An Observational Study of Obesity in Japan Using Payer Claims Data

Shujiro Takeno[1], Satoshi Murayama[1], Keyun Shang[1], Rinka Murakami[1], Minami Yamaguchi[1], Shinnosuke Kaneko[1], Koki Idehara[1]

1. IQVIA Solutions Japan G.K., Tokyo, Japan

Introduction

Obesity is associated with increased comorbidity risks of metabolic, cardiovascular, and chronic kidney diseases. However, detailed analysis using a large-scale payer claims have rarely been conducted in Japan. Hence a detailed analysis of patients with obesity was conducted, including a comparison between the native and OMOP Common Data Model (CDM) datasets to validate findings and reassess treatment patterns. This approach aims to address gaps in diagnosis and impact of obesity using native and OMOP claims data in Japan.

Aim

To describe the prevalence, comorbidity burden and undiagnosed obesity in Japan, and assess the potential use of GLP-1 receptor agonists (GLP-1 RAs) using Payer claims data.

Methods

Databases:

- DeSC-IQVIA Integrated Claims data: Payer claims data of more than 34 million cumulative patients collected from the Health Insurance Association, National Health Insurance, and Medical Care System for the Advanced Elderly.
- Two datasets were analyzed: the native dataset and the OMOP dataset (DeSC-IQVIA Integrated Claims data converted to the OMOP Common Data Model, version 5.3).

Analysis Method:

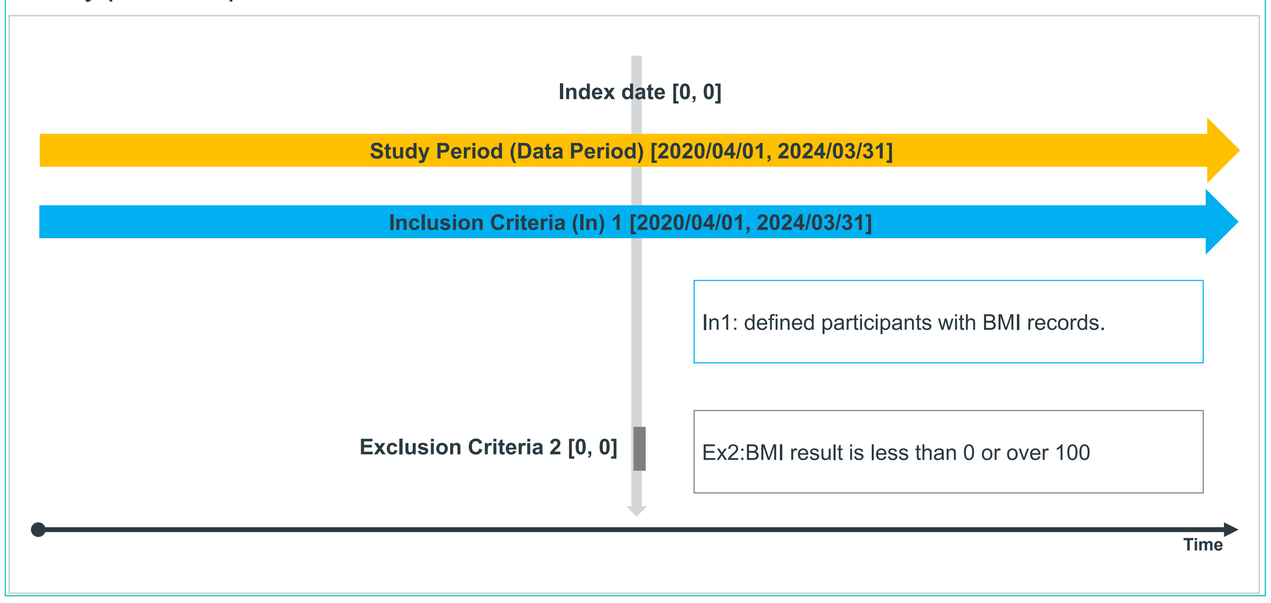
- Study design is shown in Figure 1.
- GLP-1 RA prescription eligibility(definition of obesity in this analysis):
  Patients meeting at least one of the two criteria
  - Confirmed Diagnosed with obesity(ICD10: E66)
  - BMI ≧ 27 and diagnosed with ≥2 of 11 obesity-related comorbidities
    - The 11 obesity-related comorbidities were selected based on the definition provided by the Japan Society for the Study are listed below (List 1):

List 1.Obesity-related comorbidities.

1. Diabetes
2. Dyslipidemia
3. Hypertension
4. Hyperuricemia
5. Coronary artery disease
6. Cerebral infarction
7. Fatty liver
8. Menstrual abnormalities
9. Sleep apnea syndrome
10. Musculoskeletal disorders
11. CKD

Figure 1. Study Design.

Study period: Apr 2020 – Mar 2024



Conclusion

No substantial differences in obesity prevalence were observed between the native and OMOP datasets. Obesity prevalence remained stable over time. Analysis of BMI and gender distribution within the native dataset revealed a notably higher proportion of underweight individuals among females aged 20–29 years. Additionally, comorbidity rates for hypertension, hyperuricemia, and fatty liver differed between obese and non-obese populations in both OMOP and native datasets. Importantly, obesity was significantly associated with an elevated comorbidity rate of depression, which has shown a consistent upward trend over the past four years among obese individuals.

Limitation

IQVIA Integrated Claims collects healthcare administrative data for those who are insured by three major Japanese payers. Like other health administrative databases, it is not a nationwide database. The present study included only patients with BMI records. These two factors might cause selection bias.

Results

Between April 2020 and March 2024, a total of 13,922,504 individuals from the native dataset and 18,860,647 individuals from the OMOP dataset with recorded BMI values were identified in the DeSC-IQVIA Integrated Claims data. After excluding 3 individuals from each dataset whose BMI exceeded 100, the final analysis included 13,922,501 and 18,860,644 individuals with 0 < BMI ≤ 100 from the native and OMOP datasets, respectively, were included in the final analysis.

Figure 4. Prevalence of obesity disease Native

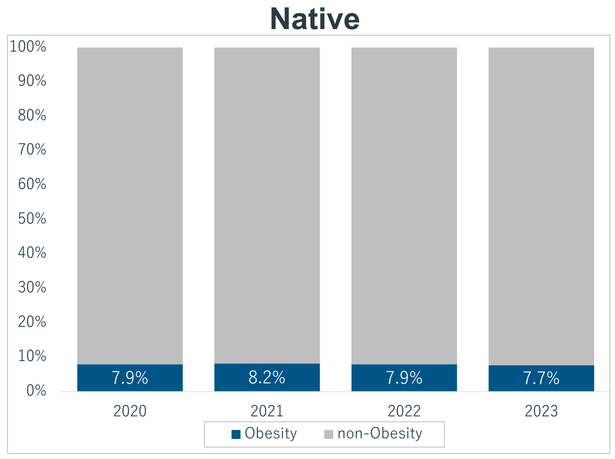
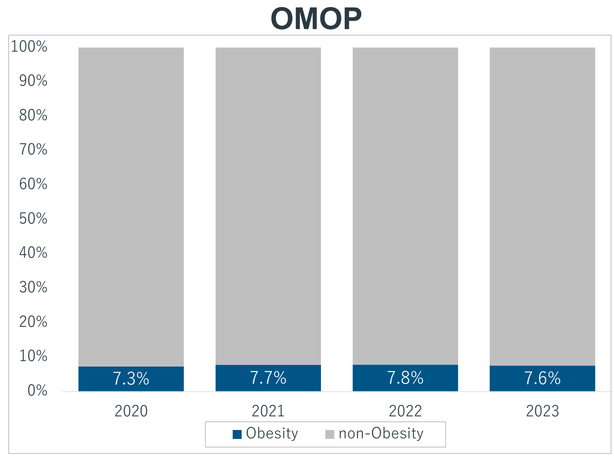
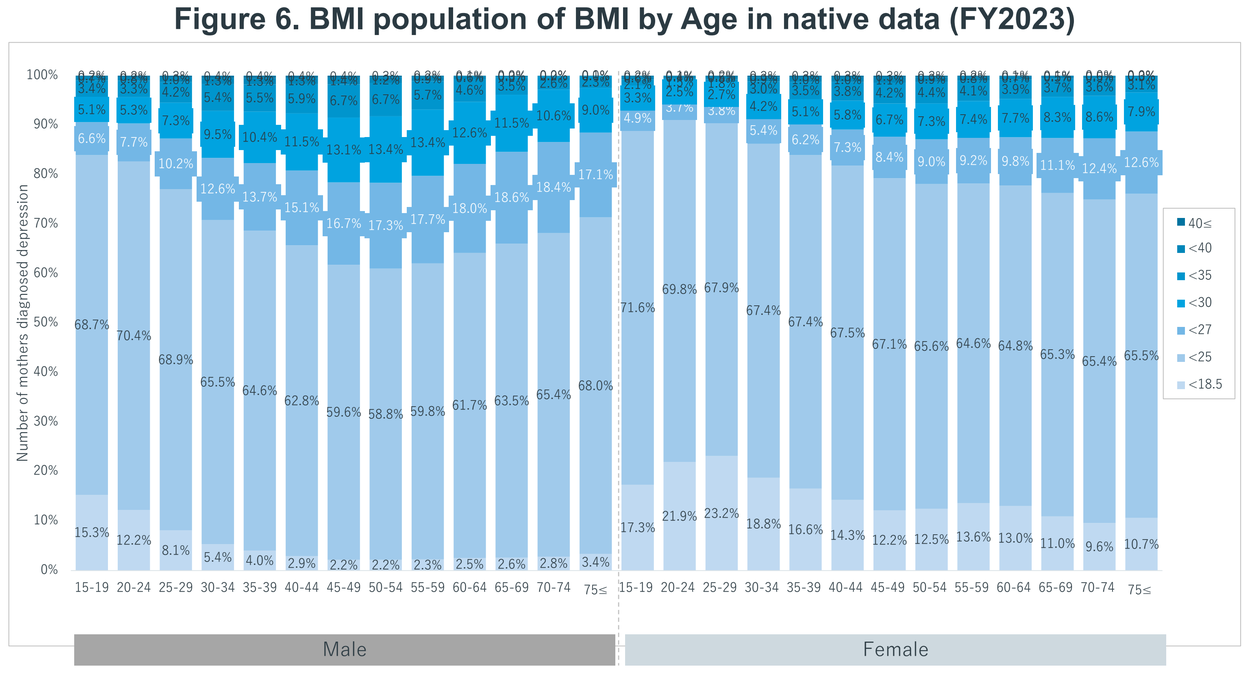


Figure 5. Prevalence of obesity disease OMOP



The prevalence of obesity was assessed by fiscal year for the target population. In the native dataset, the prevalence in FY2023 was 7.3%, and no substantial changes were observed over the past four years (Figure 4). Similar results were obtained from the analysis of the OMOP dataset (Figure 5).

Figure 6. BMI population of BMI by Age in native data (FY2023)



In the native dataset, the BMI distribution of the target population was also examined by age and sex categories. The proportion of individuals classified as underweight (BMI < 18.5) exceeded 20%, with rates of 21.9% in women aged 20–24 years and 23.2% in those aged 25–29 years (Figure 6).

Figure 7. Proportion of Obesity-Related Comorbidities Among Obesity Patients vs Non-Obesity (FY2023)

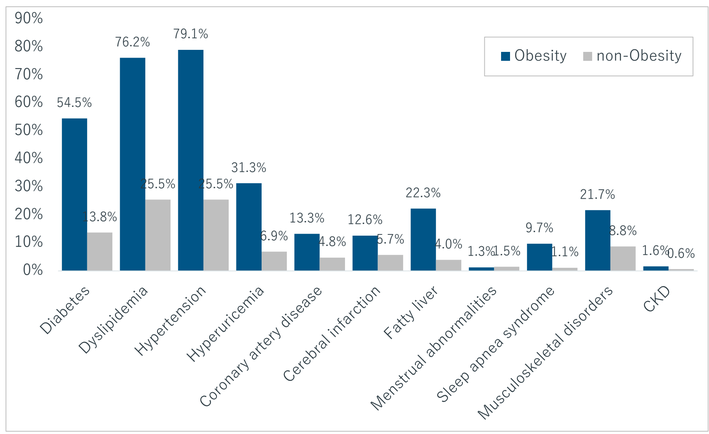
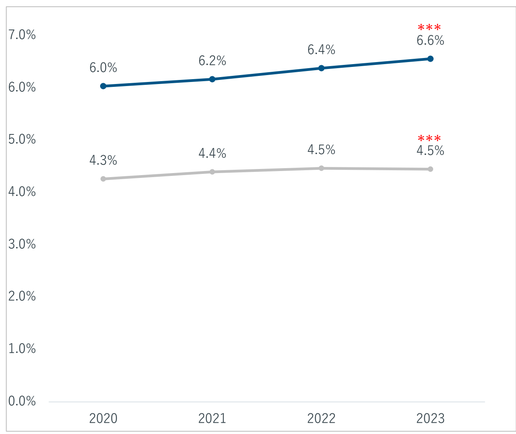


Figure 8. Trend of Depression Comorbidity in Obesity Patients vs Non-Obese Patients



The proportion of obesity-related comorbidities among patients classified is presented in Figure 7. In fiscal year 2023, hypertension was the most common comorbidity (79.1%), followed by hyperuricemia (31.3%) and fatty liver (22.3%). The comparison of depression comorbidity rates between obese patients and non-obese patients is shown in Figure 8. In fiscal year 2023, the comorbidity rate of depression was approximately 4% among non-obese patients, whereas it was around 6% among obese patients. Furthermore, the comorbidity rate of depression among obese patients has shown a gradual increasing trend over the past four years.

Reference

1. Ishizaka N et al., 2007, "Association between obesity and chronic kidney disease in Japanese: differences in gender and hypertensive status?", Hypertens Res, 30(11):1059-64.
2. Kuwabara M et al., 2017, "Metabolically Healthy" Obesity and Hyperuricemia Increase Risk for Hypertension and Diabetes: 5-year Japanese Cohort Study", Obesity (Silver Spring), 25(11):1997-2008.
3. Al-Shoaibi AAA et al., 2024, "Associations of overweight and obesity with the risk of cardiovascular disease according to metabolic risk factors among middle-aged Japanese workers: The Aichi Workers' cohort study", Obes Res Clin Pract, 18(2):101-108.
4. Okawa Y, Mitsuhashi T, Tsuda T., 2025, "The Asia-Pacific Body Mass Index Classification and New-Onset Chronic Kidney Disease in Non-Diabetic Japanese Adults: A Community-Based Longitudinal Study from 1998 to 2023", Biomedicines, 13(2):373.

DISCLOSURES: All authors declare that they have no competing interests. All authors are IQVIA employees