THE ECONOMIC BURDEN OF ADULT OBESITY WITH SPECIAL REFERENCE TO DRUG CONSUMPTION: ESTIMATES FROM THE KORA STUDY REGION

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OBJECTIVES: To analyze the association between costs of illness and degree of obesity for a population-based sample of German adults. METHODS: In a cross-sectional resident population survey in the KORA study region of Augsburg, Germany (random sampling, N = 947, age: 25–74 years), body mass index (BMI) was assessed anthropometrically and categorized into normal weight (18.5 ≤ BMI < 25), preobese (25 ≤ BMI < 30), obese class 1 (30 ≤ BMI < 35) and obese classes 2–3 (BMI ≥ 35). Health care utilization and inability to work were assessed by self-reports via three computer-aided telephone interviews over six months. For drugs, actual prices were used; for all other direct cost components, costs were calculated by imputing mean unit costs on the reported resource consumption figures. Indirect costs (productivity loss due to temporary inability to work) were valued by individual gross earnings. Multivariate regression models were used to estimate the effect of BMI on direct and indirect costs of illness, while controlling for age, sex, social status, and urban vs. rural place of residence. RESULTS: Compared with persons of normal weight, obesity class 1 (obesity classes 2–3) was associated with 39% (63%) higher costs of visits to general practitioners, 51% (388%) higher costs of inpatient hospital care, and 19% (136%) higher costs of drug utilization. Higher drug expenditures for male obese adults were particularly due to diseases of the alimentary tract and metabolism and diseases of the musculoskeletal system, and for female obese adults due to diseases of the cardiovascular system. Altogether, yearly per capita costs of illness (direct plus indirect) in these 3 groups added up to €2116 (95% CI €1427–€2805), €2643 (95% CI €1848–€3438), and €5483 (95% CI €4102–€6803). CONCLUSIONS: Results point to a considerable economic impact of obesity, especially obesity classes 2–3. The lesson for health care research is that obesity class 1 and obesity classes 2–3 should be analyzed separately.

Cost-of-Illness Analysis of Juvenile Obesity and of Co-Morbidity Type 2 Diabetes Mellitus (T2DM) in Germany

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OBJECTIVES: Obesity among children has developed into a major public health problem in Germany. In 1999 15% of children aged 14–17 years were obese and approximately 1% of these were diabetics. Obesity and T2DM are important causes of morbidity among young people associated with high costs for the health system. The objective of this paper is to estimate the economic burden of illness of obesity and T2DM of children and adolescents in Germany. METHODS: Cost calculations are based on the top down approach and the prevalence method. Direct costs of illness are derived from aggregate statistical data and various scientific publications. Included are costs of hospitalization (ICD 10: obesity E 65–67; T2DM E 11), costs of rehabilitation and costs of special medical programs for obese children. Other direct costs (as e.g. costs of remedies and aids or costs of drugs) could not be included due to a lack of data; the same holds for indirect costs. Except for T2DM, co-morbidities of obesity are neglected in this analysis. RESULTS: During 1999–2003 the mean direct costs of obesity per year were €58.3 million with €51.8 million for rehabilitation, €3.2 million for hospital care and €3.3 million for special medical programs. The costs of juvenile T2DM were €60.7 million (hospital care). Mean costs per treated obese child added up to €3540 and to €5720 per treated obese child with T2DM. CONCLUSION: Obesity and T2DM are rapidly emerging as major disorders of childhood and adolescence and as important cost drivers for the health system. There is a need for further research in costs of obesity and T2DM of children and for studies on intervention to obviate a major public health crisis in Germany. The challenge for health policy is to identify effective and efficient prevention strategies.

AN ANALYSIS OF THE IMPACT OF BARIATRIC SURGERY ON HEALTH OUTCOMES AND PHARMACOLOGICAL TREATMENT AMONG OBESE PATIENTS

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OBJECTIVE: To identify the impact of bariatric surgery on health outcomes and pharmacological treatment among obese patients. METHODS: A comprehensive analysis of 833 patients with a diagnostic of obesity (ICD-9-CM = 278) with a CPT code of bariatric surgery (43,659, 43,842, 43,843, 43,846, 43,847, 43,999, $2085) was performed. The sample was drawn from a US administrative claims database covering 2.2 million lives. Diagnostics and pharmacological treatment were compared in the 180 days preceding the surgery and days 30–210 following the surgery. Frequency counts were performed on diagnostics using aggregated 3 digit ICD-9-CM codes and pharmacological treatment using AHFS (American Hospital Formulary Service) therapeutic classes. Pre- and post surgery frequencies were compared using chi-squared tests. RESULTS: Among the 833 patients (mean age = 42.3, 15.1% male), cardiovascular disease was cut by half (from 47.5% to 23.9%), diabetes mellitus was reduced from 18.0% to 12.9%, and respiratory disease in general was reduced from 57.7% to 14.8% while asthma in particular dropped from 11.2% to 3.7%. Diseases of the joints and muscles were reduced from 36.6% to 24.0%. Psychiatric disorders fell from 18.4% to 9.7%. On the contrary, anemia diagnoses increased from 4.1% to 13.6%. The frequency of pharmacological treatment for the conditions identified above fell dramatically often to a greater extent than the reduction in the prevalence of the underlying condition. The percentage of patients receiving insulin treatment and oral antidiabetics decreased from 5.2% to 2.2% and from 12.7% to 4.3%, respectively. The proportion of patients receiving treatment for cardiovascular diseases fell from 57.7% to 14.8% while asthma in particular dropped from 18.0% to 12.9%, and respiratory disease in general was reduced from 57.7% to 14.8% while asthma in particular dropped from 11.2% to 3.7%. Diseases of the joints and muscles were reduced from 36.6% to 24.0%. Psychiatric disorders fell from 18.4% to 9.7%. On the contrary, anemia diagnoses increased from 4.1% to 13.6%. The frequency of pharmacological treatment for the conditions identified above fell dramatically often to a greater extent than the reduction in the prevalence of the underlying condition. The percentage of patients receiving insulin treatment and oral antidiabetics decreased from 5.2% to 2.2%. All differences between pre- and post surgery proportions are statistically significant (P = 0.05). CONCLUSION: Bariatric surgery is associated with significant improvements in health outcomes and reduced pharmaceutical utilization for major disease categories.

MODIFICATION OF LIFE STYLE AND OBESITY MANAGEMENT IN PRIMARY CARE

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