EPH161

Epidemiology Landscape and Impact of Obesity: Multi-country Results from the IMPACT-O Study

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OBJECTIVE

To describe the landscape and impact of overweight/obesity in healthcare databases, including:

1. Extent of recording of overweight/obesity based on body mass index (BMI) and/or diagnosis codes
2. Comorbidity burden and characteristics of people with overweight/obesity

CONCLUSION

■ While the prevalence of overweight/obesity is high in the general population, our results indicate only a small proportion of people with overweight/obesity have a formal documented diagnosis in their electronic medical record (EMR). This may lead to an underestimation of the impact of overweight/obesity in healthcare settings and as a result, potentially lower quality of care.

■ More than 60% of adults with overweight/obesity also present with at least one weight-related comorbidity. Generally, comorbidity burden increased with increasing BMI.

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BACKGROUND

■ Obesity is a chronic progressive disease; the World Health Organization (WHO) estimates that 59% of adults are living with overweight or obesity.[1]

■ Data routinely recorded in healthcare databases can aid the understanding of the real-world landscape and impact of overweight/obesity.

STUDY DESIGN

■ The EpIdeMiology Landscape and PAtient Care paThways of Obesity (IMPACT-O) study was a multi-country retrospective cohort study that utilized EMRs and claims databases standardized to the Observed Medical Outcomes Partnership Common Data Model (OMOP CDM):

– France longitudinal patient database (LPD) (general practitioner [GP] and specialist panels); Italy LPD (GP panel) and Spain LPD (GP and specialist panels); UK IQVIA Medical Research Data - The Health Improvement Network (IMRD THIN) [GP panel]; Germany Disease Analyzer (DA) [GP and specialist panels], Australia EMR (GP panel) and Japan Claims. The April 2023 data cut was used*.

■ Overweight/obesity are defined as a BMI of ≥25 kg/m² /≥30 kg/m² according to WHO. Obesity is defined as a BMI of ≥25 kg/m² according to the Japan Society for the Study of Obesity (JASSO).

– The level of recording among active individuals in the databases

and the number of adults with overweight/obesity (based on diagnosis codes [SNOMED] and/or BMI above threshold for overweight/obesity) between 2018–2022 were estimated (objective #1).

■ In the prevalent cohort, characteristics of people with overweight/obesity (objective #2) were described:

– The prevalent cohort was defined as adults (≥18 years) with overweight/obesity (≥1 BMI record of ≥25.0 kg/m²) and an observation start date ≥12 months before the index date (date of highest BMI record) between 2018-2022.

– BMI thresholds at index and weight-related comorbidities (including those identified by diagnosis and medication) reported within 12 months before index overall and by BMI threshold at index were described.

■ Results are reported descriptively and presented as n and /or percentage.

*Data from China was not included due to ongoing ethics review.

KEY RESULT

Table 1: BMI, diagnosis recording rates, and cohort attrition, 2018–2022

	Australia EMR	France LPD	Germany DA	Italy LPD	UK IMRD THIN	Spain LPD	Japan Claims[c]
Active subjects in the databases	1,203,674	10,206,481	21,746,354	1,791,140	4,454,982	1,570,445	10,609,060
BMI recording rate: Active subjects in the database with ≥1 BMI recording	*57,622 (4.8)*	*2,241,019 (22.0)*	*1,197,894 (5.5)*	*389,979 (21.8)*	*1,734,788 (38.9)*	*391,947 (25.0)*	*2,082,594 (19.6)*
Adults[a] identified with overweight/obesity based on BMI ≥25 kg/m² and/or diagnosis codes	41,533	880,815	1,194,272	248,256	1,110,830	185,658	656,336
With overweight/obesity diagnosis code, n (%)	*10,373 (25.0)*	*25,251 (2.9)*	*593,637 (49.7)*	*58,430 (23.5)*	*46,769 (4.2)*	*67,725 (36.5)*	*38,327 (5.8)*
Adults[b] identified with overweight/obesity based on BMI ≥25 kg/m², n	33,900	873,808	730,887	222,399	1,108,481	171,981	626,808
Prevalent cohort, n	25,625	430,089	429,422	170,119	893,246	163,824	567,359

[a]Age at index date (date of first BMI ≥25 kg/m² and/or diagnosis codes from 2018–2022) / [b]Age at index date (date of highest BMI ≥25 kg/m² recorded from 2018–2022) / [c]According to the Japan Society for the Study of Obesity definition
BMI, body mass index; DA, disease analyzer; EMR, electronic medical record; IMRD, IQVIA Medical Research Data; LPD, longitudinal patient database; THIN, The Health Improvement Network.

■ BMI was recorded for 4.8–38.9% of active patients across the databases (Table 1).

■ Of the number of adults identified with overweight or obesity based on BMI and/or diagnosis codes, diagnosis codes were present in 2.9–49.7% of cases.

PREVALENT COHORT RESULTS

■ The proportions of adults in the prevalent cohort stratified by BMI category are presented in Table 2.

■ At least one weight-related comorbidity was reported in 59.6–85.0% of adults (≥25.0 kg/m²), and 35.9–65.8% had multimorbidity (≥2); the proportion of adults with comorbidities generally increased with increasing BMI threshold with the exception of Italy and Spain for obesity thresholds ≥35.0 kg/m² (Figure 1).

■ The most frequently recorded comorbidities across countries were hypertension and dyslipidemia (Figure 2).

LIMITATIONS

■ EMR data sources are not traditionally collected for research purposes but for continued patient care. Data are derived from patients who visit health centers participating in the database panels. However, these are thought to be representative of the majority of obesity treatment practices within the countries.

■ Under-recording of BMI and diagnosis codes might lead to misclassification of subjects.

References: 1. WHO European Regional Obesity report 2022. 9789289057738-eng.pdf (who.int). (Accessed September 2023).

Disclosures: Artime E, Mount J, Tahbaz A are employees and shareholders of Eli Lilly and Company. Spaepen E, is an external consultant of Eli Lilly and Company. Adam A, Lin X, Shang M, Seager S, have no conflict of interest to declare.

Table 2: BMI thresholds

	Australia EMR (n=25,625)	France LPD (n=430,089)	Germany DA (n=429,422)	Italy LPD (n=170,119)	UK IMRD THIN (n=893,246)	Spain LPD (n=163,824)	Japan Claims[a] (n=567,359)
Cohort according to BMI thresholds, n (%)							
≥ 25.0 kg/m²	25,625 (100)	430,089 (100)	429,422 (100)	170,119 (100)	893,246 (100)	163,824 (100)	567,359 (100)
≥ 27.0 kg/m²	20,672 (80.7)	324,931 (75.6)	335,510 (78.1)	127,163 (74.8)	726,619 (81.4)	135,972 (83.0)	317,021 (55.9)
≥ 30.0 kg/m²	13,913 (54.3)	196,670 (45.7)	211,457 (49.2)	74,948 (44.1)	489,744 (54.8)	92,381 (56.4)	125,608 (22.1)
≥ 35.0 kg/m²	6,241 (24.4)	72,574 (16.9)	83,446 (19.4)	26,921 (15.8)	217,998 (24.4)	39,065 (23.9)	26,451 (4.7)
≥ 40.0 kg/m²	2,538 (9.9)	24,376 (5.7)	30,873 (7.2)	8,519 (5.0)	89,782 (10.1)	15,277 (9.3)	5,853 (1.0)

[a]According to the Japan Society for the Study of Obesity definition.
BMI, body mass index; DA, disease analyzer; EMR, electronic medical record; IMRD, IQVIA Medical Research Data; LPD, longitudinal patient database; THIN, The Health Improvement Network.

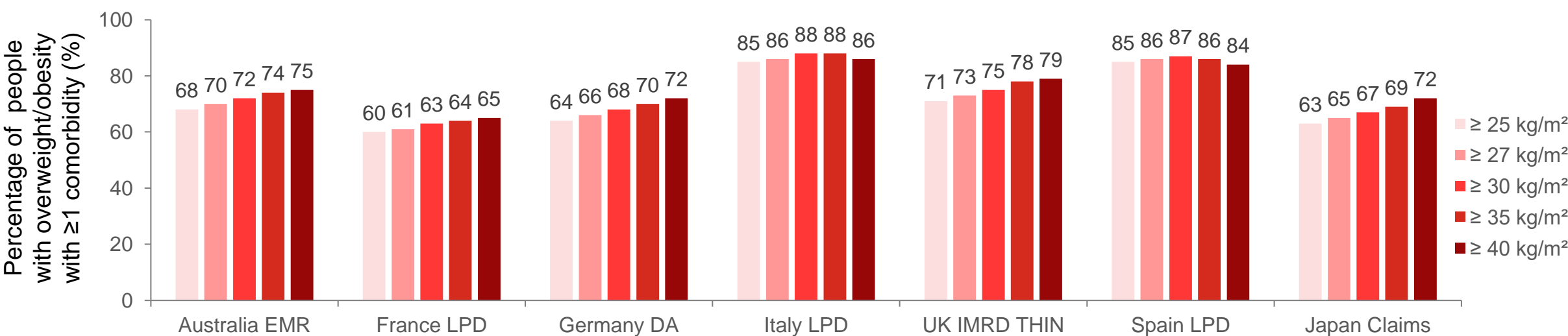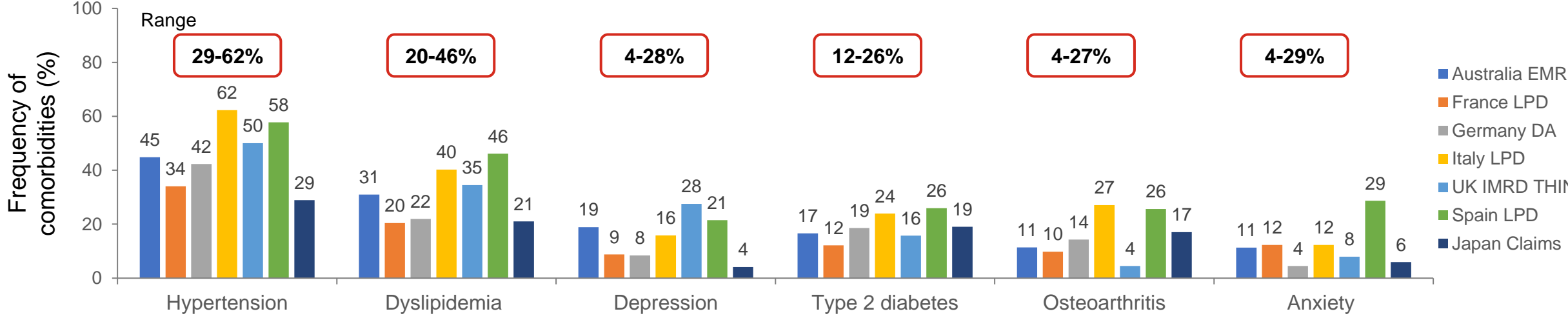**Figure 1: Percentage of people with ≥1 weight-related comorbidity by BMI thresholds**

Figure 2: Frequency of recorded comorbidities across countries[a,b]

[a]Comorbidities identified by diagnosis and medication; [b]Comorbidities shown are those occurring in ≥25% of the included population in at least one country.
BMI, body mass index; DA, disease analyzer; EMR, electronic medical record; IMRD, IQVIA Medical Research Data; LPD, longitudinal patient database; THIN, The Health Improvement Network.