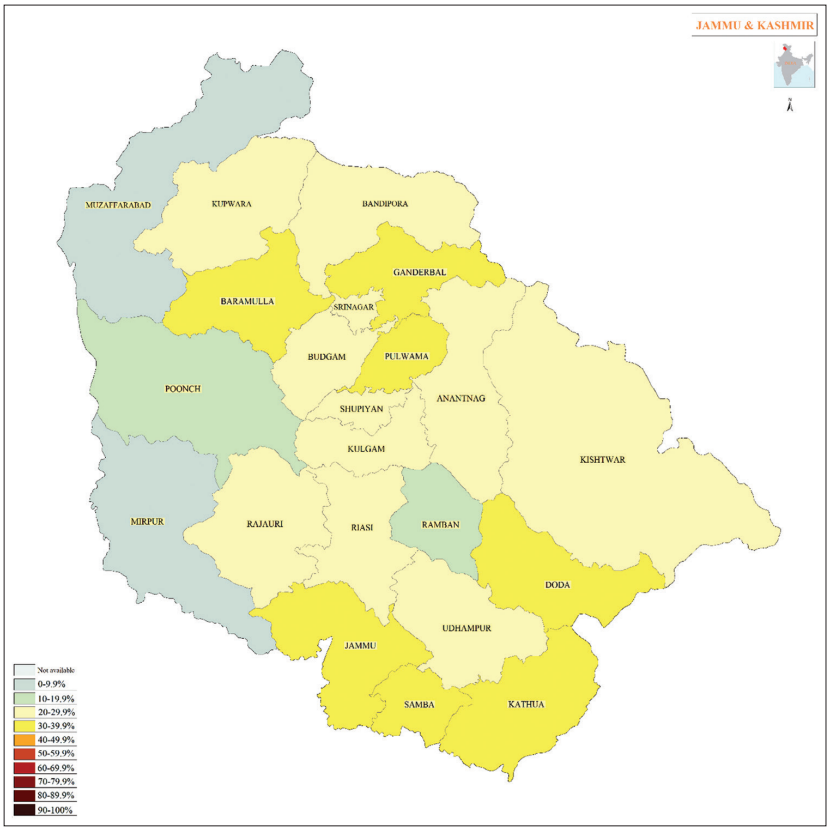


**Figure 2: Distribution of obesity among females in various districts of the union territory of Jammu and Kashmir for year 2019–2020**

Social Sciences version 24.0 software (IBM, Armonk, NY, USA). Various districts were diagrammatically color coded and described as Figures 1 and 2.

## RESULTS

It was found that highest percentage of females who were obese in 2015–2016 belonged to district Srinagar followed by Jammu and Samba respectively whereas least percentage was found in district Kishtwar, Reasi and Ramban respv [Table 1 and Figure 1]. While in year 2019–2020, the highest percentage of females who were obese in 2019 belonged to district Jammu followed by Kathua and Kishtwar respv and least percentage was found in district Muzzafarabad, Mirpur, and Ramban respv [Table 1 and Figure 2]. It is to be noted that that the many district showed positive and negative relative change in obesity among females during the course of 5 years. Positive relative change was seen in districts such as Kathua, Doda, and Kishtwar respv. which is alarming whereas the decline is seen in districts Srinagar, Badgam, and Badipora which is a positive news [Table 1 and Figure 3].[4,5]

## DISCUSSION

Overweight or obesity is not only a modifiable risk factor for various NCDs and premature mortality, but is also associated with increased COVID-19 mortality, which is an infectious disease, thereby broadening the spectrum of health conditions and leading to a unique intersection of communicable and non-communicable disorders.[6] Surprisingly, barring few districts, almost every district showed relative increase in percentage of obesity among females, which is a matter of concern. The previous studies have already affirmed that BMI increases with age in adult life, but starts declining or levels off in later years, due to decreases in energy intake due to illness, loss of appetite, or other factors. Obesity in all age groups poses grave risk for life and increases the probability of death in older adults.[7]

Obesity was also found to be higher among urban residents, similar to the findings of other studies.[8,9] This can be attributed to lifestyle and behavioral factors which markedly differ in urban and rural areas. Moreover, urbanization of villages, less space for recreational activities, and high

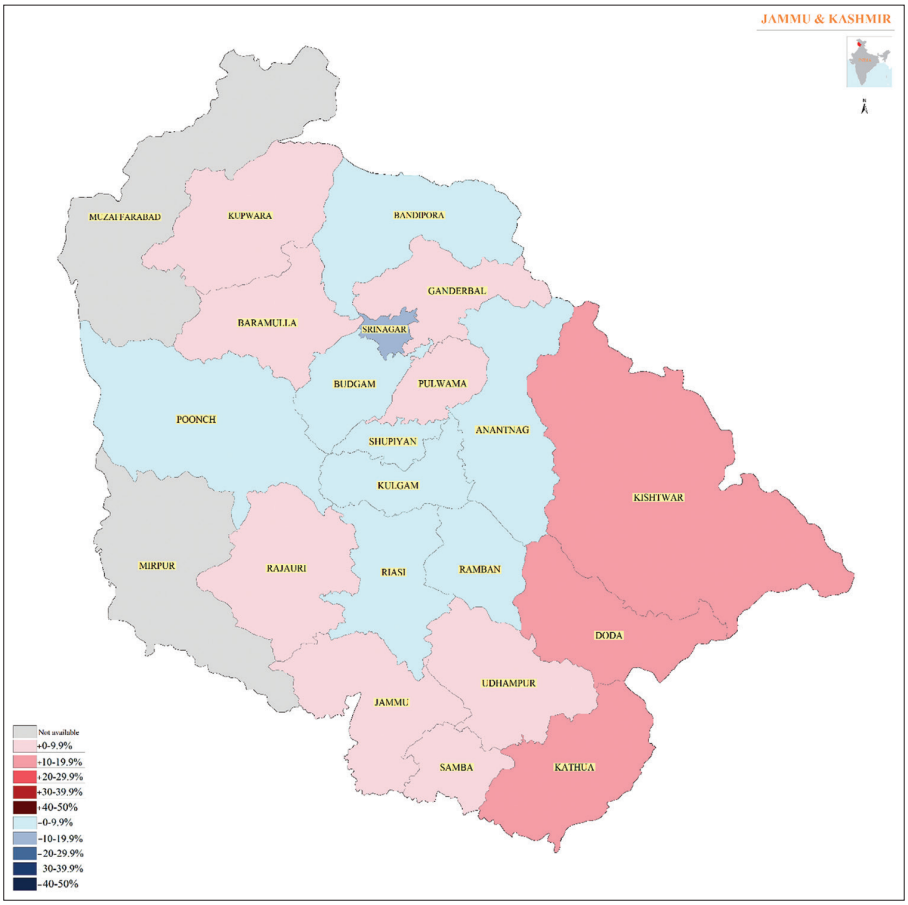


**Figure 3: Change in distribution of obesity among females in various districts of the union territory of Jammu and Kashmir from year 2015–2016 to 2019–2020.**

**Table 1: Distribution of obesity among females in various districts of the union territory of Jammu and Kashmir for year 2015–2016 and 2019–2020**

| Obesity In Females In Jammu and Kashmir (%) | | | | |
|---|---|---|---|---|
| S. No. | District | 2015–2016 (%) | 2019–2020 (%) | Relative change (%) |
| 1 | Anantnag | 33.1 | 28.6 | −4.5 |
| 2 | Badgam | 31.4 | 25.3 | −6.1 |
| 3 | Bandipora | 34.0 | 28.2 | −5.8 |
| 4 | Baramulla | 24.5 | 31.1 | +8.6 |
| 5 | Doda | 18.7 | 31.3 | +12.6 |
| 6 | Ganderbal | 33.8 | 34.2 | +0.4 |
| 7 | Jammu | 36.9 | 38.3 | +1.4 |
| 8 | Kathua | 24.6 | 38.2 | +13.6 |
| 9 | Kishtwar | 14.5 | 24.9 | +10.4 |
| 10 | Kulgam | 31.4 | 25.9 | −5.5 |
| 11 | Kupwara | 20.5 | 21.3 | +0.8 |
| 12 | Mirpur | NA | 6.9 | NA |
| 13 | Muzaffarabad | NA | 6.9 | NA |
| 14 | Pulwama | 34.0 | 37.9 | +3.0 |
| 15 | Punch | 21.1 | 16.2 | −4.9 |
| 16 | Rajauri | 21.0 | 22.7 | +1.7 |
| 17 | Ramban | 17.8 | 15.8 | −2 |
| 18 | Reasi | 16.5 | 22.7 | +6.2 |
| 19 | Samba | 35.3 | 36.5 | +1.2 |
| 20 | Shupiyan | 31.3 | 27.6 | −3.7 |
| 21 | Srinagar | 40.8 | 27.8 | −13 |
| 22 | Udhampur | 20.3 | 29.3 | +9 |
| | Total | 27.08 | 28.19 | +1.8 |

substance use among urban residents are contributing factors to the obesity epidemic. However, this was different from findings of other studies.[10] The difference in obesity/overweight prevalence across different religions needs further exploration.

While health is a state subject, the central government supplements the activities and efforts of the states toward creation of awareness, health education, and health promotion. The Government of India in 2010 launched National program for prevention and control of cancer diabetes, cardiovascular diseases and stroke. The focus of the program is on awareness generation for behavior and life-style changes, early diagnosis of persons with high levels of risk factors, and their referral to higher facilities for appropriate management. The program is expended to cover more districts in 12$^{th}$ 5 Year Plan. From 2013 to 14, the program activities up to district level have been subsumed under national health mission. In the national monitoring framework and action plan for prevention and control of non-communicable diseases (2013–2020), adopted by the Government of India, obesity has been identified as an area of intervention.[11]

## CONCLUSION

Prevalence of obesity was highest in Jammu District in from 2015 to 2019 which presents a matter of serious concern not only for health professionals and Government but also for the immediate society and environment associated with it. Although the Government is trying its best to reduce the same in any which way, its decline lies in our hands and we as responsible citizens of the country should stop taking excess sugar and encourage and motivate others who do the same so that we can live in clean and healthy environment which is not only safe for us but holds a true promise for coming generations too.

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