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Original article

Differences between ethnic minority and native children in breakfast habits

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Abstract. Aim of this study was to investigate the breakfast habits in a cohort of school ethnic minority (EM) children admitted to a summer sport school (SSS) in order to evaluate the possible differences with their Italian peers (IP). One hundred-seventy-nine children aged 6-14 years were interviewed through a questionnaire about breakfast behaviors and nutrition habits. The results were compared with those obtained in a randomized sample of 179 Italian peers (IP) attending the same SSS. EM children skip breakfast more frequently than IP (15% vs 7%; p=0.029). The omissions are attributed to the lack of time (45% vs5 4%) and not being hungry upon waking (44% vs 38%). During weekends the percentage of breakfast skippers decreased of about 3 percentage points but persisted a significant difference between the two groups (p=0.024). EM children who did not have breakfast show a mean BMI higher than breakfast consumers (p=0.05). Bakery products and milk were the most frequently consumed food and drink in EM and IP children (68% vs 70% and 71% vs 76% respectively). EM children chose and prepared personally breakfast at home more frequently than IP (54% vs 22%). These EM children were more inclined to skip breakfast (p=0.025) and to have an elevated BMI (p=0.006) than IP. An educational program, for ethnic minority families, in different languages and according to their cultural, religious and socio-economic influences could be a possible means for changing their lifestyle and reducing their risk to become overweight. (www.actabiomedica.it)

Key words: ethnic minority, breakfast, obesity, overweight, food, nutrition

Introduction

Immigration is a growing phenomenon in the developed countries (1). In Italy, the amount of migrant people is estimated in about 7% of the whole population (2). Many habits of these ethnic minorities (EM) are producing demographic and health problems in the Occidental World. Immigrant birth rate is higher than that of natives (3). Immigrated children face many different health risks when compared to native children: they are subjected to many infectious diseases no longer seen in our countries such as malaria, tuberculosis, and HIV; they are more likely to have inadequate immunity to vaccine-preventable illnesses; and finally they show a higher likelihood of having malnutrition and developmental delay (4).

Diets of immigrated children worsen the longer they stay in developed countries (4), but their real food habits have been rarely investigated (5, 6). Some studies highlighted that children and adolescents belonging to an EM have a high risk to become overweight or obese. This risk seems to be related to a poor food quality consumption, a low socioeconomic and cultural parental level (4, 7, 8), and to a high susceptibility to environmental factors (9).

Family environment seems to have an important role on children and adolescent dietary mistakes (10-12). A most frequent mistake in childhood concerns

the skipping breakfast. We previously found that this habit occurred in 22% of a native youth population, and it was strictly related to overweight and obesity (13). It is well known that people who skip breakfast are prone to snake more frequently junk foods than natural snacks such as fruits and vegetables (14-16).

Reports on breakfast habits in ethnic minority children are generally unknown. In this paper we have investigated breakfast habits in a cohort of EM children participating to a summer sport school in order to evaluate the possible differences with their Italian peers (IP).

Materials and methods

Subjects

Data for the present study came from the participants in "Giocampus", a Summer Sport School for children, aged 6 to 14 years, which took place in the Campus sport area of the University of Parma from June to September 2010, in collaboration with Postgraduate Medical School of Paediatrics, Graduate School of Sport and Exercise Sciences of the University of Parma, Town Council, School Inspectorate, University Sport Club, and Barilla Group. The children admitted to this Summer Sport School, spent 8 hours per day from Monday to Friday in physical activities (i.e. soccer, volleyball, basketball, artistic dance, tennis, fencing and athletics) under the supervision of professional instructors. During this time, snacks, lunch and beverage were regularly distributed. Breakfast was not included.

Informed consent and assent for participation in the study were obtained from parents and children respectively. For privacy reasons, education level was not recorded. The survey was approved by the Ethical Committee of the University of Parma.

Procedure of interview and growth evaluation

All the participants were requested to answer a questionnaire on their breakfast habits. The questionnaire has been described in a previous report (13). Children were randomly recruited and finally divided into 2 homogeneous groups about their ethnic origin. Children were asked whether, when, where, how and with whom they consumed breakfast during weekdays and at the weekend; who prepared meals; what they ate and drank; what they did during breakfast. Breakfast was defined as any intake of food or beverage between 6 and 8 a.m. before going to the Summer Sport School. The reports not eating a morning meal at home, or breakfast, fewer than three times per week were defined: "Skip breakfast".

Harpenden stadiometers were used for height, and every child was measured according to the standard technique elsewhere described (17). Body mass index (BMI) was calculated using the formula: weight (kg)/height (m^2). Overweight and obesity were defined according to the international cut off points for body mass index for overweight and obesity proposed by Cole et al. (18).

Statistical analyses

The data collected were analyzed using SPSS for Windows and expressed as mean ± SD. Numerical differences were calculated by Student's t-test. The χ^2 test was used to study the differences between proportions. Differences were considered significant if $p<0.05$.

Results

The children who accepted to answer the questionnaire were globally 364 (37.6% of all participants in Giocampus), 228 were boys and 336 girls: 179 children came from an EM (Group 1) and 185 children were native (Group 2). All families of EM children originated from Sub Saharan Countries and have been living in Parma since long. The base-line characteristics of the study cohorts are summarized in Table 1.

EM children were prone to skip breakfast more frequently than the IP children (15% vs 7%; $\chi^2=4.756$ p=0,029). During weekends the percentage of breakfast skippers decreased in both groups to 12% and to 5% respectively, but the difference between groups (12% vs 5%) persisted significant ($\chi^2=5.086$ p=0.024). The omissions of breakfast were attributed to the lack

Table 1. Baseline characteristics of the participants in the study

	Group 1 (Ethnic group)	Group 2 (Native group)	p
No. of children	179	185	
Age (yr)	9.47±2.02	9.46±2.01	0.963
Male sex (%)	64%	64%	
BMI	18.11±3.12	18.25±2.99	0.970

time (45% vs 54%; p=0.258) and not being hungry upon waking (44% vs 38%; p=0.472) in 1st and 2nd Group respectively.

Breakfast skipper children in Group 1 had a mean BMI higher (19.19±3.5) than those who regularly ate breakfast in Group 2 (17.92±3.01; t=1.970 p=0.050).

Thirty four percent of EM and 27% percent of IP children reported to have breakfast alone (p 0.155). These EM children resulted to have a mean BMI (18.79±2.98) higher than children who consumed breakfast with their parents (17.64±3.03; p=0.018) without differences between groups.

Fifty-four percent of EM children reported to prepare breakfast themselves more frequently than IP children (22%; p=0,000). Children who personally chose and prepared breakfast were inclined to skip breakfast both in group 1 (20% vs 8%; χ^2=5.025; p=0,025) and in group 2 (13% vs 4%; χ^2=4.114; p=0,043).

Twenty-four percent of children in Group 1 and 28% of children in Group 2 referred to watch TV during breakfast .

Bakery products were the most frequently consumed as breakfast foods the Groups 1 and 2 (68% and 70% respectively). Fruit was in general sporadically eaten, but EM girls 6 to 10 years old ate fruit more than IP (16% vs 6%; p=0.042). Milk with or without chocolate was the most popular breakfast drink in both EM and IP children groups (71% and 76%) (Table 2).

Table 2. Frequency of daily consumption of different foods and drinks at breakfast in the two ethnic groups of children

Foods and Drinks	Boys %		Girls %	
	Native	Ethnic	Native	Ethnic
Biscuits	32	34	34	32
Snack cakes	16	17	17	20
Cereals	13	10	8	16
Crackers	6	9	4	7
Cakes	5	5	4	8
Bread	7	4	11	6
Butter and marmalade	4	5	5	4,5
Fruit	10	9	13	6
Milk	54	52	48	53
Milk and cocoe	22	23	14	25
Tea	6	11	21	4
			T=11.703 p=0.000	
Fruit Juices	12	11	11	17
Hot chocolate	5	2	1	

Discussion

It is proved that starting each day with breakfast improves the school performance, guarantees an adequate intake of energetic nutrients, and reduces the risk of overweight and obesity (16, 19-21). Several studies have consistently reported positive association between adiposity in children and skipping breakfast (14, 22-24).

The percentage of children which do not have breakfast usually ranges from 10% to 30% depending on the age, gender, ethnic group and country of origin (20). In Italy a recent study evidenced that about 11% of children skips breakfast (25). In Parma, in 2005, we found an unexpected high number of skippers in native children (22%) (13).

Detailed observations on breakfast habits in immigrant children are not frequently found in literature (6). Anecdotic reports highlight an upward trend in young immigrant people to avoid breakfast and to become obese in comparison with native children (6). In the present study we have found that EM children are prone to skip breakfast (15%) more frequently than their native peers (7%). This bad habit exposed EM children to a higher risk (p=0.05) to become overweight or obese. The reasons of this omission are consistent with those previously described: lack of time, and not being hungry upon waking (12, 26, 27). It well known that 70% of primary school children in Italy are inclined to go to bed late at around 10:00 p.m. (13). This habit might lead children to wake up

late and to skip breakfast in order to be on time for school.

It is encouraging to observe also in the present study that during weekends the percentage of skippers breakfast decline both in EM and IP children. This improvement has be attributed to the presence of parents at home which thus can personally manage and take breakfast together with their offspring (13). Anyway, the skippers in EM group continue to be more numerous than in native group also in weekends. We can speculate that in EM group this happens because many parents work during weekend too.

Parental model is considered as an important factor to stimulate children to have breakfast. Low socio-economic and cultural level, and the discontinuous presence of the parents at home affect this target especially in the ME group (28, 29). It is known that children which are left alone at home and are responsible for preparing their own meal are more frequently inclined to skip breakfast (13). This phenomenon is difficult to be solved in ME children because important social and economic reasons come into play.

Bakery products (biscuits, snacks, cereals) and milk were the favorite foods and drinks in both children groups. Under this point of view EM children showed to be completely integrated in the social behavior. It is nevertheless remarkable to observe that Italian young girls prefer to drink fruit juices than milk, while their ethnic minority peers choose rather milk and tea. Increasing in preference for the fruit juices has been recently observed also in American teenagers without distinction between ethnic origin (30).

In conclusion, immigrant children skip breakfast more frequently than IP and have a higher risk to become overweight and obese. The absence of parents at home and the inappropriate role of EM children in the choice of breakfast foods chiefly contribute to this incorrect diet behavior. Face to these habits and related metabolic consequences, it is urgent to find some corrective interventions. The first one could concern the possibility to recover at school the breakfast neglected at home. A similar option has been evaluated in previous "Giocampus" editions with a great satisfaction of both EM children and their parents. The second intervention is to carry out a convincing educational program in the EM families using booklets and TV spots in different languages. In this perspective, a Multilanguage booklet, titled "Alarm obesity", has been already placed available in "Giocampus" web site. Breakfast promotion in Mosques is not to be finally excluded.

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