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Weight-management-related expenditures among adults with overweight or obesity in Türkiye: results from the TROYA nationwide online survey

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Abstract

Objective

Although obesity is recognised as a chronic disease, individuals frequently bear the costs of obesity management through self-reported weight-management-related personal expenditures. This study aimed to assess self-reported personal expenditures related to weight management and to identify factors associated with higher expenditures among adults in Türkiye.

Methods

A nationwide cross-sectional online survey was conducted among 4,020 adults in Türkiye. The survey collected demographic information, body mass index (BMI), obesity management practices, and self-reported personal expenditures related to weight management. Annual expenditures were estimated by aggregating reported spending across obesity-related categories.

Results

Overall, 54.1% of participants were overweight or living with obesity. Among overweight and obese respondents, 71% reported self-reported weight-management-related personal expenditures, corresponding to approximately 15% of household income. Weight-management support products were the most commonly reported expenditure category (61%), whereas only 4% reported spending on prescription anti-obesity medications. Exercise equipment, gym memberships, and herbal products represented the most frequent expenditure categories. Additionally, 49% of participants reported increased food-related expenditures attributable to excess weight, and 60% supported greater governmental assistance to reduce the financial burden of obesity management. Multivariable analysis demonstrated that younger age, higher BMI, male sex, and higher socioeconomic status were independently associated with greater obesity-related expenditure.

Conclusion

Obesity imposes a substantial financial burden on individuals in Türkiye, extending beyond healthcare utilisation to multiple aspects of daily living. The findings highlight important socioeconomic inequalities in access to obesity management and suggest that reducing self-reported personal expenditures on weight management through improved access to evidence-based obesity care.

INTRODUCTION

Obesity is recognised as a chronic disease by the World Health Organisation (WHO); however, in many countries, healthcare policymakers do not fully acknowledge obesity as a disease requiring

comprehensive treatment and reimbursement. Consequently, obesity-related interventions are often not covered by healthcare systems, forcing individuals with obesity to bear the costs of both pharmacological and non-pharmacological treatments. This situation may expose affected individuals to substantial financial burdens as they manage their condition. [1]

According to a report by the Organisation for Economic Co-operation and Development (OECD), Türkiye is among the ten countries expected to allocate the largest proportion of healthcare expenditures to obesity-related diseases between 2020 and 2050. The report estimates that approximately 12% of healthcare spending in Türkiye will be devoted to obesity-related conditions, corresponding to an annual per-capita cost of 87 Euro. Furthermore, individuals living with obesity are reported to incur healthcare expenditures approximately 2.5 times higher than those of individuals with normal body weight. [2]

Self-reported weight-management-related personal expenditures, defined as direct payments made by patients to healthcare providers at the time-of-service utilization, account for more than 20% of total health expenditure across OECD countries. The WHO considers self-reported weight-management-related personal expenditures a key indicator for evaluating health financing systems and financial protection. High levels of self-reported weight-management-related personal expenditures are generally regarded as indicators of insufficient healthcare coverage and are strongly associated with catastrophic health expenditure, commonly defined as self-reported weight-management-related personal expenditures exceeding 40% of a household's capacity to pay after basic subsistence needs such as food and housing have been met. [2]

The continuing increase in obesity prevalence is expected to impose a substantial economic burden on both individuals and healthcare systems. In OECD countries, obesity-related costs accounted for approximately 0.80%–2.42% of gross domestic product (GDP) in 2019 and are projected to average 3.6% of GDP by 2060 if current trends persist. Therefore, effective obesity management and improvements in obesity-related comorbidities have the potential to generate considerable healthcare cost savings for healthcare. [1–3]

Obesity also contributes to broader societal and economic consequences. A body mass index (BMI) above 30 kg/m² has been associated with a 2% reduction in labour income, a 3% increase in public social transfer payments, and a 4% increase in healthcare expenditures. [2, 4] Although lifestyle interventions remain the cornerstone of obesity management and may constitute a substantial proportion of current self-reported weight-management-related personal expenditures, maintaining long-term weight loss through lifestyle modification alone remains challenging for many individuals. [2, 4] Pharmacotherapy, including both chronic and short-term weight management treatments, can be used as an adjunct to lifestyle interventions to facilitate clinically meaningful and sustained weight loss. While the effectiveness of anti-obesity medications was historically limited, recent therapeutic advances have substantially expanded treatment options for individuals living with obesity and obesity. [5]

Despite the growing clinical and economic burden of obesity, evidence regarding the self-reported weight-management-related personal expenditures incurred by individuals seeking obesity treatment

remains limited. Therefore, the present study aimed to quantify and characterise the self-reported personal expenditures related to weight management incurred by individuals living with obesity.

METHOD

Study Design and Participants

This cross-sectional survey was conducted to assess self-reported personal expenditures related to weight management among adults in Türkiye. Participants were recruited through a nationwide online research panel. A total of 4,020 individuals were included in the study. The sample was structured to reflect the demographic and regional distribution of the Turkish population.

Prior to the main survey, the questionnaire was pilot-tested with 50 participants to evaluate clarity, comprehensibility, and response burden. Based on participant feedback, minor modifications were made to improve the wording of questions and the survey flow. Subsequently, repeated system tests were conducted to verify the functionality of the online data collection platform and the accuracy of data-recording procedures.

Participation was voluntary, and electronic informed consent was obtained from all respondents before survey initiation. This observational study complies with the STROBE (STrengthening the Reporting of Observational studies in Epidemiology) guidelines. All procedures followed were in accordance with the ethical standards of the committee responsible on human experimentation (institutional and national) and the Declaration of Helsinki of 1975, as revised in 2008. Our institution has granted ethics committee approval under protocol number University of Health Sciences Gülhane Scientific Research Ethics Committee-2025/460.

Survey Instrument

The survey was designed to collect information on demographic characteristics, body mass index (BMI), obesity management practices, and self-reported personal expenditures related to weight management. Participants were asked about their utilisation of lifestyle interventions, pharmacological treatments, and other obesity-management approaches, as well as the associated personal expenditures. BMI was calculated from self-reported height and weight and classified according to World Health Organisation criteria.

Assessment of Self-Reported Weight-Management-Related Personal Expenditures

Self-reported weight-management-related personal expenditures were defined as direct payments made by individuals for obesity-related products and services that were not reimbursed by public or private

health insurance. Participants reported the frequency and average amount of expenditures across predefined obesity-related spending categories. For regularly incurred expenses, the frequency of expenditure was assessed monthly. For expenditure categories involving less frequent purchases, respondents reported whether they had incurred the expenditure during the preceding 12 months.

To estimate annual self-reported weight-management-related personal expenditures, reported spending amounts were annualised according to the frequency of purchase or utilisation. Monthly expenditures were multiplied by 12, expenditures occurring every 2–3 months by 4, and expenditures occurring every 6 months by 2. Expenditures reported as occurring once per year were included without adjustment. Category-specific annual expenditures were subsequently aggregated to estimate the overall annual self-reported personal expenditures related to weight management per participant. In addition, expenditure patterns were examined according to BMI category, treatment preference, and utilisation characteristics.

Statistical Analysis

Descriptive statistics were used to summarise participant characteristics and expenditure patterns. Continuous variables are presented as mean ± standard deviation (SD). The psychometric properties of the survey instrument were evaluated before the main analysis. Internal consistency reliability was assessed using Cronbach's alpha coefficients. Exploratory factor analysis (EFA) was performed to examine the questionnaire's underlying factor structure, and confirmatory factor analysis (CFA) was subsequently conducted to evaluate construct validity and model fit. Reliability analyses and EFA were performed using IBM SPSS Statistics version 24.0 (IBM Corp., Armonk, NY, USA), while CFA was conducted using IBM SPSS Amos version 24.0. Comparisons of expenditure patterns across participant subgroups were conducted using appropriate parametric or non-parametric statistical tests based on data distribution. A two-sided p-value <0.05 was considered statistically significant.

RESULTS

Participant Characteristics

A total of 4,020 participants were included in the analysis. Female participants constituted 53% of the sample (n=2,130), while 47% were male (n=1,890). Participants aged ≥35 years accounted for 72% of respondents. Most participants were married (76%) and had at least one child (73%). According to WHO BMI classifications, 35.72% of respondents were overweight, and 18.38% were living with obesity, resulting in an overall prevalence of excess weight (BMI ≥25 kg/m²) of 54.1% (Table 1). Regarding health coverage, 92% reported Social Security Institution insurance, whereas 2% had private insurance coverage. Socioeconomic status distribution was 18% AB, 29% C1, 37% C2, and 16% DE (Table 2).

Annual Self-Reported Weight-Management-Related Personal Expenditures

Among overweight and obese participants, 71% reported self-reported weight-management-related personal expenditures during the previous year. The mean annual expenditure was 611,60 Euro, corresponding to approximately 15% of total household income. The proportion reporting obesity-related expenditures was higher among participants with obesity (76%) and among women (77%). Weight-management support products represented the most common spending category (61%), whereas only 4% of respondents reported expenditures on prescription anti-obesity medications (Table 3).

Patterns of Weight-Management Expenditures

The most frequently reported expenditure categories were exercise equipment (75%), gym membership (65%), and herbal products (57%). In contrast, obesity-related expenditures associated with bariatric interventions, specialised equipment, and weight-loss camps were reported by relatively few participants. Approximately one-quarter to one-third of respondents reported expenditures on physician consultations and diagnostic assessments (Table 3).

Perceived Economic Impact of Excess Weight

Among overweight and obese participants, 49% reported additional food and beverage expenditures attributable to excess weight, while 45% reported increased clothing expenditures. Additional expenditure was also reported on personal care products (37%) and sports or exercise activities (34%). Overall, 60% of participants supported increased governmental assistance to alleviate the financial burden of obesity management (Table 3). Women reported higher rates of food-related expenditure increases than men, particularly among those living with obesity.

Diet-Related Expenditures

Among participants who had consulted a physician or dietitian for weight management, more than half reported that adherence to the recommended dietary plan increased household food expenditures. This perception was particularly common among women (64%). Following initiation of a physician- or dietitian-recommended dietary program, 30% reported increased kitchen expenditures, 49% reported no meaningful change, and 34% perceived a decrease in expenditures.

Factors Associated with Obesity-Related Expenditures

Multivariable linear regression analysis was performed to identify independent predictors of annual self-reported personal expenditures related to weight management. The regression model was statistically significant ($F=13.392$, $p<0.001$) and explained 4.6% of the variance in log-transformed annual expenditure (adjusted $R^2=0.046$) (Table 5). Increasing age was independently associated with lower annual expenditures ($\beta=-0.135$, $p<0.001$), whereas higher BMI was associated with greater expenditures ($\beta=0.059$, $p=0.019$). Female sex was independently associated with lower expenditure after adjustment for other variables ($\beta=-0.075$, $p=0.003$) (Table 4).

Socioeconomic Differences in Expenditures

Using the highest socioeconomic group (AB) as the reference category, participants in the DE group reported significantly lower obesity-related expenditures ($\beta = -0.139$, $p < 0.001$). No statistically significant differences were observed for the C1 or C2 groups relative to the AB group (Table 4). Overall, younger age, higher BMI, male sex, and higher socioeconomic status were independently associated with greater obesity-related expenditures.

Future Expenditure Expectations

Approximately 28% of overweight participants expected their obesity-related expenditures to increase during the following year. This expectation was more common among participants living with obesity (32%) and among women (32%). Overall, 51% anticipated stable expenditure, whereas 20% expected their expenditure to decrease.

Multivariable Analysis of Factors Associated with Annual Obesity-Related Expenditures

To identify independent predictors of annual self-reported weight-management-related personal expenditures, a multiple linear regression model was constructed using the natural logarithm of annual expenditure as the dependent variable. Overall model diagnostics indicated that the assumptions of linear regression were adequately met, including normality of residuals, homoscedasticity, and absence of multicollinearity. No influential observations were identified based on Cook's distance analyses (Supplementary Table S1). The regression model was statistically significant ($F=13.392$, $p<0.001$) and explained 4.6% of the variance in annual obesity-related expenditures (adjusted $R^2=0.046$) (Table 5).

Increasing age was significantly associated with lower annual obesity-related expenditures ($B=-0.016$, $\beta=-0.135$, $p<0.001$), making it the strongest predictor in the model. Conversely, higher BMI was associated with greater annual expenditures ($B=0.020$, $\beta=0.059$, $p=0.019$). After adjustment for age, BMI, and socioeconomic status, female participants reported lower obesity-related expenditures than male participants ($B=-0.211$, $\beta=-0.075$, $p=0.003$) (Table 4). Socioeconomic status was evaluated using the

highest socioeconomic group (AB) as the reference category. Participants in the DE group reported significantly lower annual obesity-related expenditures than those in the AB group (B=-0.574, β=-0.139, p<0.001), whereas no significant differences were observed for the C1 and C2 groups (Table 4). Overall, the analysis suggests that younger age, higher BMI, male sex, and higher socioeconomic status were independently associated with greater obesity-related expenditures.

Model Performance and Diagnostics

Regression diagnostics demonstrated no major violations of model assumptions. Cook's distance analysis identified no influential observations, supporting the robustness of the final regression model (Supplementary Table S1). The final regression model demonstrated acceptable overall performance (Table 5). Although the proportion of explained variance was modest (adjusted $R^2 = 0.046$), the model remained statistically significant, indicating that the included demographic and anthropometric variables contributed meaningfully to predicting obesity-related expenditures. Diagnostic evaluation showed no evidence of influential observations. The maximum Cook's distance was 0.00757, while the mean Cook's distance was 0.000625. These findings support the robustness of the regression estimates and suggest that the reported associations were not driven by a small number of extreme observations (Supplementary Table S1).

DISCUSSION

Principal Findings

The present nationwide survey provides one of the most comprehensive assessments of self-reported personal expenditures related to weight management in Türkiye. More than half of the study population was classified as overweight or obese, and 71% of these individuals reported personal expenditures related to weight management. The average annual expenditure reached 611,60 Euro, representing approximately 15% of household income, highlighting the considerable financial burden of obesity management. Importantly, the multivariable regression analysis extended these descriptive findings by demonstrating that younger age, higher BMI, male sex, and higher socioeconomic status were independently associated with greater obesity-related expenditure. These findings suggest that obesity-related financial burden is influenced not only by disease severity but also by demographic and socioeconomic characteristics. Ferreira et al. [6] recently conducted a similar study with a multinational, cross-cultural design (6 countries across Europe, Asia, and Latin America) that focused exclusively on people living with obesity. They stated that the economic burden and self-reported weight-management-related personal expenditures are attributable directly to obesity. However, our data include underweight, normal weight, overweight, and obese individuals with a broader population approach rather than an obesity-only focus. The main difference can be summarized as the isolated obesity-related costs in the Ferreira et al. [6] paper, whereas we contextualized obesity within a general population and socioeconomic framework.

Socioeconomic Inequalities in Obesity Management

Socioeconomic status emerged as another important determinant of obesity-related expenditure. Individuals belonging to the lowest socioeconomic group (DE) spent significantly less than those in the highest socioeconomic group (AB), even after adjustment for demographic and anthropometric variables. Rather than indicating lower treatment needs, this finding most likely reflects reduced financial capacity to access evidence-based obesity management. Similar socioeconomic inequalities have been documented internationally, where lower-income populations experience higher obesity prevalence while simultaneously facing greater barriers to treatment access. These findings reinforce concerns that financial limitations may contribute to persistent disparities in obesity outcomes. From a health systems perspective, the dominance of Social Security Institution (SGK) coverage reflects the national insurance structure; however, the substantial proportion of participants reporting self-reported weight-management-related personal expenditures highlights a persistent gap between coverage and actual financial protection for obesity indications. This finding is consistent with prior research demonstrating that obesity-related services—particularly nutritional counseling, lifestyle interventions, and supportive products—are often inadequately reimbursed, shifting the economic burden to individuals. [7–11] Medical care, medications, diet programs, and weight-management services are frequently not fully reimbursed worldwide. [9] In our study, although 92% of participants were covered by SGK, yet 20% still reported self-reported weight-management-related personal expenditures. Especially, a strong emphasis on socioeconomic segmentation (AB–DE) and insurance coverage was elaborated. Self-reported weight-management-related personal expenditures occur mainly for specialist visits and tests, supportive products, gym memberships, and equipment. Only 4% spend on obesity medications, suggesting limited access to or uptake of these medications. Last but not least, both studies suggested that insurance coverage does not eliminate self-reported personal expenditures related to weight management for obesity management.

Patterns of Self-Reported Weight-Management-Related Personal Expenditures

The expenditure profile observed in this study demonstrates that participants predominantly allocated financial resources to commercially available lifestyle interventions rather than evidence-based medical treatments. Exercise equipment, gym memberships, and herbal products represented the most common expenditure categories, whereas only 4% of respondents reported spending on prescription anti-obesity medications. This imbalance suggests that reimbursement policies, access to treatment, physicians' prescribing practices, and public perceptions continue to influence treatment choices. Similar patterns have been reported internationally, where effective pharmacological therapies remain substantially underutilised despite growing evidence supporting their clinical effectiveness.

Perceived Economic Burden of Excess Weight

Participants consistently perceived excess body weight as generating additional household expenditures beyond direct medical care. Increased spending on food, clothing, personal care products, and sports-

related activities was frequently reported, particularly among women. The higher perceived financial impact among women with obesity in our study is consistent with gender-based disparities reported in the literature, where women experience greater social pressure, weight stigma, and associated consumption-related costs. [13] Dietary interventions recommended by physicians or dietitians were perceived by many participants to increase kitchen expenditures, particularly among women. Although evidence suggests that healthy diets do not necessarily cost more when appropriately planned, multiple studies have shown that individuals often perceive medically recommended diets as expensive because they involve increased consumption of fresh products, lean proteins, and specialised foods. [14, 15] Interestingly, the mixed reports of increased, unchanged, or decreased expenditures following dietary intervention reflect heterogeneity in dietary adherence, baseline eating patterns, and household food management strategies. [16] Our study analysed a broader definition of obesity-related costs, with food and beverage (49%), clothing (45%), personal care (37%), sports and exercise (34%), herbal products (57%), and exercise equipment (75%) among the most prominent. Expectations regarding future expenditures further emphasise the long-term economic burden of obesity. Approximately one-third of participants, particularly women and individuals with obesity, anticipated increased spending related to weight and health maintenance. This perception aligns with longitudinal evidence demonstrating that obesity is associated with rising direct and indirect costs over time, including healthcare utilisation, productivity loss, and lifestyle-related expenditures. [17]

The distribution of weight-management expenditures highlights a preference for non-pharmacological, commercially accessible options, such as gym memberships, exercise equipment, food supplements, and herbal products. The remarkably low utilisation of pharmacological treatments for obesity (4%) is consistent with international data indicating underuse of evidence-based anti-obesity medications due to limited reimbursement, concerns about safety, and lack of physician engagement. [18] This mismatch between high spending on low-evidence interventions and low uptake of medically approved treatments underscores a critical inefficiency in obesity management. 35% of participants in our study believed that most weight-loss expenses are wasted, and 34% would invest more only if effectiveness were guaranteed, indicating clear scepticism toward current offerings in the weight-loss market. This low confidence in effectiveness highlights a barrier to sustained investment.

Finally, the finding that 71% of participants spent a substantial amount annually—approximately 15% of household income—on obesity management underscores the magnitude of the personal financial burden. Prior economic analyses have emphasised that obesity-related costs disproportionately affect individuals rather than health systems in settings where preventive and therapeutic services are inadequately covered. [8] The strong support among participants for increased government involvement is therefore consistent with public health arguments advocating policy-level interventions, reimbursement reforms, and population-based prevention strategies. [19–21] The 611,6 Euro annual obesity-related spending demonstrates that self-reported weight-management-related personal expenditures constitute a non-trivial proportion of household income. Additionally, 60% of participants expect increased government support for obesity, and ~ 30% expect rising future costs, particularly women and individuals with obesity, reflecting an unmet need for affordable, effective interventions.

Comparison With Previous Systematic Reviews

The present findings are broadly consistent with evidence synthesised in previous systematic reviews evaluating the economic burden of obesity, while also extending the literature by focusing on self-reported personal expenditures related to weight management. Most systematic reviews have primarily quantified direct healthcare costs, indirect productivity losses, or societal economic burden attributable to obesity, whereas relatively few have examined the personal financial burden experienced by individuals during obesity management.

A systematic review by Withrow and Alter [7] demonstrated that obesity substantially increases direct healthcare expenditures across diverse healthcare systems, although considerable heterogeneity exists across countries, study designs, and costing methodologies. Similarly, the comprehensive systematic review by Tremmel et al. [8] concluded that obesity imposes a considerable economic burden worldwide through increased medical expenditures, productivity losses, disability, and premature mortality. More recently, Fatoye et al. [20] reported that obesity represents a growing clinical and economic challenge in low- and middle-income countries, where limited healthcare resources and inadequate reimbursement often shift a greater share of treatment costs to patients and their families. The findings of the present study are consistent with these observations, demonstrating that obesity management constitutes a substantial household financial burden in Türkiye, with participants reporting annual obesity-related expenditures of approximately 15% of household income.

The present study also complements previous systematic reviews by demonstrating that obesity-related expenditure is not limited to healthcare utilisation alone. Participants reported considerable spending on food, clothing, exercise equipment, gym memberships, personal care products, and herbal supplements, indicating that the economic consequences of obesity extend well beyond conventional medical costs. These findings support the growing recognition that patient-borne expenditures constitute an important but frequently underestimated component of the overall economic burden of obesity. Higher BMI was independently associated with greater annual self-reported expenditures on weight-management-related personal expenses, supporting previous economic evaluations showing that increasing obesity severity is accompanied by progressively higher healthcare costs. Likewise, the lower expenditures observed among participants from the lowest socioeconomic group likely reflect financial barriers to accessing obesity care rather than lower treatment needs, emphasising the importance of socioeconomic inequalities identified in previous international reviews. An additional notable finding was the marked predominance of spending on support products compared with prescription anti-obesity medications. This pattern may reflect barriers related to reimbursement, treatment availability, affordability, and public awareness. [12]

Clinical and Health Policy Implications

The present findings have important implications for healthcare policy. The observation that obesity-related expenditure is independently associated with BMI and socioeconomic status suggests that current financing mechanisms may disproportionately disadvantage individuals who are least able to

afford effective treatment. Furthermore, the remarkably low utilisation of prescription anti-obesity medications despite substantial spending on commercially available products indicates a potential mismatch between healthcare reimbursement policies and evidence-based obesity management. Improving reimbursement for pharmacological therapy, multidisciplinary obesity care, nutritional counselling, and structured lifestyle interventions may reduce avoidable self-reported weight-management-related personal expenditures while improving equitable access to evidence-based obesity management.

Strengths and Limitations

The principal strength of this study is its large nationwide sample of more than 4,000 adults recruited across Türkiye, enabling a comprehensive assessment of self-reported weight-management-related personal expenditures in a heterogeneous population. In addition, the inclusion of multivariable regression analysis enabled identification of independent predictors of obesity-related expenditure beyond descriptive comparisons.

Several limitations should also be acknowledged. First, the cross-sectional design precludes causal inference. Second, body mass index and expenditure data were self-reported and may therefore be subject to recall or reporting bias. Third, participants were recruited through an online survey platform, which may have resulted in selection bias by underrepresenting individuals with limited internet access. Finally, although several important demographic variables were included in the regression model, unmeasured confounding factors may still have influenced the observed associations. In addition, expenditure estimates were derived from participant self-report and were not independently verified using administrative or reimbursement records.

An additional notable finding was the marked predominance of spending on support products compared with prescription anti-obesity medications. This pattern may reflect barriers related to reimbursement, treatment availability, affordability, and public awareness. Future studies should explore the factors influencing treatment selection and the potential consequences of reliance on non-prescription weight-management products.

CONCLUSION

This nationwide study demonstrates that obesity imposes a substantial financial burden on adults in Türkiye, extending well beyond direct healthcare expenditures to encompass self-reported weight-management-related personal expenditures and lifestyle-related costs. A large proportion of participants reported personal spending on obesity management, with annual expenditures representing a considerable share of household income. Commercially available interventions, including exercise equipment, gym memberships, and herbal products, accounted for a substantial proportion of expenditures, whereas the utilisation of evidence-based pharmacological treatments remained remarkably low.

Importantly, multivariable analysis identified younger age, higher BMI, male sex, and higher socioeconomic status as independent determinants of greater annual obesity-related expenditure. Conversely, individuals in the lowest socioeconomic group reported significantly lower expenditures after adjustment for demographic and anthropometric characteristics, suggesting that financial constraints may limit access to effective obesity management rather than reflecting lower healthcare needs. These findings highlight persistent socioeconomic inequalities in access to obesity care.

Collectively, the findings indicate that the economic burden of obesity should be evaluated not only from the perspective of healthcare systems but also from the perspective of the considerable financial burden experienced by individuals and households. Reducing self-reported weight-management-related personal expenditures through improved reimbursement of evidence-based obesity treatments, multidisciplinary weight-management services, and preventive interventions may enhance equitable access to care while mitigating the long-term clinical and economic consequences of obesity. Future longitudinal studies are warranted to evaluate causal relationships and to determine whether reducing financial barriers improves treatment uptake and long-term health outcomes.

Declarations

ACKNOWLEDGMENTS

Ethics approval and consent to participate

This observational study complies with the STROBE (STrengthening the Reporting of Observational studies in Epidemiology) guidelines. All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and the Declaration of Helsinki of 1975, as revised in 2008. Our institution has granted ethics committee approval under protocol number University of Health Sciences Gülhane Scientific Research Ethics Committee-2025/460.

Consent for Publication

The original article is not under consideration by another publication, and its substance, tables, or figures have not been published previously and will not be published elsewhere.

Availability of data and materials

The data supporting this study's findings are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

ESY (First & corresponding author): ESY, HS, HA, CES, FY, MH, OT, TE: Conceptualisation; ESY, HS, HA, CES, FY, MH, OT, TE: Methodology; ESY, HS, HA, CES, FY, MH, OT, TE: Formal analysis, Investigation, Data Curation; ESY, HS, HA, CES, FY, MH, OT, TE: Writing - Original Draft, Writing - Review & Editing; ESY, MH, OT, TE: Visualisation; ESY, HS, HA, CES, FY: Project administration.

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AI Statement

The authors used AI and AI-assisted Technologies (Grammarly and MS Word Editor) in the writing process. These technologies improved the readability and language of the work but did not replace key authoring tasks such as producing scientific or medical insights, drawing scientific conclusions, or providing clinical recommendations. The authors are ultimately responsible and accountable for the contents of the whole work.

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Tables

Table 1. Demographic Characteristics and BMI of the Study Population (N = 4,020)

Characteristics	**N**	**%**
Sex		
Female	2130	53
Male	1890	47
Age		
≥35 years	2894	72
Marital Status		
Married	3055	76
Children		
Having Children	2934	73
BMI category (WHO classification)		%
Underweight (<18,5 kg/m²)		3,00
Normal weight (18,5–24,9 kg/m²)		42,54
Overweight (25,0–29,9 kg/m²)		35,72
Obesity (≥30,0 kg/m²)		18,38
Overweight or obesity (≥25,0 kg/m²)		54,10

Table 2. Health Insurance Coverage and Socioeconomic Status of Participants (N = 4,020)

Variable	%
Health Insurance	
Social Security Institution	92
Private health insurance	2
Institutional insurance*	9
Socioeconomic status	
AB	18
C1	29
C2	37
DE	16

*Insurance categories are not mutually exclusive.

Table 3. Obesity-Related Expenditure Characteristics

Mean annual obesity-related expenditure	**611,6 Euro**
Variable	**%**
Participants reporting obesity-related expenditure	71
Participants with obesity reporting expenditure	76
Women reporting expenditure	77
Annual expenditure as proportion of household income	15
Weight-management support products	61
Prescription anti-obesity medication	4
Exercise equipment	75
Gym membership	65
Herbal products	57
Additional food and beverage expenditure	49
Additional clothing expenditure	45
Additional personal care expenditure	37
Additional sports/exercise expenditure	34
Support for increased governmental assistance	60

Table 4. Multivariable Linear Regression Analysis of Factors Associated with Annual Self-Reported Weight-Management-Related Personal Expenditures

Predictor	Unstandardized B	Standardized β	P-value
Age (years)	-0.016	-0.135	<0.001
Female sex	-0.211	-0.075	0.003
Body mass index (BMI)	0.020	0.059	0.019
SES: C1 vs AB	0.150	0.049	0.105
SES: C2 vs AB	-0.148	-0.048	0.115
SES: DE vs AB	-0.574	-0.139	<0.001

Dependent variable: natural logarithm of annual self-reported weight-management-related personal expenditures. Socioeconomic status (SES) was entered as dummy variables with the AB group serving as the reference category.

Table 5. Overall Model Performance of Model characteristic Value

Dependent variable	Annual obesity-related expenditure
Sample size (N)	1,555
F statistic	13.392
Model significance	<0.001
Adjusted R^2	0.046

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- TableS1.docx