

# **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,

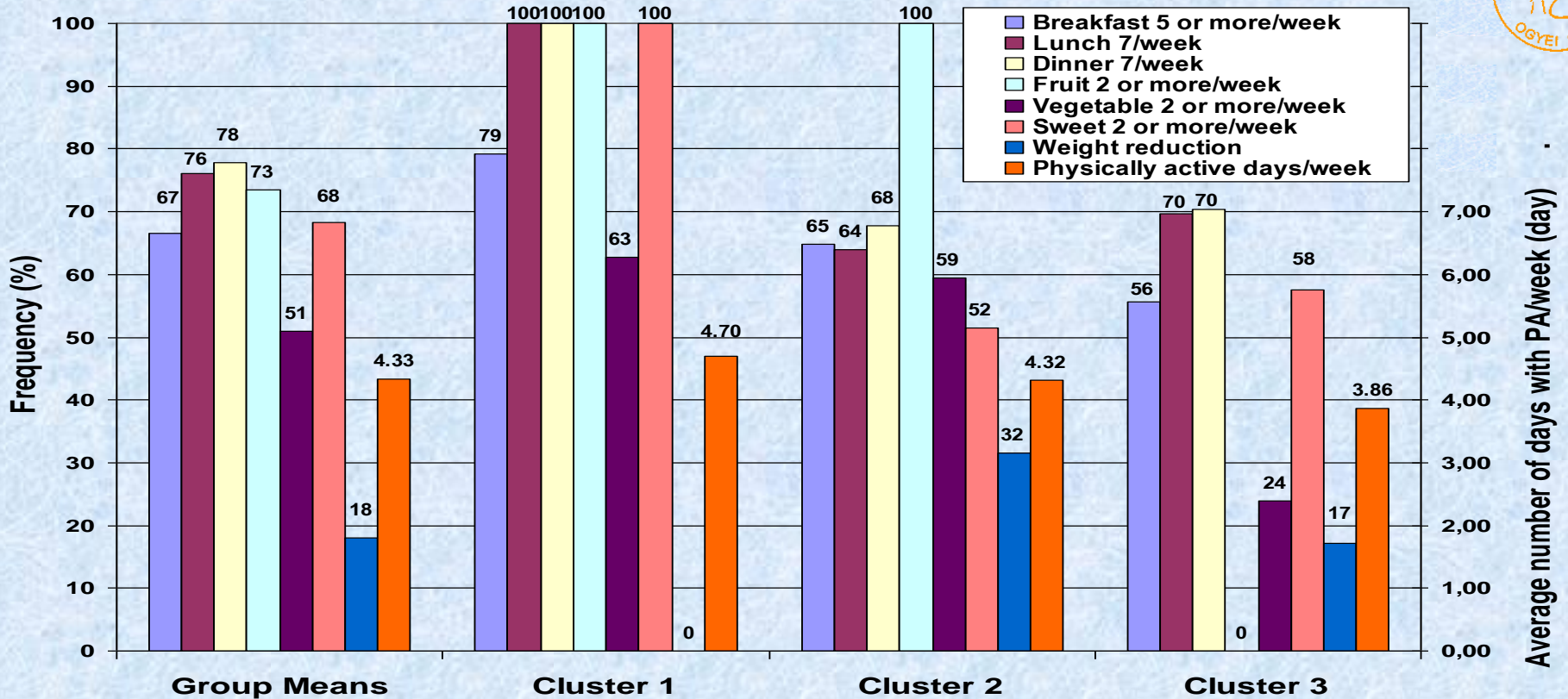


# Results

- **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

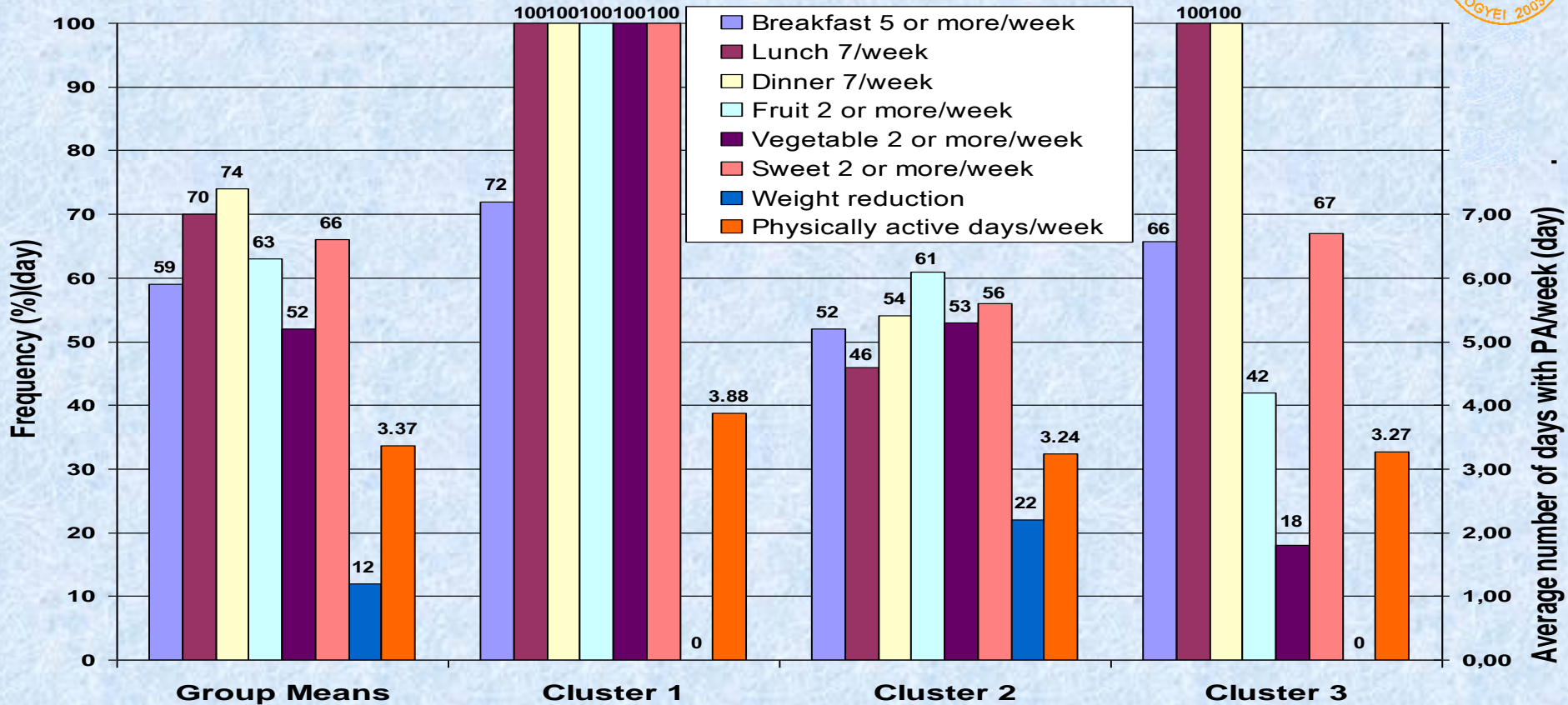


**Cluster 1: „Healthy lifestyle”** (regular main meals, no food preference, no weight control, high level of PA)

**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

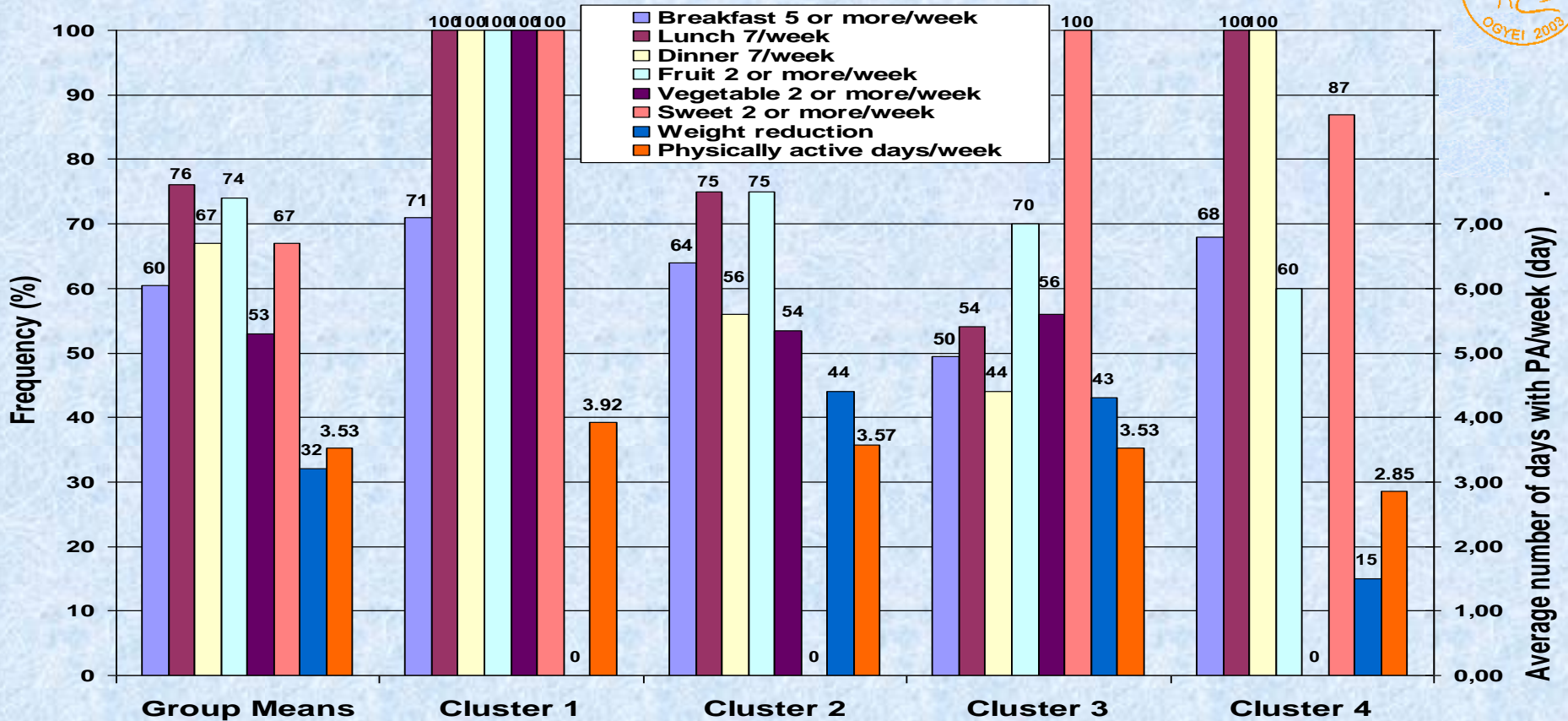


**Cluster 1: „Healthy lifestyle”** (relatively regular main meals, no food preference, no weight control, high level of PA)

**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



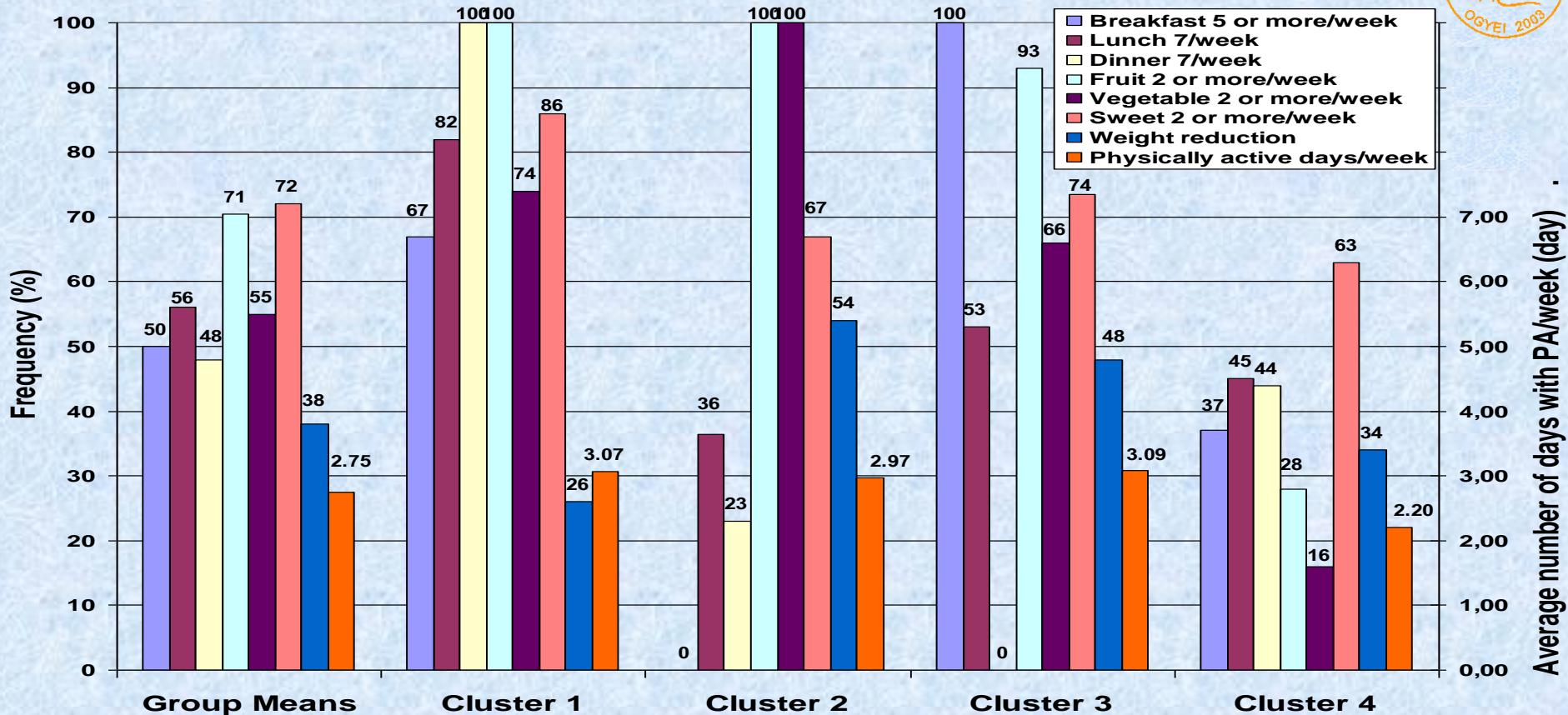
**Cluster 1: „Healthy lifestyle” (regular main meals, no food preference, no weight control, high level of PA)**

**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



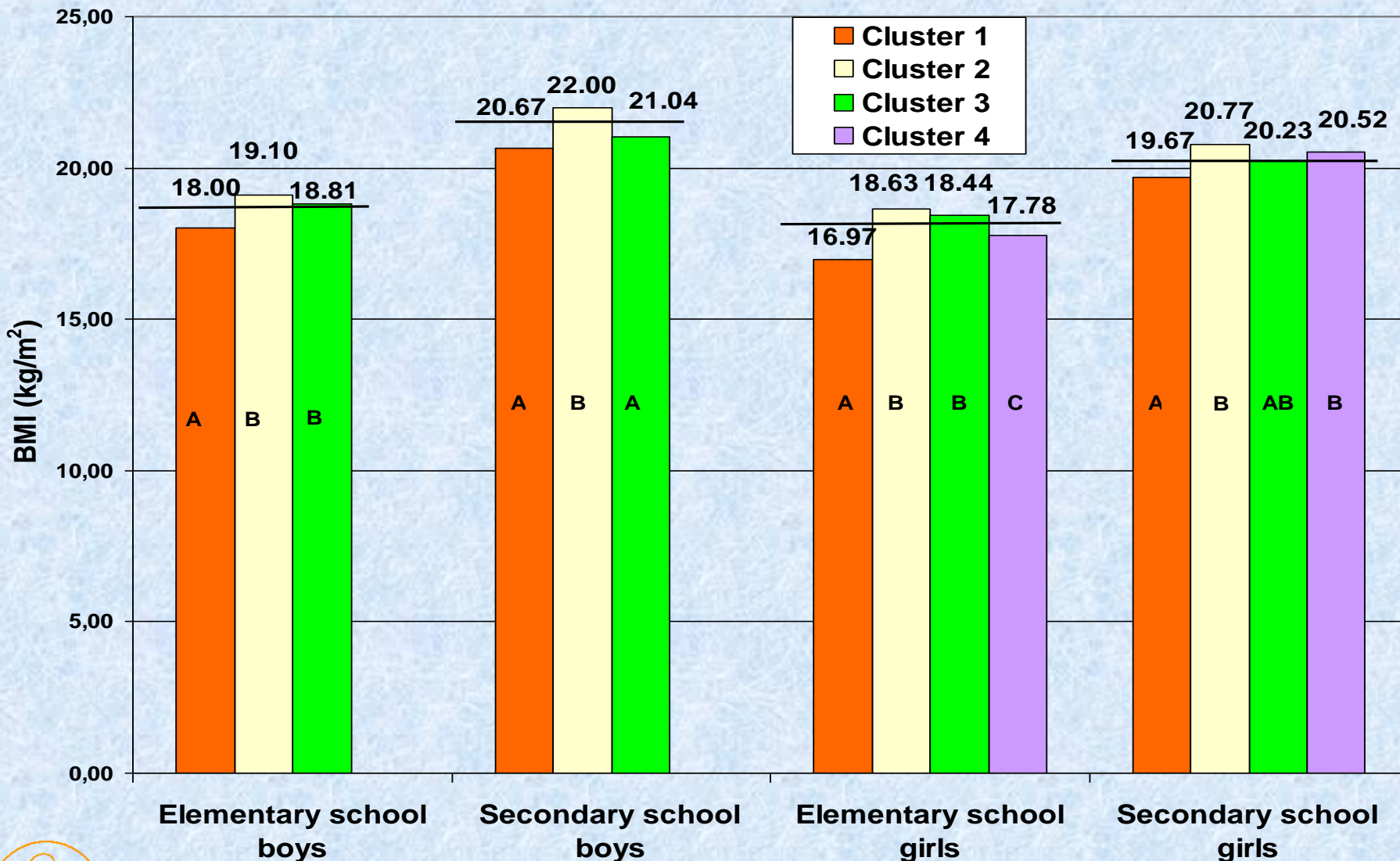
**Cluster 1: „Healthy lifestyle”** (regular main meals, no food preference, low prevalence in weight control, high level of PA)

**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**

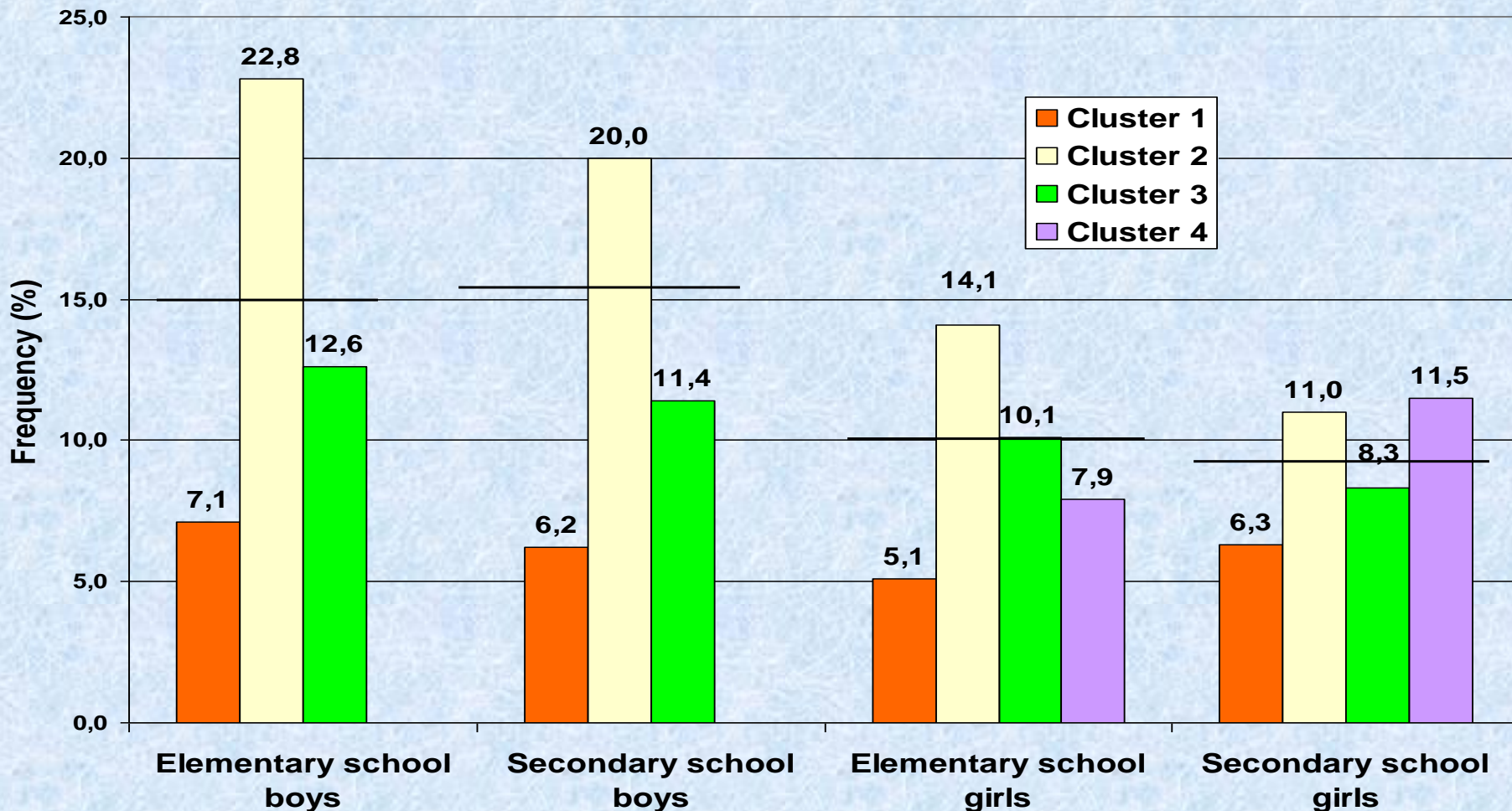
**F=18.10, p<0.05**

**F=14.53, p<0.05**

**F=9.17, p<0.05**



# Proportion of overweight students in different groups and clusters



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

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

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

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

