

Variations in the Body Mass Index (BMI) of Middle-Aged Men: Effects of the Occupation, Age and Social Class

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In this study 860 persons (males) at the age of 30-50 years of different professions and different social status have been investigated. The basic anthropometric characteristics of each one of them were taken — height and weight, on the basis of which their BMI was calculated (kg/m^2). The results show that amongst all men studied, the relative share of men with Grade 1 overweight is highest, and that of men with Grade 3 overweight is lowest.

Key words: BMI, overweight, males, age, socioprofessional status.

Introduction

Body weight is one of the main indicators of the physical status of man on every stage of his postnatal ontogenesis. The interpretation of this major morphological characteristic has been changing in the last decade from a criterion of good health to an indicator of accumulated inert, useless tissue due to fattening. The results of specific research in this direction unequivocally show that the excessive body weight of grown-up individuals is becoming a serious medico-biological problem, grounded in the adaptive changes of human organism to the contemporary conditions of life and work [1, 2, 3, 4]. The purpose of this study is to investigate the variations of the BMI of men in middle age, and to establish the frequency and tendency of excessive weight as related to some exogenous factors: education, monthly income, occupation and age.

Material and Methods

860 men were studied, divided into two groups according to their age, into three categories according to their education, and into three categories, according to their monthly income. The men under study represented 5 occupations — founders, carpenters, fitters, drivers and programmers. The basic anthropometric characteristics of each one of them were taken — height and weight, on the basis of which their BMI

was calculated (kg/m^2). The different levels of excessive weight were determined according to the feeding norms of grown-ups, published by the WHO in 1995: normal range—BMI 18.50-24.99; Grade 1 overweight — BMI 25.00-29.99; Grade 2 overweight—BMI 30.00-39.99; Grade 3 overweight — BMI ≥ 40 . The material was statistically processed on a computer using SPSS-9.0 software and descriptive analysis.

Results and Comments

The general distribution of men studied (in %), according to the values of their BMI, is illustrated in Fig. 1. The results show highest frequency of the individuals with Grade 1 overweight, representing almost half of all men studied — 390 (45.35%). Followed by those with normal weight — 281 (32.67%). High levels of the BMI index (BMI = 30) were established in roughly one fourth of men. We can get a clearer picture of the proportion of individuals with normal weight and those with excessive weight when we look into their percentage distribution with relation to their age or social and occupational status. (Table 1, Fig. 2). The percentage of men with normal body weight (BMI 18.50—24.99) is predominant in the occupational group of software programmers (50,00%), as well as in the groups with highest monthly income (43.02%) and those with higher education (47.94%). Individuals with the above index can be met more often in the first period of middle age than in the second. The percentage of men with Grade 1 overweight (BMI 25.00—29.99) is highest in all occupations of physical labour — founders, carpenters, fitters, drivers; in the groups with low and medium monthly income; with primary and secondary education; and in the both periods of middle age. The frequency of men with Grade 2 overweight (BMI 30.00—39.99) is highest in two occupational groups — founders and drivers. The result is indicative in view of the occupation of these men. The higher level of BMI of founders may be explained by their bigger muscles due to their intensive physical labour, while the static character and the hypo-dynamics in the occupation of drivers most probably stimulate the accumulation of fat in their bodies. Besides, the frequency of individuals with BMI 30.00—39.99 is highest in the second period of active middle age, in the groups with primary education and with medium monthly income. From all individuals studied, the percentage of men with Grade 3 overweight (BMI = 40) is lowest. A slight tendency of rising in the frequency of this index can be noticed in occupational aspect, with the reduction of physical effort.

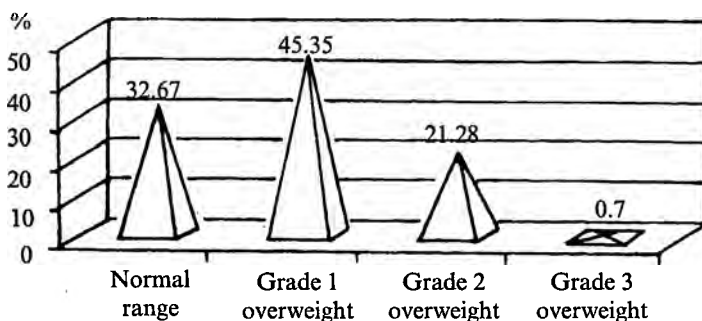


Fig. 1. Distribution of men studied according to their BMI values

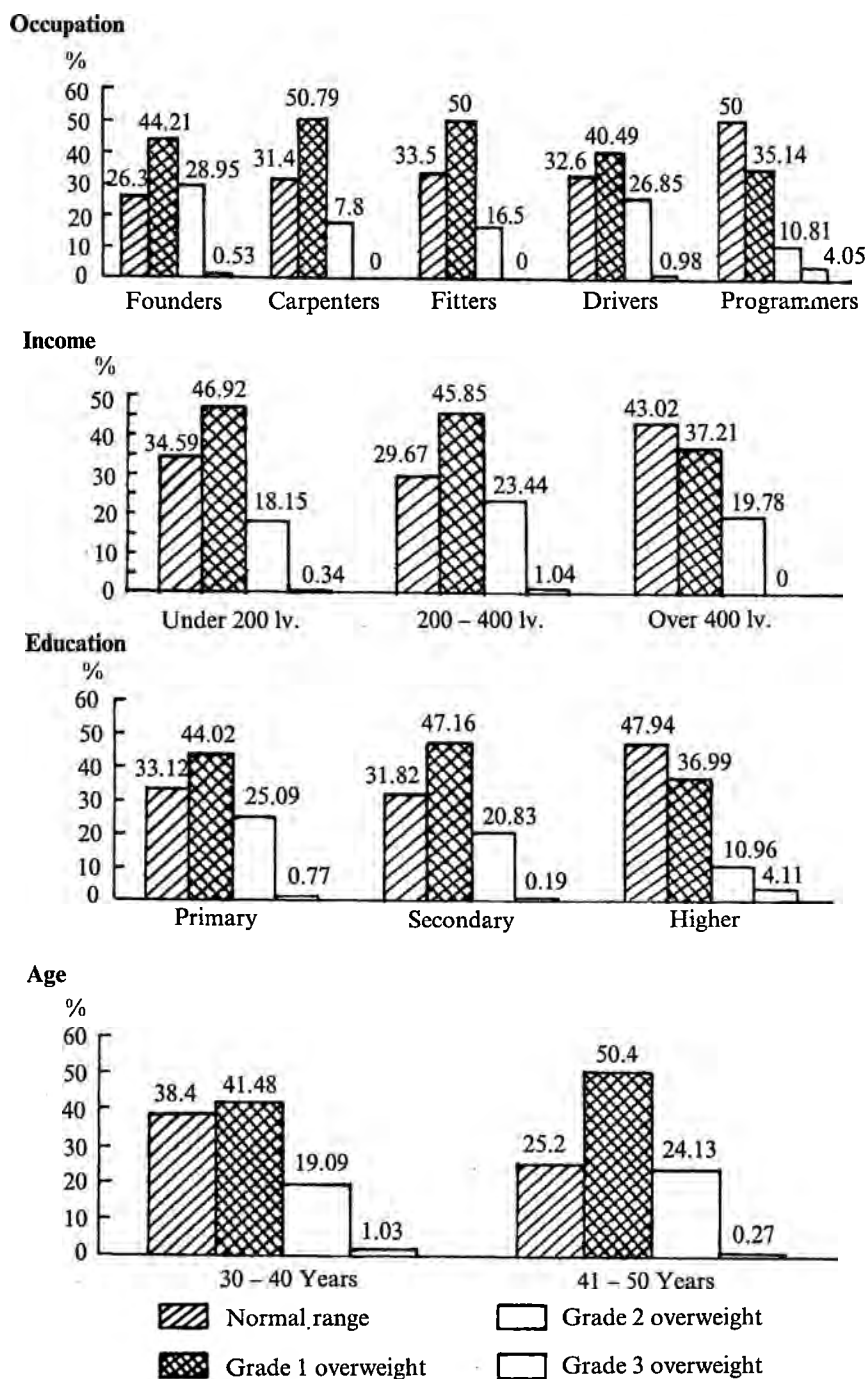


Fig. 2. Percentage distribution of men in the categories of BMI with relation to factors studied

Table 1. Distribution of men studied in the categories of BMI (%)

BMI Factors		Normal range BMI 18.50-24.99		Grade 1 overweight BMI 25.00-29.99		Grade 2 overweight BMI 30.00-39.99		Grade 3 overweight BMI = 40	
		N	%	N	%	N	%	N	%
Occupation-	<i>n</i>								
Founders-	190	50	(26.31)	84	(44.21)	55	(28.95)	1	(0.53)
Carpenters-	191	60	(31.41)	97	(50.79)	34	(17.80)	0	—
Fitters-	200	67	(33.50)	100	(50.00)	33	(16.50)	0	—
Drivers-	205	67	(32.68)	83	(40.49)	53	(25.85)	2	(0.98)
Programmers-	74	37	(50.00)	26	(35.14)	8	(10.81)	3	(4.05)
Income -	<i>n</i>								
Under 200 lv.	292	101	(34.59)	137	(46.92)	53	(18.15)	1	(0.34)
200 — 400 lv. -	482	143	(29.67)	221	(45.85)	113	(23.44)	5	(1.04)
Over 400 lv. -	86	37	(43.02)	32	(37.21)	17	(19.78)	0	—
Education-	<i>n</i>								
Primary-	259	78	(30.12)	114	(44.02)	65	(25.09)	2	(0.77)
Secondary-	528	168	(31.82)	249	(47.16)	110	(20.83)	1	(0.19)
Higher-	73	35	(47.94)	27	(36.99)	8	(10.96)	3	(4.11)
Age-	<i>n</i>								
30 — 40 years -	487	187	(38.40)	202	(41.48)	93	(19.09)	5	(1.03)
41 — 50 years -	373	94	(25.20)	188	(50.40)	90	(24.13)	1	(0.27)

Conclusions

1. Amongst all men studied, the relative share of men with Grade 1 overweight (BMI 25.00-29.99) is highest, and that of men with Grade 3 overweight (BMI \geq 40) is lowest.
2. Individuals with normal body weight are most frequent in the groups of higher social and occupational status and in the younger period of middle age.
3. The frequency of men with Grade 1 and Grade 2 overweight increases with the lowering of their social status and the advancing of age. It is higher in the occupations of greater physical effort (founders) and marked hypo-dynamics (drivers).

References

1. G u e l i, N. et al. An assessment of the main variables of cardiovascular risk in a simple population of workers in Roma. — *Panminevra Med.*, 43, 2001, Dec., No 4, 267-277.
2. N a c h e v a, A., E. L a z a r o v a, L. Y o r d a n o v a. Body nutritional status in 7—17 years old schoolchildren from Sofia (Longitudinal study 1993 — 2001). — *J. Anthropology*, 4, 2003, 21-25.
3. S u k a, M., H. S u g i m o r i, I. L i d a. Risk factors for hypertension. A longitudinal study of middle-aged Japanese male workers. — *Nopon Koshu Eisei Zasshi.*, 48, 2001, Jul., No 7, 543-550.
4. М л а д е н о в а, С. Динамика на растежа и развитието на деца и подрастващи от Смолянски регион и влияние на социално-икономически фактори върху техния морфологичен статус. Дисерт. труд, 2003, 151 с.
5. WHO Working Group. Physical status: The use and interpretation of anthropometry. Report of WHO Expert Committee, 1995, 452 p.