

# Stages of change towards healthy eating in Portuguese adults



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## Introduction and Aim

Healthy eating is one of the main lifestyles' variables with influence on the incidence and prevalence of non-transmissible chronic diseases.

Our **aims** were: (1) to evaluate the stages of change towards healthy eating in the Portuguese adult population; (2) to compare these stages of change according to sex, age, education level, civil status, professional occupation, region of residence, BMI category, physical activity level and smoking habits.

## Participants and Methods

Data from the study "Portuguese Population's Food Habits and Lifestyles" were used. A national representative sample of 3529 Portuguese adults was interviewed at home between February and April 2009. Due to incompleteness of records the analysis was carried out in a sample which size varied from 3055 to 3471 subjects.

The stages of change towards healthy eating were assessed by a question adapted from Kearney et al. (1999). Physical activity was evaluated by the International Physical Activity Questionnaire (IPAQ; Craig et al. 2003). BMI categories were used according to WHO (1998). The distribution of subjects by stages of change towards healthy eating was compared according to sex, age group, education level, civil status, professional occupation, region of residence, BMI category, physical activity level and smoking habits.

## Results and Discussion

The distribution of subjects according to stages of change towards healthy eating was different according to all analysed variables (Tables 1 to 6; BMI category,  $p=0.002$ ; physical activity level,  $p=0.018$ ; all other variables,  $p<0.001$ ). According to our results, 47% of the Portuguese adult population in the maintenance stage of change towards healthy eating, although 37% are still in the stages of pre-contemplation, contemplation or decision.

In pre-contemplation stage we found mainly males, students or unemployed and single or separated/divorced subjects and smokers. Women, older and less educated subjects, normal weight people and living in the Norte region subjects were more likely to be in the maintenance stage than the remaining ones. The interventions drawn to promote healthier eating habits should use different approaches according to the prevalence of stages of change in target groups.

## References

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Table 1. Stages of change towards healthy eating by sex and age.

	SEX		AGE				TOTAL
	Female	Male	18-29 years	30-44 years	45-64 years	≥65 years	
Pre-contemplation	6.1%	17.5%	15.0%	9.3%	12.7%	7.6%	11.5%
Contemplation	6.9%	9.7%	9.9%	8.8%	8.4%	5.2%	8.2%
Decision	15.7%	16.0%	18.4%	20.9%	13.9%	9.9%	15.9%
Action	10.2%	7.9%	8.7%	10.1%	10.2%	6.9%	9.1%
Maintenance	51.8%	41.0%	39.6%	40.4%	46.4%	63.6%	46.6%
Relapse	9.3%	7.9%	8.4%	10.6%	8.4%	6.9%	8.6%

Table 2. Stages of change by education level.

	< 4th grade	4th grade	6th grade	9th grade	12th grade	Bach./univers.
Pre-contemplation	10.3%	9.2%	13.8%	14.3%	12.7%	8.8%
Contemplation	1.9%	6.5%	7.1%	10.7%	8.8%	8.5%
Decision	10.7%	8.6%	17.7%	18.0%	20.2%	13.3%
Action	9.8%	11.8%	8.5%	8.6%	7.9%	9.8%
Maintenance	54.7%	56.0%	46.6%	40.0%	41.1%	50.7%
Relapse	12.6%	7.9%	6.4%	8.4%	9.2%	8.9%

Table 3. Stages of change by civil status and professional occupation.

	CIVIL STATUS				PROFESSIONAL OCCUPATION				
	Married	Single	Separat./ Divorced	Widowed	Active	Student	Unemployed	Housewife/-husband	Retired
Pre-contempl.	9.9%	14.8%	13.4%	8.2%	11.9%	15.9%	14.6%	2.6%	8.9%
Contemplation	8.3%	9.9%	8.6%	4.1%	8.8%	9.7%	10.4%	4.1%	5.6%
Decision	15.5%	18.0%	20.7%	7.7%	17.6%	20.9%	19.6%	10.4%	8.4%
Action	9.8%	8.8%	9.6%	7.0%	9.6%	7.7%	10.4%	7.3%	8.8%
Maintenance	48.2%	40.1%	38.9%	63.7%	43.0%	38.7%	34.2%	71.0%	59.7%
Relapse	8.4%	8.5%	8.9%	9.2%	9.1%	7.2%	10.8%	4.7%	8.6%

Table 4. Stages of change by region of residence.

	Norte	Centro	LVT	Alentejo	Algarve	Madeira	Açores
Pre-contemplation	10.2%	8.2%	14.3%	12.9%	16.2%	10.7%	6.9%
Contemplation	5.1%	4.8%	13.0%	9.1%	8.1%	14.7%	4.2%
Decision	11.9%	13.8%	21.2%	12.9%	7.4%	21.3%	29.2%
Action	8.6%	9.5%	10.7%	7.5%	4.4%	9.3%	2.8%
Maintenance	58.4%	55.2%	30.8%	44.1%	50.0%	33.3%	51.4%
Relapse	5.9%	8.5%	10.1%	13.4%	14.0%	10.7%	5.6%

Table 5. Stages of change by BMI category.

	Underweight (< 18.50)	Normal (18.50-24.99)	Pre-obesity (25.00-29.99)	Obesity (≥ 30.00)
Pre-contemplation	9.3%	10.4%	11.5%	17.8%
Contemplation	9.3%	8.1%	8.3%	8.2%
Decision	18.5%	15.1%	16.3%	18.1%
Action	9.3%	8.1%	9.9%	11.5%
Maintenance	44.4%	49.9%	44.6%	38.1%
Relapse	9.3%	8.3%	9.4%	6.3%

Table 6. Stages of change by physical activity level and smoking habits.

	PHYSICAL ACTIVITY LEVEL			SMOKING HABITS		
	Low	Moderate	High	Never smoked	Ex-smoker	Smoker
Pre-contemplation	11.2%	11.0%	12.9%	8.1%	14.6%	17.6%
Contemplation	7.5%	6.9%	10.9%	7.3%	8.8%	10.1%
Decision	15.3%	16.4%	16.9%	14.1%	15.6%	20.7%
Action	8.5%	9.9%	9.4%	8.9%	11.9%	7.7%
Maintenance	49.0%	47.6%	41.9%	53.6%	41.4%	33.0%
Relapse	8.5%	8.3%	8.1%	8.1%	7.6%	10.8%