

The Economic Burden of Overweight and Obesity in Europe: A Systematic Literature Review

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BACKGROUND

The rising prevalence of overweight and obesity across Europe is associated with substantial strain on both healthcare systems and workforce productivity, including increased hospitalisation, medication use and sick-leave days. Economic reviews estimate that excess body weight in European nations may account for up to 0.6% of GDP in direct and indirect costs, while the comprehensive OECD report highlights that in many countries the societal burden of overweight and obesity rivals' major chronic diseases.¹

OBJECTIVE

To assess and quantify the economic burden of overweight and obesity across European countries examining both direct healthcare costs and indirect productivity losses.

METHODS

A systematic literature review was conducted following PRISMA guidelines. We searched PubMed, Cochrane Library, Google Scholar, BASE and grey literature for English-language, peer-reviewed cost-of-illness studies published between 1 January 2014 and 20 January 2025. Two reviewers independently screened titles and abstracts, with four reviewers resolving discrepancies at the full-text stage. Data on study characteristics, direct cost items (inpatient, outpatient, primary care, emergency, diagnostics, drugs), indirect cost items (absenteeism, presenteeism, mortality, early retirement) and costing methods were extracted into Excel and summarized narratively.

RESULTS

Thirty-one articles (covering 39 distinct studies) from 15 countries met inclusion criteria.²⁻³² Direct annual costs of obesity ranged from €108 million (Czech Republic)²⁰ to €63 billion (Germany)¹⁸; per-capita direct costs varied between €13 for overweight (Czech Republic)²⁰ and €1,642 for obese class III (England)¹⁴, while per-capita indirect costs reached up to €14,436 per individual (average for 5 largest European nations for obese class III)²² with obesity (see Table 1). Direct healthcare costs per patient ranged from €913 in Spain for overweight²⁵ to €50,375 in Italy for obese class III², while indirect costs spanned €157 in Germany for obese class I²³ and €4,288 in Germany for obese class III¹⁹ (see Table 2). Cardiovascular disease emerged as the predominant related complication driving costs, followed by musculoskeletal and metabolic disorders (see Figure 1). Methodological approaches varied: 87% prevalence-based, 78% bottom-up, and 69% retrospective analyses.

Table 1: Per-capita direct and indirect costs for overweight and obesity

Author and year	Country	Per-capita direct		Per-capita indirect	
		Overweight	Obese	Overweight	Obese
Andersson (2022) ⁸	Sweden	€98	€87	€353	€399
Antal (2024) ²⁷	Hungary	-	€57	-	-
Atella (2023), Ob CI I ⁴	Italy	€567	€793	-	-
Atella (2023), Ob CI II ⁴	Italy	€567	€842	-	-
Atella (2023), Ob CI III ⁴	Italy	€567	€863	-	-
Atella (2024), Ob CI I ²	Italy	€550	€735	-	-
Atella (2024), Ob CI II ²	Italy	€550	€800	-	-
Atella (2024), Ob CI III ²	Italy	€550	€849	-	-
Borgesa (2024) ²⁸	Portugal	-	€139	-	-
Dee (2015) ²¹	Ireland	-	€129	-	€266
Dee (2015) ²¹	Northern Ireland	-	€96	-	€348
d'Errico (2022) ⁹	Italy	-	€148	-	€103
Effertz (2016) ¹⁸	Germany	-	€512	-	€587
Gorasso (2022) ¹⁰	Belgium	€787	€1,227	€293	€2,436
Gupta (2015), Ob CI I ²²	EU4 & UK	€765	€806	€10,824	€11,709
Gupta (2015), Ob CI II ²²	EU4 & UK	€765	€837	€10,824	€12,994
Gupta (2015), Ob CI III ²²	EU4 & UK	€765	€992	€10,824	€14,436
Iski (2019) ¹³	Hungary	-	€60	-	€51
Kent (2017), Ob CI I ¹⁷	England	€112	€350	-	-
Kent (2017), Ob CI II ¹⁷	England	€112	€626	-	-
Kent (2017), Ob CI III ¹⁷	England	€112	€970	-	-
Kent (2019), Ob CI I ¹⁴	England	€971	€1,169	-	-
Kent (2019), Ob CI II ¹⁴	England	€971	€1,378	-	-
Kent (2019), Ob CI III ¹⁴	England	€971	€1,642	-	-
Landovská (2023) ⁵	Czech Republic	-	€112	-	€204
Lenhert (2014) ²⁴	Germany	-	€153	-	€144
Lette (2016) ²⁰	Czech Republic	€13	€15	-	-
Lette (2016) ²⁰	Germany	€75	€91	-	-
Lette (2016) ²⁰	Netherlands	€58	€47	-	-
Reitzinger (2024) ³¹	Austria	-	€ 88	-	€ 22

EU4: France, Germany, Italy and Spain; Ob CI I: Obese Class I; Ob CI II: Obese Class II; Ob CI III: Obese Class III; UK: United Kingdom

CONCLUSION

Obesity imposes a substantial economic burden on European healthcare systems and societies, with indirect costs constituting the largest share. These findings underscore the urgent need for comprehensive multidisciplinary prevention and treatment strategies, and targeted policy interventions to mitigate both healthcare expenditures and productivity losses.

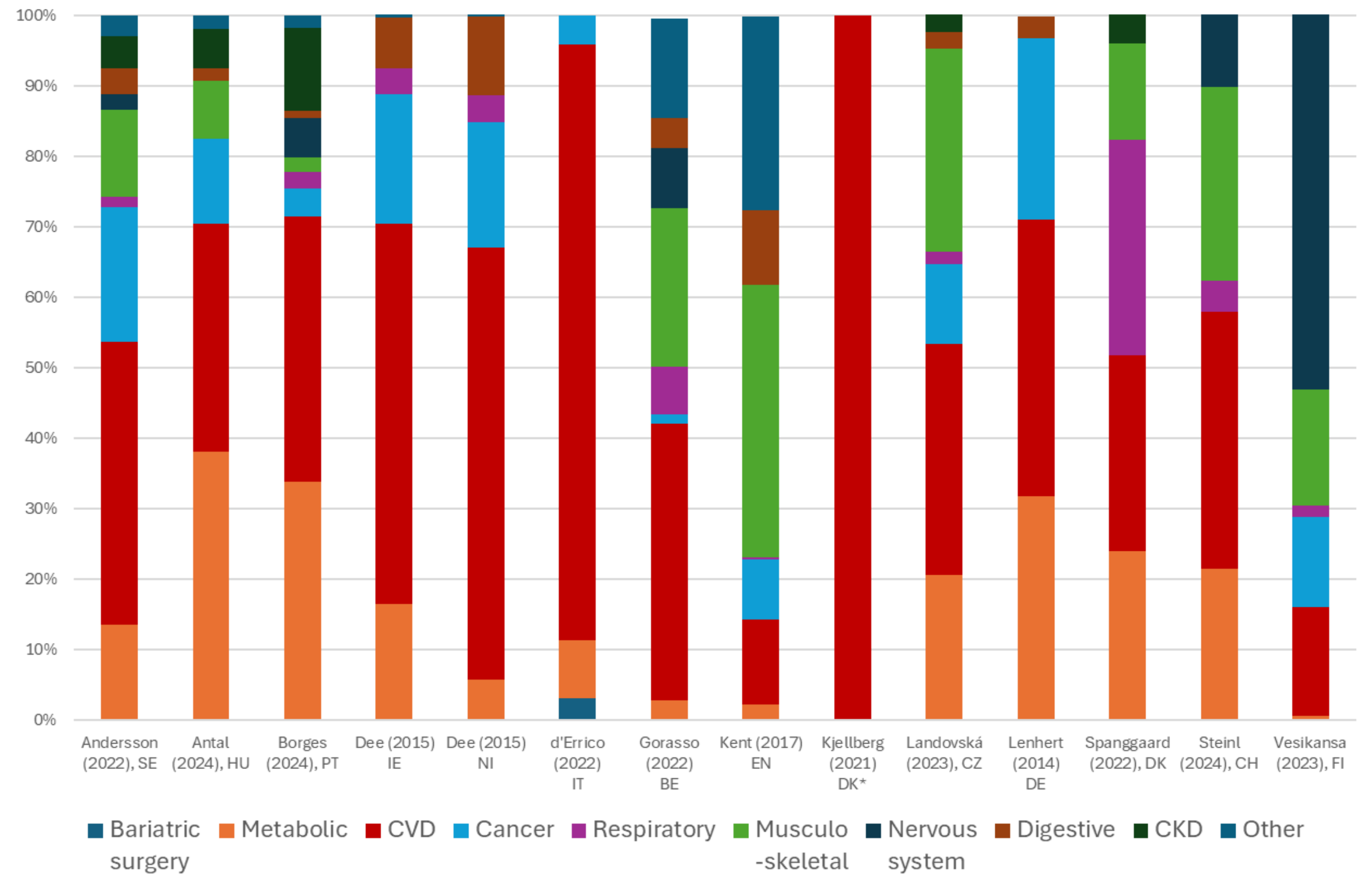
Table 2: Per-patient direct and indirect costs for overweight and obesity

Author and year	Country	Per-patient direct, €		Per-patient indirect, €	
		Overweight	Obese	Overweight	Obese
Atella (2024), lifetime* Ob CI I ²	Italy	€28,020	€41,960		
Atella (2024), lifetime* Ob CI II ²	Italy	€28,020	€45,952		
Atella (2024), lifetime* Ob CI III ²	Italy	€28,020	€50,375		
Bojke (2023) ⁵	UK		€2,730		
Colao (2017), Ob CI I ¹⁶	Italy	€1,220	€1,332		
Colao (2017), Ob CI II ¹⁶	Italy	€1,220	€1,683		
Colao (2017), Ob CI III ¹⁶	Italy	€1,220	€1,322		
Destri (2024) ³	Portugal		€226		
Kjellberg (2021) ¹²	Denmark		€9,583		€1,516
Konig (2015), Ob CI I ²³	Germany	€4,916	€4,799	€268	€157
Konig (2015), Ob CI II or greater ²³	Germany	€4,916	€6,929	€268	€308
Mora (2014), Ob CI I ²⁵	Spain	€913	€962		
Mora (2014), Ob CI II or greater ²⁵	Spain	€913	€1,000		
Pearson-Stuttard (2024) ³⁰	UK	€1,579	€2,167		
Spanggaard (2022) ¹¹	Denmark		€7,107		
Vesikansa (2023) ⁷	Finland	€2,287	€3,387		
Wijga (2018) ¹⁵	Netherlands	€1,121			
Yates (2016), Ob CI I ¹⁹	Germany	€2,631	€2,957	€2,974	€2,866
Yates (2016), Ob CI II ¹⁹	Germany	€2,631	€3,658	€2,974	€3,814
Yates (2016), Ob CI III ¹⁹	Germany	€2,631	€5,112	€2,974	€4,288

* to age 85 years old

Ob CI I: Obese Class I; Ob CI II: Obese Class II; Ob CI III: Obese Class III; UK: United Kingdom

Figure 1: Proportion of economic burden in comorbidities and surgery from selected studies



*Kjellberg et al. (2021) only investigated CVD comorbidity

CKD: chronic kidney disease; CVD: cardiovascular disease; BE: Belgium; CH: Switzerland; CZ: the Czech Republic; DE: Germany; DK: Denmark; EN: England; FI: Finland; IE: Ireland; IT: Italy; NI: Northern Ireland; SE: Sweden; T2DM: type II diabetes mellitus

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FUNDING

Funding for this study was provided by Novo Nordisk to Salutem Insights, which conducted the research and analysis.