



COSI PORTUGAL 2016

COSI/WHO Europe

COSI Portugal is a childhood nutrition surveillance system, integrated in the study *Childhood Obesity Surveillance Initiative for Europe (COSI/WHO Europe)* and whose main goal is to create a systematic network to collect, analyse, interpret and share descriptive information about childhood nutritional status of school-age children (6 to 8 years old). It is a surveillance system that produces comparable data between European countries and allows monitoring of childhood obesity every 2-3 years.

The first data collection took place in the school year 2007/2008 where 13 countries participated. The second round of the study (2009/2010) comprised 17 countries and in the third round 2 more countries joined the study making a total of 19 participating countries. The fourth round had 35 countries from the WHO European Region participating, out of the 40 already enrolled in the study. After almost a decade of its launch, COSI/WHO Europe is now the WHO largest European study with about 300 000 participating children.

According to the WHO criteria, the prevalence of childhood overweight (pre-obesity + obesity) in Portugal was, since the beginning of the study, one of the highest along with the prevalence observed in Greece, Italy, Spain and Malta (Fig.1). Nevertheless, it has been noticed a decrease in the prevalence of this

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COSI Portugal is scientifically coordinated and conducted by the National Institute of Health Dr. Ricardo Jorge (INSA) along with the Directorate General of Health (DGS) and implemented regionally by the Regional Directorates of Health (ARS) of Alentejo, Algarve, Lisboa and Vale do Tejo (LVT), Centre, North, Azores and Madeira. CEIDSS (Centre of Studies and Research on Social Dynamics and Health) offers technical and scientific support, specifically in the collection and data management.

In 2016, 8412 children from Portuguese Primary Schools were invited to participate in the study, of which 6745 children (50,4% girls) from 230 Primary Schools were assessed (Table 1).

Figure 1. Prevalence of overweight (%) - COSI/WHO Europe 2013.





* All data from 2012-13 round but those of Sweden (2007-8) and Hungary (2010/11)

6 years old children: MDK - 7 years old children: BUL; CZH; GRE; HUN; IRE; LTU; LVT; MAT; MDA; POR; SPA; SVN; SWE; TUR.

8 years old children: ALB; BEL; ITA; NOR; ROM; SMR.

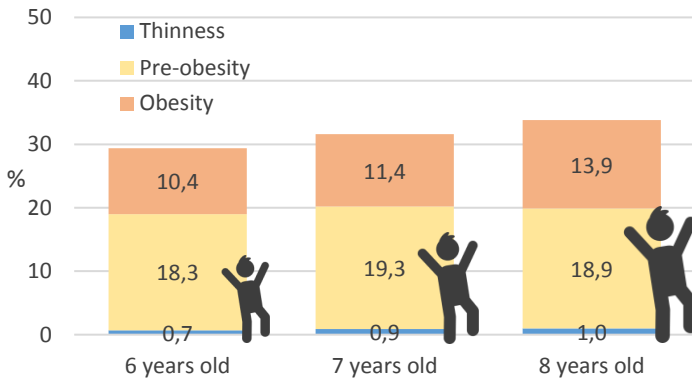
Table 1. Frequency of participating children (COSI Portugal 2016), by age and region.

	Male 		Female 		n
	n	%	n	%	
North	1000	51,2	954	48,8	1954
Centre	485	47,6	534	52,4	1019
LVT	874	50,1	869	49,9	1743
Alentejo	274	51,5	258	48,8	532
Algarve	238	45,9	280	54,1	518
Azores	227	48,4	242	51,6	469
Madeira	248	48,6	262	51,4	510
Portugal	3346	49,6	3399	50,4	6745

COSI Portugal 2016 Childhood nutritional status, by age and gender

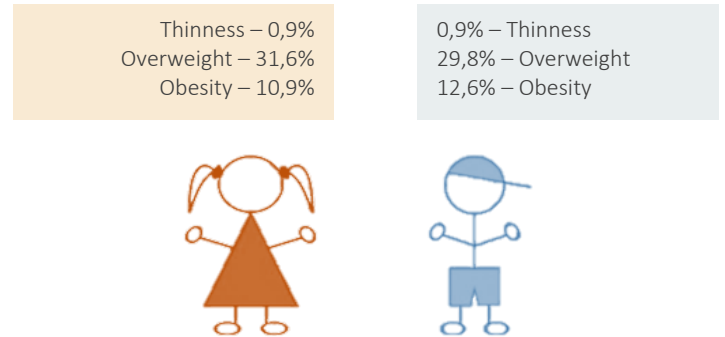
According to the WHO criteria, 8 years old children showed higher overweight (pre-obesity + obesity) and thinness values than the 6 and 7 years old children (Fig.2).

Figure 2. Childhood nutritional status by age.



The highest prevalence of obesity was found among the boys (12,6%) and girls showed the highest prevalence of overweight (31,6%). Concerning the prevalence of thinness, it was similar between gender and under 1,0% (Fig.3).

Figure 3. Childhood Nutritional status by gender.



COSI Portugal Childhood nutritional status: 2008 to 2016

During the last 8 years, COSI Portugal has been showing an inverse trend regarding the prevalence of childhood overweight: from 37,9% in 2008 to 30,7% in 2016, resulting in a decrease of 7,2%. Regarding the prevalence of obesity, it was also found a decrease from 15,3% in 2008 to 11,7% in 2016 (Fig.4). These differences proved to be statistically significant ($p < 0,001$).

Figure 4. Prevalence of childhood thinness, overweight (including obesity) and obesity (6-8 years old) in the different phases of COSI Portugal (2008 to 2016).

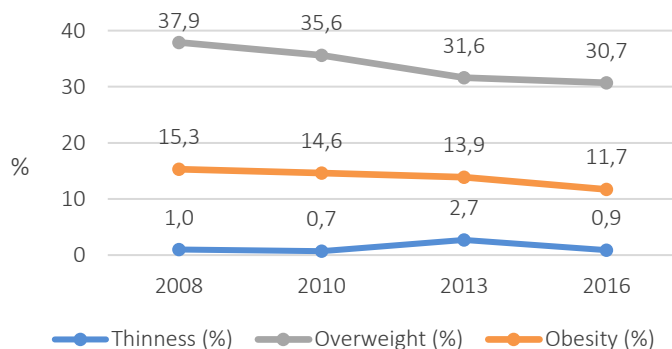


Table 2. Childhood Nutritional status (COSI Portugal 2016), by region.

Region	COSI Portugal 2016*		
	Thinness %	Overweight %	Obesity %
North	0,8	33,9	13,2
Centre	0,9	30,0	12,1
LVT	0,9	29,3	9,7
Alentejo	1,2	27,1	12,2
Algarve	1,3	21,1	8,6
Azores	1,3	31,0	17,0
Madeira	1,3	31,6	12,6
Total	0,9	30,7	11,7

* Criteria for the assessment of nutritional status - WHO

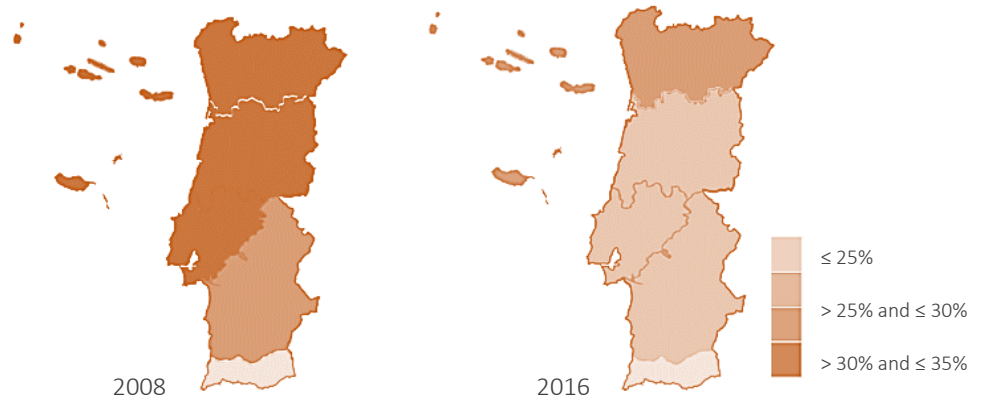
In 2016, North, Madeira and Azores showed a higher prevalence of childhood overweight than the one observed national wide (30,7%) with the corresponding figures: 33,9%, 31,6% and 31,0%. Algarve was the region with the lowest prevalence of childhood overweight (21,1%) (Table 2).

Childhood nutritional status, by region

Between 2008 (1st round) and 2016 (4th round), all Portuguese regions showed a decrease in the prevalence of overweight (including obesity).

This decrease was clearer in Azores (-15,6%) (46,6% in 2008 to 31,0% in 2016); LVT (-9,0%) (38,3% in 2008 to 29,3% in 2016) and Centre (-8,1%) (38,1% in 2008 to 30,0% in 2016) (Fig.5).

Figure 5. Childhood nutritional status (6-8 years old) in Portugal 2008 & 2016.



Physical activity and Sedentary behaviour

Positive results concerning physical activity were found between the 1st and 4th round of COSI Portugal, since there were few children in 2016 (1,7%) who reported never doing physical activity comparing with the corresponding children in 2008 (19,7%). The practice of physical activity during 3 or more hours in the weekends was higher in 2016 (66,3%) than in 2008 (50,8%) as well. On the contrary, the number of children who go to school

by car was higher in 2016 (76,6%) than in 2008 (57,2%) (Fig.6). Sedentary activities were also reported in larger scale in 2016 than in 2008, mainly concerning the time spent in computer games, where in 2016 75,5% of the children reported playing computer games about 1-2 hours/day during the week and 54,0% during the weekend versus 12,2% during the week and 36,0% during the weekend in 2008 (Fig.7).

Figure 6. Childhood physical activity, COSI Portugal 2008 and 2016.

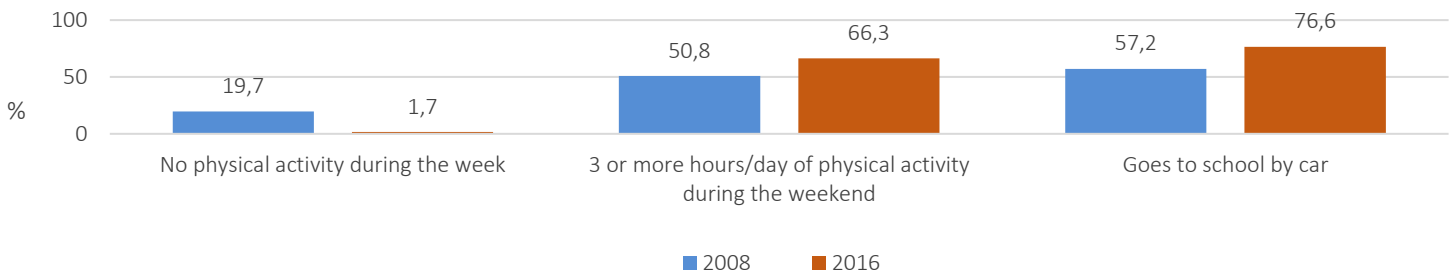
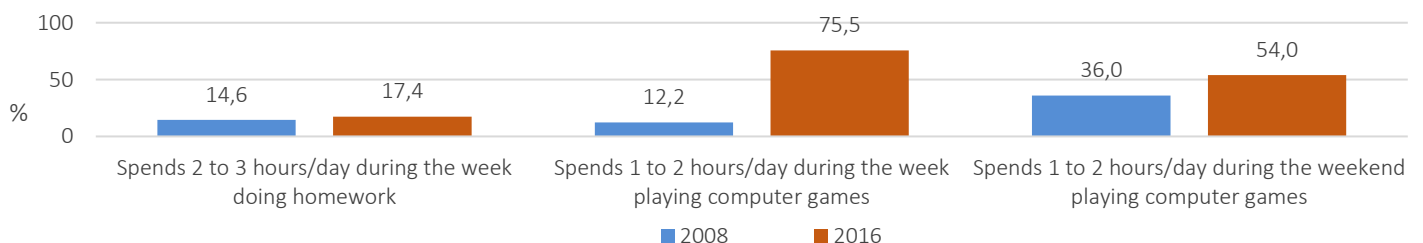
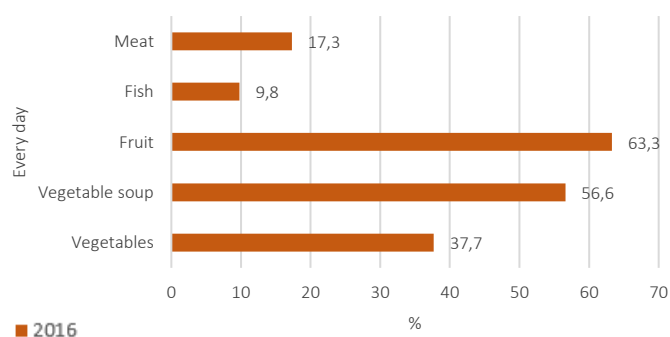


Figure 7. Childhood sedentary behavior, COSI Portugal 2008 and 2016.



Eating habits - COSI Portugal 2016

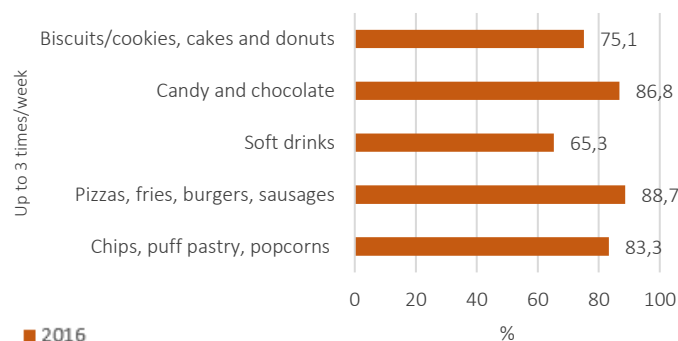
Figure 8. Daily food frequency, COSI Portugal 2016.



In 2016, the Portuguese children reported a greater daily intake of meat (17,3%) than fish (9,8%). The daily intake of fruit (63,3%) was higher than the one found for vegetable soup (56,6%) and other vegetables (37,7%) (Fig.8). 75,1% of the children eat up to 3 times per week biscuits/cookies, cakes and donuts. For the same frequency, it was found a candy and chocolate as well as soft drinks intake of 86,8% and 65,3%, correspondingly (Fig.9).

The weekly intake of pizzas, fries, burgers, sausages and of chips, puff pastry, popcorns up to 3 times per week was 88,7% and 83,3%, correspondingly. Although in 2008 the frequency categories were different from the ones used in 2016, it is possible to say that the eating habits in 2008 were similar to the current eating habits of the Portuguese children.

Figure 9. Daily frequency of some foods, up to 3 times per week, COSI Portugal 2016.

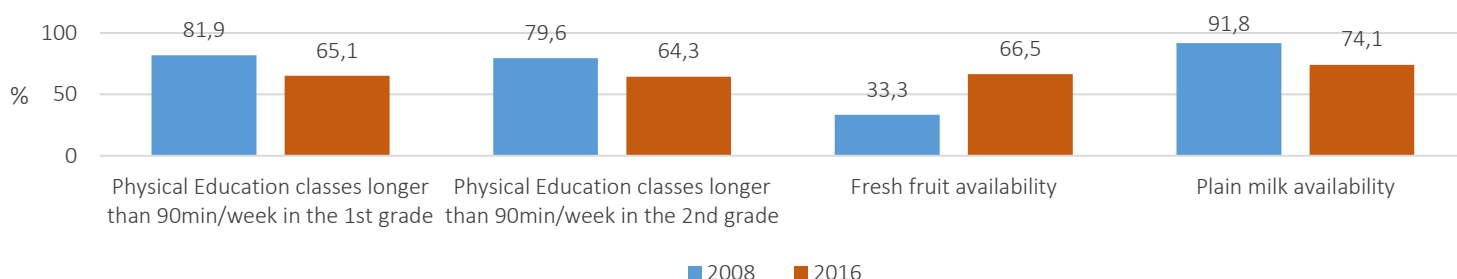


School environment - COSI Portugal 2008 & 2016

Looking at some school environment features in the time of 2008 to 2016, it is possible to recognise that most schools provided 90 minutes or more per week of physical education classes to the children from the 1st and 2nd grade. However, in 2008 (81,9% and 79,6%) this situation was more common than in 2016 (65,1% and 64,3%) (Fig.10).

In 2016, the foods most commonly offered inside the school grounds were, besides water (85,0%), plain milk and/or yoghurt (74,1%) and fresh fruit (66,5%). Between 2008 and 2016, this availability decreased when it comes to plain milk (2008: 91,8%), nonetheless increased regarding fresh fruit (2008: 33,3%) (Fig.10).

Figure 10. Characteristics of the School Environment, COSI Portugal 2008 and 2016.



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