



# THE PREVALENCE AND ECONOMIC BURDEN OF OBESITY IN HUNGARY



FENS, Dublin October 15-19, 2019

**Imre RURIK, Tímea UNGVÁRI, Csilla SEMÁNOVÁ, Gabriella ISKI**

University of Debrecen, Department of Family and Occupational Medicine, Debrecen, Hungary

Hungarian Society of Nutrition, Budapest, Hungary

## Introduction

1. Since 1988, when the first professional wide-range evaluation was performed in Hungary, only limited data were available.

2. Obese patients usually need more health care services.

## Methods

1. Anthropometric parameters were measured, presence of metabolic diseases were questioned in primary & community care settings and in workplaces. Age, BMI, waist circumference, educational level, presence of hypertension or/and diabetes were analyzed statistically and compared with previous data from 1988.

2. Yearly data of the Hungarian National Health Insurance Fund Administration (NHIFA) were collected, regarding finances of secondary care, hospital services and health insurance reimbursement for medications, based on the International Classification of Diseases codes of selected morbidities linked to obesity. In the calculation of direct medical costs, 100% of the medical expenses were considered when obesity was coded as leading diagnoses, while estimated costs of other morbidities were based on population-attributable fraction (PAF), using the following equation:  $PAF \% = [P(RR-1)] / [1+P(RR-1)]$ , where P is the population prevalence proportion of obesity (gender specific, aged 20 and over) and RR is the summary relative risk of developing a certain disease among obese individuals.

## Results

Data of 0.55 percent of the population above 18 year were registered in all geographical regions of Hungary close to the proper national representativeness. The overall prevalence rate of overweight among men was 40%, while obesity 32%, by women both was close to 32%. See distribution below. Compared to the data of survey in 1988, ratio of obesity was tripled in the younger and doubled in the middle aged groups.

The highest ratio of overweight was registered among men with the highest educational level, while highest ratio of obesity among women having the lowest education. Obesity according to BMI and abdominal obesity was the highest in the villages, especially among females. Registered metabolic morbidities were strongly correlated with BMIs and both were inversely related to the level of urbanization.

## Distribution and average of BMI

Age	MEN [%]				BMI [kg/m <sup>2</sup> ] mean	WOMEN [%]				BMI [kg/m <sup>2</sup> ] mean
	underweight	normal	overweight	obese		underweight	normal	overweight	obese	
18-34	3,7	45,8	32,3	18,2	25,6	9,4	55,3	19,7	15,6	24,0
35-59	0,8	24,6	40,1	34,4	28,6	1,9	35,1	31,7	31,3	27,3
60 <	0,7	18,9	43,9	36,5	28,9	0,9	22,8	37,2	39,2	28,4
Total	1,3	26,7	39,9	32,1		2,8	34,1	31,7	31,5	

n=43,287 (17,901 men and 25,386 women)

Rurik I, Ungvári T, Szóder J, Torzsa P, Mészáros Cs, Árnósd Z, Sándor J.

Obese Hungary. Trend and prevalence of overweight and obesity in Hungary, 2015.

Obv Health 2016;15(7):1248-55

## Distribution of BMI and waist circumference

Age group	MEN [%]				WOMEN [%]			
	category	<94cm	94-102 cm	102 <	<80 cm	80-88 cm	88 <	
18-34	66,4	16,9	16,7	52,8	18,8	28,4		
35-59	36,8	25,1	38,1	24,1	18,5	57,5		
60 <	27,3	26,5	46,3	11,9	13,9	74,2		
Location	49,5	23	33,2	47,8	17	35,2		
City	38,7	24,3	37,1	24,3	17,5	58,2		
Villages	38,6	23,8	37,6	19,6	15,8	64,7		
Education	39,9	23	37	17,2	12,6	70,2		
primary	38,4	23	38,6	16,9	14,2	68,9		
secondary	38,4	23,4	38,1	27,2	18,3	54,6		
high	41,2	25,7	33,2	38,3	19,4	42,3		

Rurik I, Ungvári T, Szóder J, Torzsa P, Mészáros Cs, Árnósd Z, Sándor J.

Obese Hungary. Trend and prevalence of overweight and obesity in Hungary, 2015.

Obv Health 2016;15(7):1248-55

## Results 2.

In the Hungarian hospitals 2,031,193 admissions were reported in 2013

The NHIF financed inpatient and outpatient care, reimbursement for medications and healing aids, sickness benefit expenditures

Main diagnosis	Level of care		NHIF reimbursement		Total (Million HUF)	Calculation PAF [%]	Calculation (Million HUF)
	Inpatient	Outpatient	Drugs	Healing aids			
Obesity	80	77	16	3	136	100	136
Diabetes	3,253	1,780	29,497	5,801	40,311	40	16,124
Hypertension	2,434	3,376	30,347	35	36,392	45	16,378
Cardiac	20,012	1,337	5,116	12	28,497	23	6,094
Stroke	9,922	423	10,345	11	11,338	11	1,138
Gonarthrosis	5,940	1,192	473	439	6,945	19	1,528
Chol. low			16,466		16,466	30	4,940
Nickens. Inerth			24,083		24,083	30	7,225
Celion tumor	5,618	293	1,003		6,914	19	694
Breast cancer	12,370	1,433	6,116		19,921	12	2,391
Ovarian tumor	2,061	48	317		2,426	22	534
Gall stones	4,724	318	61		5,103	35	1,786
Total	66,434	10,461	89,412	6,290	196,678		58,996
Million EUR	212	33	288	20	628		188

Iski G, Rurik SE, Rurik I. Expenditures of Metabolic Diseases - An Estimation on

National Health Care of Diabetes and Obesity, Hungary 2013.

Exp Clin Endocrinol Diabetes. 2016 Jul 2. doi:10.1055/s-0030-0316.

The estimated total obesity related health care expenditures were 58,986 Million HUF (190.3 Million EUR) and the financial contribution of patients was calculated as 25,316 Million HUF (82 Million EUR).

Financial data regarding diabetes care resulted in a 40.311 Million HUF (129 Million EUR) national fund expenses, including direct service payments and reimbursements, beside a 7.173 Million HUF (23 Million EUR) contribution from patients.

The sums of the estimated obesity related data listed in the tables represent a 9.3 % of the whole national health services budget (908,011 Million HUF = 2901 Million EUR) and 30% of the whole drug-reimbursement budget (298,024 Million HUF = 946 Million EUR).

Expenditures for all obesity related pathologies could be estimated between 0.5 - 1 % of the national GDP.

## Conclusions

Over the previous decades, the ratio of the overweight and even the obese persons increased significantly, it was most prominent among males, mainly in younger generation. Obesity means a serious medical, public health and economic problem, requires higher public awareness and political support

## Authors and contacts:

Prof. Dr. Imre RURIK Rurik.Imre@sph.unideb.hu

Tímea UNGVÁRI MSc Ungvari.Timea@sph.unideb.hu

Csilla SEMÁNOVÁ MSc Semanov.Csilla@sph.unideb.hu

Dr. Gabriella ISKI iski.gabi@gmail.com