Estimating the Inpatient Economic Burden of Obesity in Greece: A Nationwide Population Attributable Fraction Analysis Using Real-World Hospital Data

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T. PARASKEVAS[1], M. PAPAPANOU[2], A. KANTANIS[1] and K. ATHANASAKIS[3]

[1]Department of Nephrology and Kidney Transplantation, University of Patras, Patras, Greece
[2]Second Department of Obstetrics and Gynaecology, Medical School, National and Kapodistrian University of Athens, Athens, Greece
[3]Laboratory for Health Technology Assessment (LabHTA), Department of Public Health Policy, School of Public Health, University of West Attica, Athens, Greece

INTRODUCTION

Obesity is a major driver of morbidity, mortality, and healthcare expenditure.

However, real-world evidence on obesity-attributable inpatient costs remains limited.

OBJECTIVES

To estimate the burden of obesity-related hospitalization and societal costs in Greece from a third-party payer perspective, using population-attributable fractions (PAFs) combined with nationwide hospitalization claims data.

METHODS

- A prevalence-based cost-of-illness analysis was conducted using anonymized nationwide hospitalization claims submitted to the Greek third-party payer, covering a full year's admissions across public and private hospitals (**2.4 million admissions**).
- Obesity-related conditions were identified through the Global Burden of Disease (GBD) framework and an additional targeted literature review.
- Corresponding ICD-10 codes were mapped to each condition.
- PAFs were derived either from published estimates or calculated using the Levin formula, combining country-specific obesity prevalence and disease-specific relative risks.
- Hospital and societal costs were assigned to obesity proportionally according to disease-specific PAFs.
- Costs are reported in 2025 Euros.

RESULTS

- Thirty obesity-related conditions identified through the GBD framework and 15 additional conditions from the literature review were included.
- Obesity-attributable inpatient costs totaled **€214.4 million**, corresponding to **5.1%** of all inpatient expenditure.
- Cancer represented the largest share of attributable inpatient costs (€75.9 million, 38.4%), followed by cardiovascular diseases (€48.9 million, 24.7%) and musculoskeletal disorders (€38.6 million, 19.5%).
- The largest individual contributors were ischemic heart disease (€30.1 million), knee osteoarthritis (€23.9 million), breast cancer (€15.3 million), congestive heart failure (€13.8 million), and chronic kidney disease (€12.3 million).

€214.4M
obesity-attributable inpatient costs

5.1%
of all inpatient expenditure

4.5%
In public hospitals

5.9%
In private hospitals

Key figures: total obesity-attributable inpatient costs and attributable cost percentage by hospital sector.

Disease group	€ million	% of attributable costs
Cancer	**75.9**	**38.4%**
Cardiovascular diseases	**48.9**	**24.7%**
Musculoskeletal disorders	**38.6**	**19.5%**
Largest individual contributors	**€ million**	
Ischemic heart disease	**30.1**	
Knee osteoarthritis	**23.9**	
Breast cancer	**15.3**	
Congestive heart failure	**13.8**	
Chronic kidney disease	**12.3**	

Obesity-attributable inpatient costs by disease group and largest individual contributors (2025 Euros).

Additional Societal Costs attributed to Obesity (2023)

343,150 DALYs	133,822 YLDs	209,328 YLLs	13,738 Deaths
Disability-Adjusted Life Years	Years Lived with Disease	Years of Lost Life	10.4% of all Deaths

CONCLUSION

- Obesity imposes a substantial and growing economic burden on the Greek healthcare system, accounting for **more than one in twenty inpatient Euros** spent nationally.
- The findings highlight the need for comprehensive obesity prevention and management strategies, including earlier intervention and improved risk-factor surveillance.
- Real-world cost estimates may support future health policy prioritization and economic evaluations of obesity-related interventions in Greece and Europe.

CONTACT INFORMATION

T. Paraskevas
themispara@hotmail.com
Department of Nephrology, University of Patras, Patras, Greece