

Obesity in Adolescence: A Lifestyle-context Approach

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Introduction

- **Overweight and obesity: world-wide epidemic**
- **Upward trend from the 1980s among children and adolescents: currently the most common chronic illness in childhood (Sokol 2000)**
- **Serious health consequences (cardiovascular diseases, diabetes II, etc.)**
- **In childhood and adolescence: serious psychosocial consequences: low self-esteem, stigmatization, social isolation, etc.)**
- **Multifactorial background (genetic, biological, psychosocial, environmental → lifestyle)**
- **Main factors: lifestyle → nutritional habits, physical activity (WHO 1998, Janssen et al. 2005)**
- **Aim of the presentation: to find differences among Hungarian young people in their nutritional status in relation with some health-related habits (eating, physical activity)**



Methods I.

THE STUDY: *Health Behaviour in School-aged Children* (HBSC, in collaboration with WHO)

- International (41 countries currently), cross-sectional surveys every 4 year
- Goal: identification of youth health indicators and influencing factors → information for policy makers and health educators
- Sampling: nationally representative, cluster design (basic cluster: school class)
- Target ages: 11, 13, 15 yr (in Hungary: 17, too)
- Data collection: anonymous, self-completed questionnaires (in the classrooms), voluntary participation
- Quality insurance: strict research protocol, internationally developed and piloted items, standard English version of the questionnaires → translation, independent retranslation



Methods II.

DATA ANALYSIS: Hungarian nationally representative HBSC sample from the 2001/02 survey

- **Target groups:** elementary school (aged 11-14) boys (N=1177, mean age=12.61 ± 1.12 yr), and girls (N=1359, mean age=12.55 ± 1.08 yr) as well as secondary school (aged 15-18) boys (N=1244, mean age=16.76 ± 1.12 yr) and girls (N=1572, mean age=16.45 ± 1.12 yr)
- **Clustering variables:** behavioural items, that is eating pattern, food consumption frequencies, weight reduction, tooth brushing, physical activity (PA), sedentary behaviour
- **Output variables:** BMI (from height and weight), nutritional status (overweight or not according to international gender- and age-specific cut-points: Cole et al. 2000), body image (thin, average, fat), perceived fitness (good or very good vs. not good)
- **Statistical analysis:** SPSS, two-step cluster analysis, one-way ANOVA (post hoc: Tukey), chi-square test of independence, p=0.05,

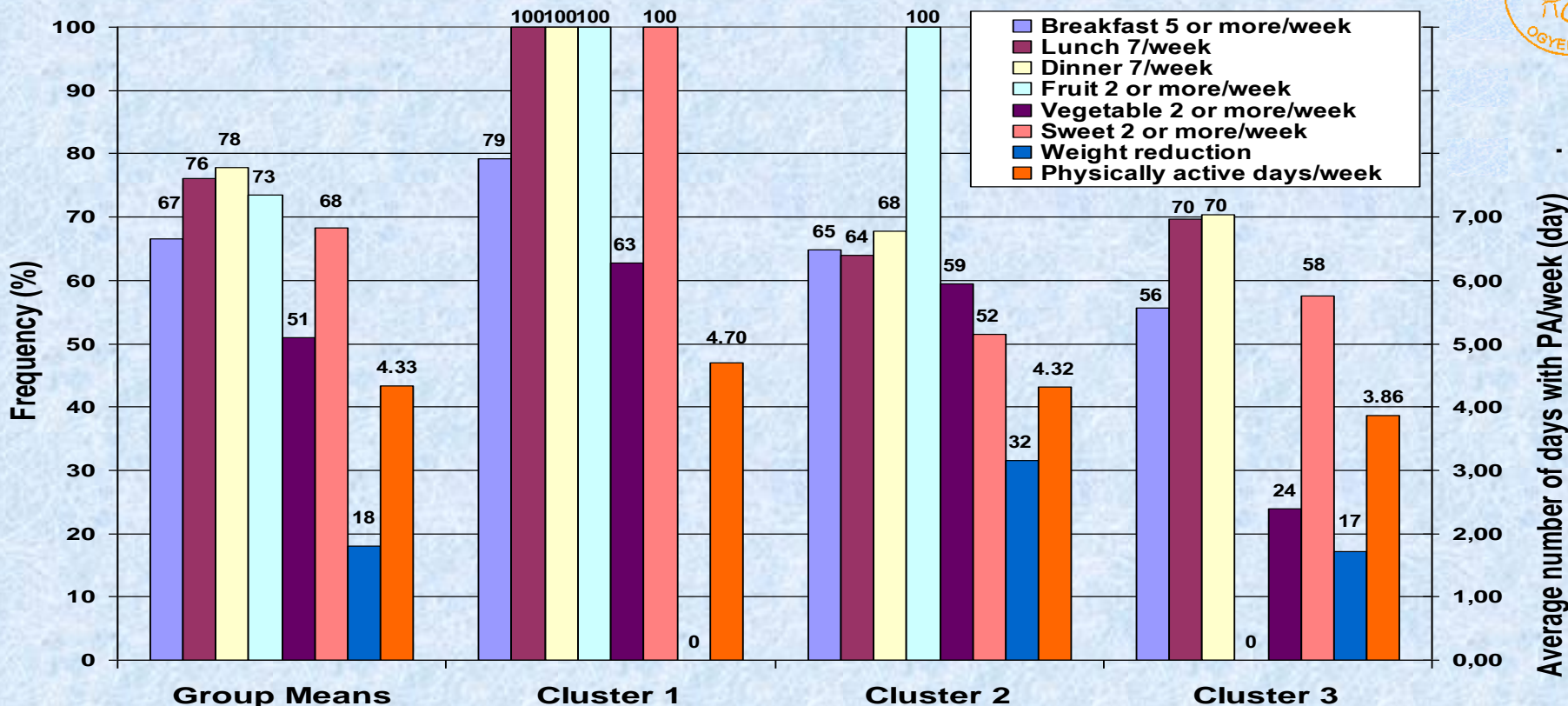


Results

- **Many of the independent variables have not been proved to have significant importance in clustering thus these variables have been excluded from the analysis.**
- **Final clustering variables:**
 - **Average number of days when having breakfast (at least 5 vs. less)**
 - **Average number of days when having lunch (7 vs. less)**
 - **Average number of days when having dinner (7 vs. less)**
 - **Frequency of fruit consumption (at least twice/week vs. more seldom)**
 - **Frequency of vegetable consumption (at least twice/week vs. more seldom)**
 - **Frequency of sweet (candy, chocolate) consumption (at least twice/week vs. more seldom)**
 - **Weight reduction presently (yes vs. no)**
 - **Average number of days/week with at least 60 minutes moderate to vigorous physical activity (1-7)**
- **Based on the above variables: 3 clusters have been created in both groups of boys, and 4 clusters have been created in both groups of girls.**



Clusters of elementary school boys

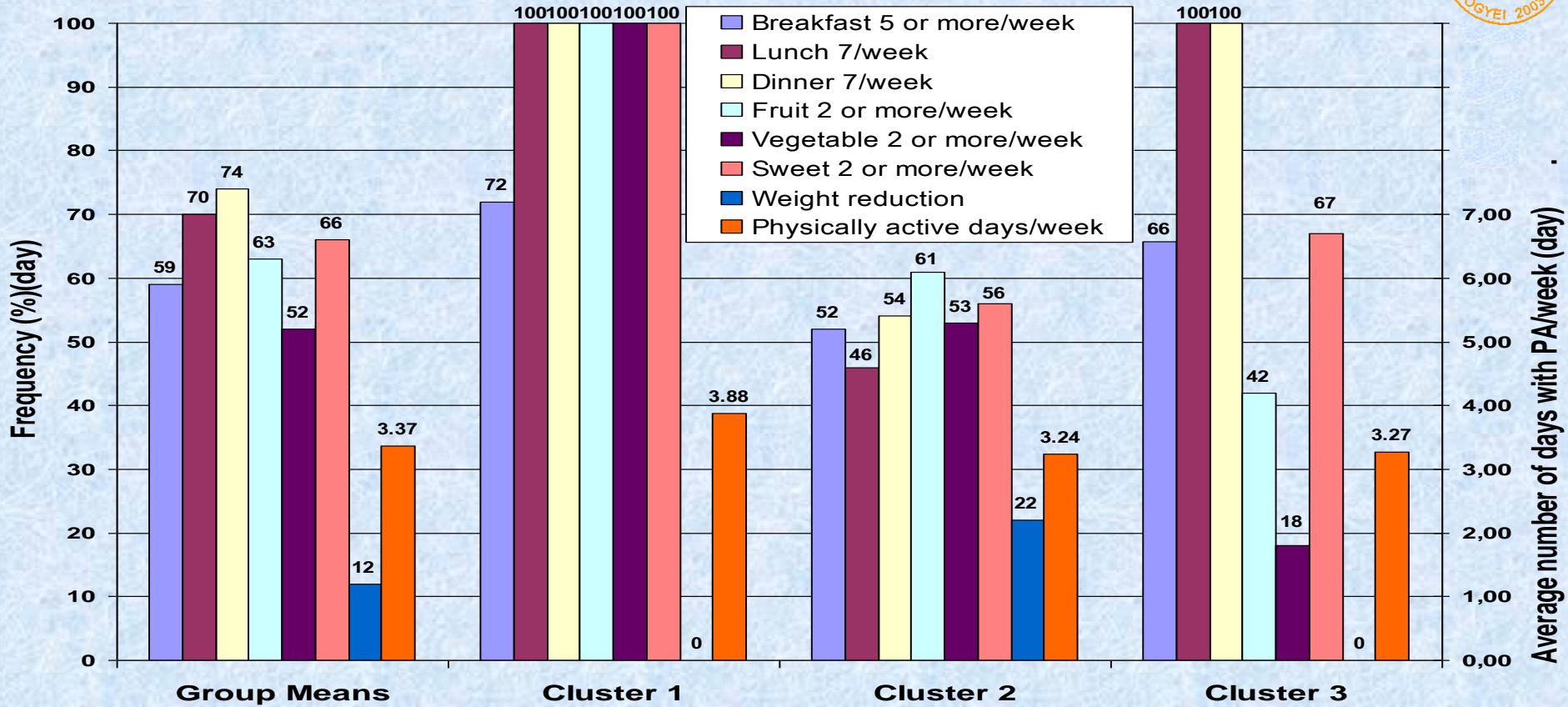


Cluster 1: „Healthy lifestyle” (regular main meals, no food preference, no weight control, high level of PA)

Cluster 2: „Weight controllers” (frequent skipping main meals, regular fruit, restricted sweet consumption, high prevalence in weight control, moderate PA)

Cluster 3: „Unhealthy lifestyle” (frequent skipping main meals, very seldom fibre and vitamin intake, moderate frequency of sweet consumption, moderate prevalence in weight control, low level of PA)

Clusters of secondary school boys

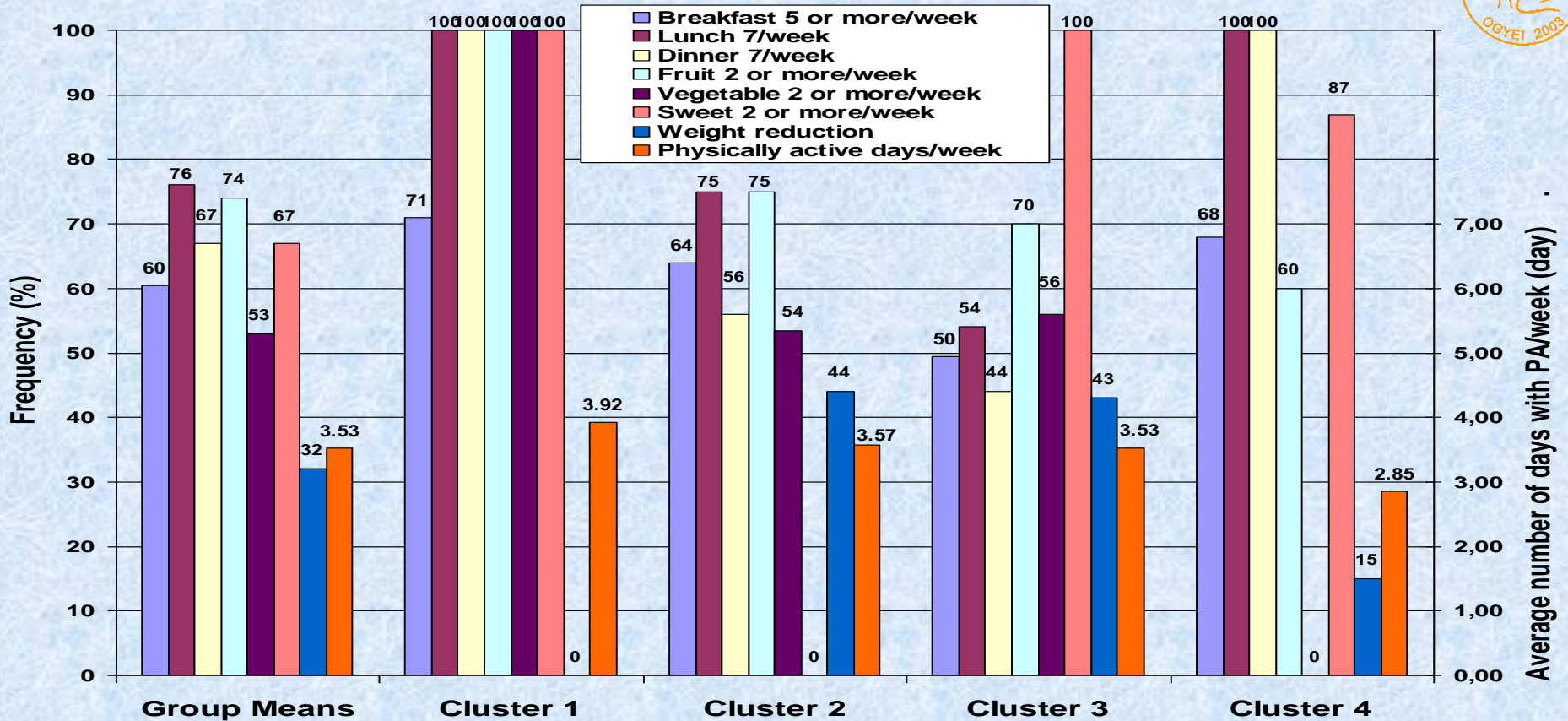


Cluster 1: „Healthy lifestyle” (relatively regular main meals, no food preference, no weight control, high level of PA)

Cluster 2: „Weight controllers” (frequent skipping main meals, restricted consumption of all kinds of food, high prevalence in weight control, moderate PA)

Cluster 3: „Vitamino-phobe lifestyle” (frequent skipping breakfast, seldom fibre and vitamin intake, moderate frequency of sweet consumption, no weight control, moderate PA)

Clusters of elementary school girls



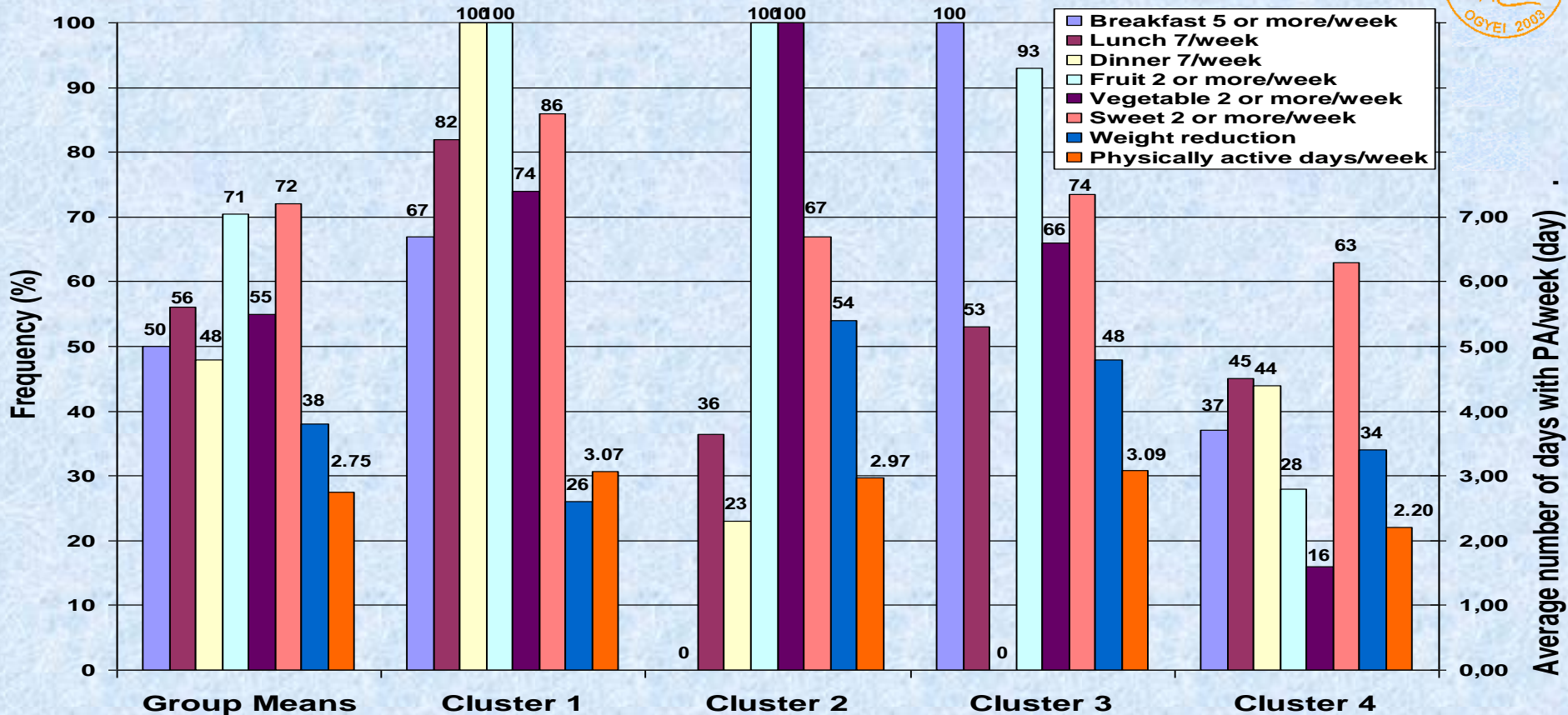
Cluster 1: „Healthy lifestyle” (regular main meals, no food preference, no weight control, high level of PA)

Cluster 2: „Weight controllers” (frequent skipping main meals, moderately regular fruit, restricted sweet consumption, high prevalence in weight control, moderate PA)

Cluster 3: „Sweet-loving weight-controllers” (frequent skipping main meals, moderate fibre and vitamin intake, high frequency of sweet consumption, high prevalence in weight control, moderate PA)

Cluster 4: „Unhealthy lifestyle” (relatively regular main meals, seldom fibre and vitamin intake, high frequency of sweet consumption, moderate prevalence in weight control, low level of PA)

Clusters of secondary school girls



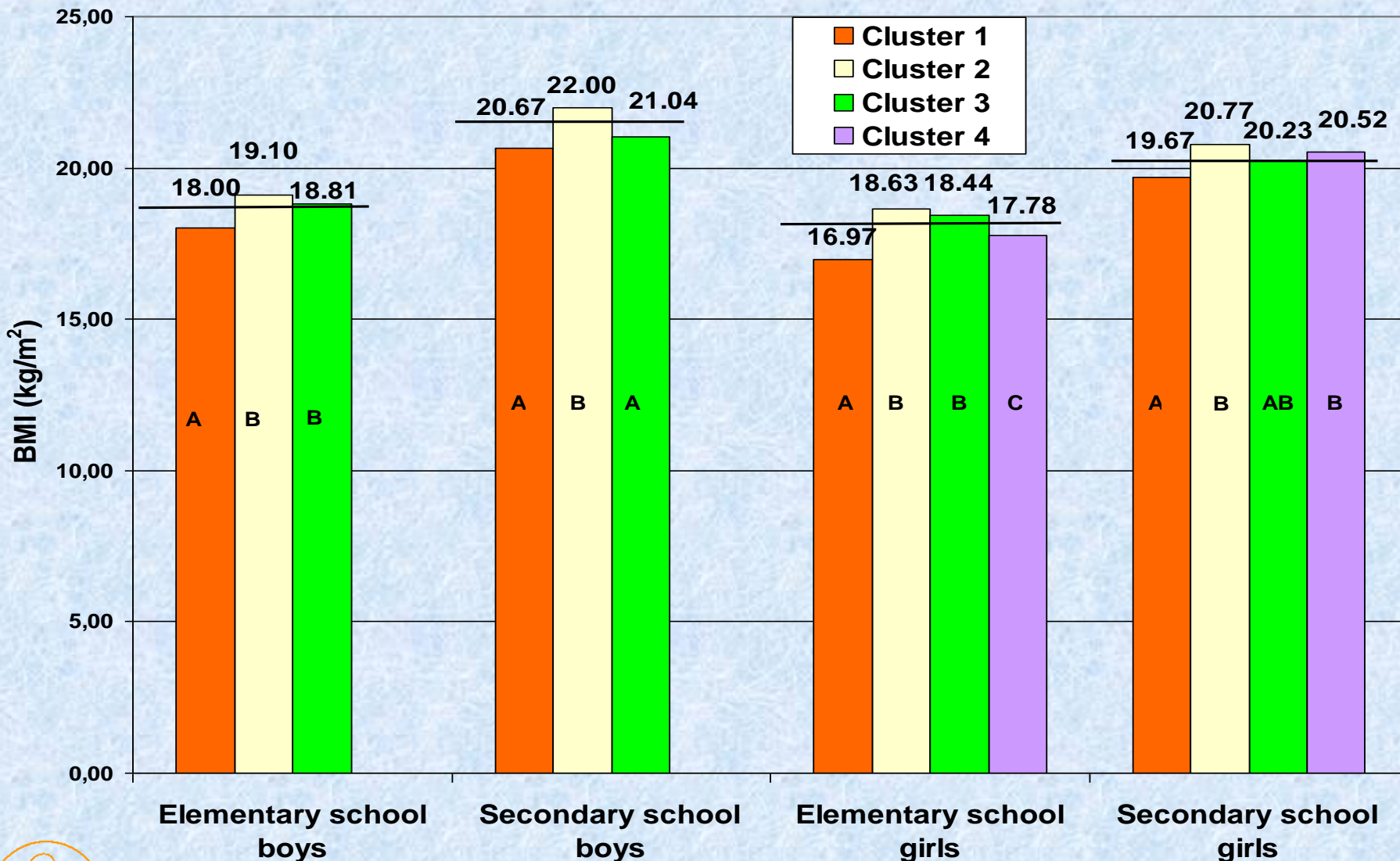
Cluster 1: „Healthy lifestyle” (regular main meals, no food preference, low prevalence in weight control, high level of PA)

Cluster 2: „Weight controllers” (very frequent skipping main meals, regular fruit and vegetable, moderately restricted sweet consumption, high prevalence in weight control, high level of PA)

Cluster 3: „Dinner skipping weight-controllers” (frequent skipping main meals, moderate fibre and vitamin intake, high frequency of sweet consumption, high prevalence in weight control, moderate PA)

Cluster 4: „Unhealthy lifestyle” (frequent skipping main meals, very seldom fibre and vitamin intake, moderate frequency of sweet consumption, moderate prevalence in weight control, low level of PA)

Mean BMI in different groups and clusters



F=12.85, p<0.05

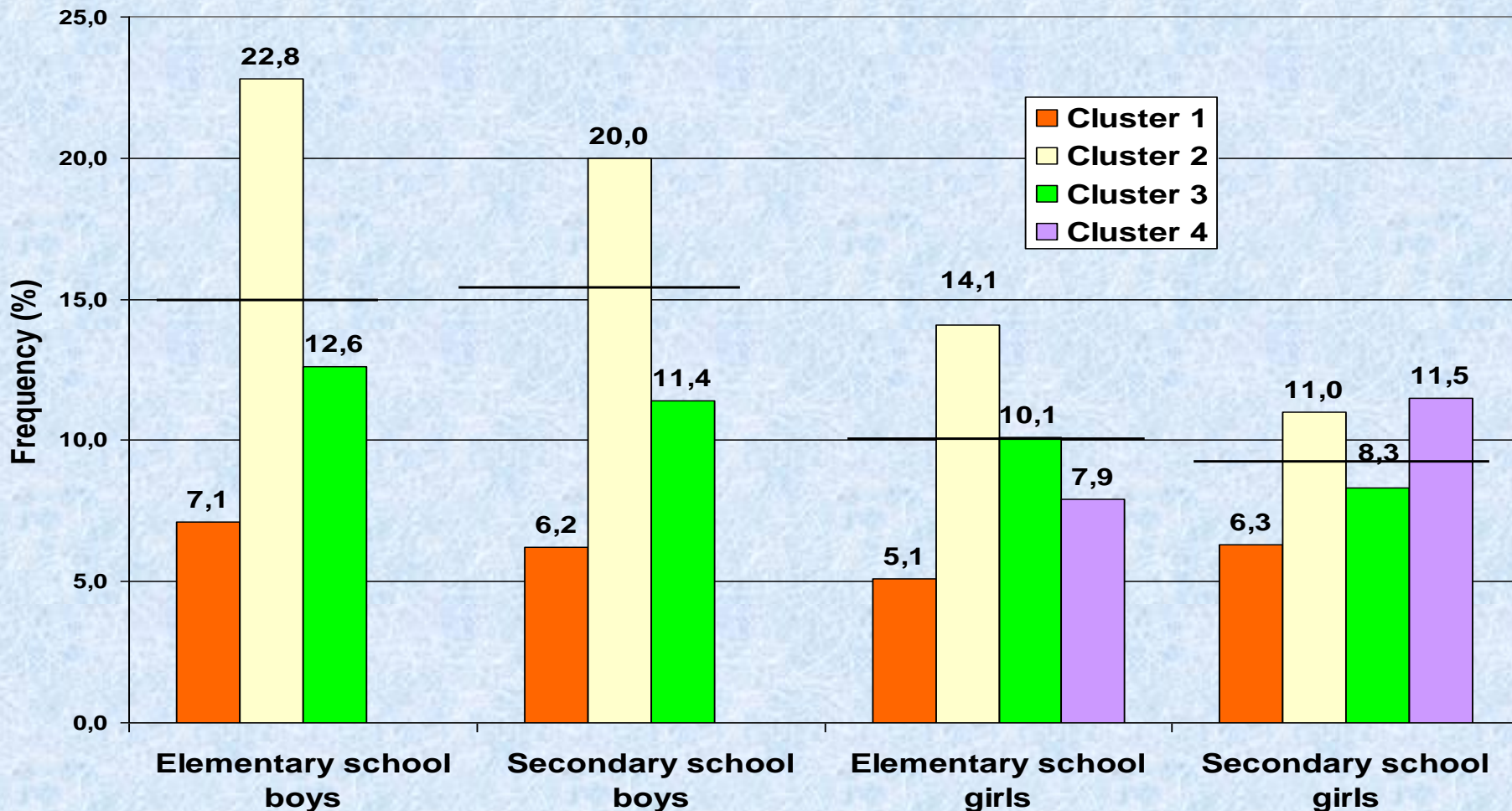
F=18.10, p<0.05

F=14.53, p<0.05

F=9.17, p<0.05



Proportion of overweight students in different groups and clusters



$\chi^2=31.71, p<0.05$

$\chi^2=25.92, p<0.05$

$\chi^2=11.30, p<0.05$

$\chi^2=6.92, p>0.05$

