Determinants of indirect energy expenditure among the Portuguese adult population

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Introduction and Aim

To be engaged in physical activity is one of the lifestyles' variables which influence the incidence and prevalence of non-transmissible chronic diseases.

The **aim** of this work was to evaluate the determinants of higher energy expenditure among the Portuguese adult population.

Participants and Methods

Data from the study "Portuguese Population's Food Habits and Lifestyles" were used.

A national representative sample of 3529 subjects was interviewed at home between February and April 2009. The present analysis is carried out in 2509 subjects due to incompleteness of 1020 records. BMI categories were used according to WHO (1998). Physical activity was evaluated by the short version International Physical Activity Questionnaire (IPAQ; Craig et al. 2003).

A binary logistic regression model was computed to estimate the odds of higher physical activity (total MET per week above the median; MET = multiples of the resting metabolic rate) among Portuguese adults according to sex, age, education level, civil status, professional occupation, region of residence, BMI category and smoking habits (OR adjusted for all other variables).

Results

With the exception of smoking habits all variables were significant determinants of energy expenditure (Table 1).

Men and younger subjects were more likely to have an active lifestyle. Being underweight or obese (vs. normal weight), widowed (vs. married) and retired (vs. active) were determinants of lower energy expenditure, while being a student (vs. active) and living in Lisboa e Vale do Tejo, Alentejo or Algarve (vs. Norte) were determinants of higher energy expenditure.

Discussion

The relationship between the education level and the energy expenditure seems highly dependent on other variables.

The knowledge of the determinants of energy expenditure is usefull for future interventions among the Portuguese population. Findings from this study suggest that women and older subjects should be target groups for the promotion of more active lifestyles.

References

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Table 1. Determinants of energy expenditure.

	OR (95%CI)	OR adj (95%CI)
SEX		
Female	1 (reference)	1 (reference)
Male	1.917 (1.648-2.229)	2.015 (1.677-2.422)
AGE		
18-29 years	1 (reference)	1 (reference)
30-44 years	0.592 (0.476-0.737)	0.797 (0.585-1.084)
45-64 years	0.432 (0.353-0.529)	0.519 (0.374-0.720)
$\geq$ 65 years	0.210 (0.166-0.267)	0.322 (0.204-0.509)
EDUCATION LEVEL		
< 4th grade	0.570 (0.402-0.808)	2.281 (1.445-3.603)
4th grade completed	0.729 (0.571-0.933)	2.049 (1.489-2.821)
6th grade completed	1.051 (0.775-1.424)	1.606 (1.142-2.258)
9th grade completed	1.102 (0.877-1.385)	1.165 (0.905-1.500)
12th grade completed	1.320 (1.065-1.636)	0.955 (0.745-1.226)
Bachelor/universitary	1 (reference)	1 (reference)
CIVIL STATUS		
Married	1 (reference)	1 (reference)
Single	1.991 (1.669-2.374)	1.265 (0.966-1.657)
Seprated/divorced	0.989 (0.756-1.294)	1.057 (0.790-1.412)
Widowed	0.462 (0.357-0.599)	0.707 (0.516-0.970)
PROFESSIONAL OCCUPATION		
Active	1 (reference)	1 (reference)
Student	2.276 (1.791-2.891)	1.718 (1.215-2.430)
Unemployed	1.057 (0.785-1.422)	1.094 (0.794-1.507)
Housewife/househusband	0.445 (0.316-0.626)	0.755 (0.507-1.122)
Retired	0.420 (0.343-0.515)	0.590 (0.420-0.830)
REGION OF RESIDENCE		
Norte	1 (reference)	1 (reference)
Centro	1.107 (0.894-1.372)	1.170 (0.930-1.473)
LVT	3.187 (2.649-3.835)	3.436 (2.814-4.195)
Alentejo	2.799 (1.878-4.171)	2.716 (1.820-4.054)
Algarve	2.706 (1.575-4.646)	2.501 (1.444-4.332)
Madeira	0.773 (0.453-1.318)	0.671 (0.384-1.172)
Açores	1.397 (0.775-2.521)	1.117 (0.619-2.015)
BMI CATEGORY		
Underweight (< 18.50)	0.750 (0.413-1.363)	0.422 (0.221-0.805)
Normal (18.50-24.99)	1 (reference)	1 (reference)
Pre-obesity (25.00-29.99)	0.921 (0.786-1.079)	0.859 (0.709-1.042)
Obesity ($\geq$ 30.00)	0.765 (0.588-0.996)	0.585 (0.431-0.793)
SMOKING HABITS		
Never smoked	1 (reference)	1 (reference)
Ex-smoker	1.465 (1.170-1.835)	1.248 (0.975-1.597)
Smoker	1.370 (1.147-1.636)	0.963 (0.787-1.179)