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Beverage consumption among European adolescents in the HELENA Study

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Abstract

Background and Objective—Our objective was to describe the fluid and energy consumption of beverages in a large sample of European adolescents

Methods—We used data from 2,741 European adolescents residing in 8 countries participating in the Healthy Lifestyle in Europe by Nutrition in Adolescence Cross Sectional Study (HELENA-CSS). We averaged two 24-hour recalls, collected using the HELENA-dietary assessment tool. By gender and age subgroup (12.5–14.9 y and 15–17.5 y), we examined per capita and per consumer

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fluid (milliliters [mL]) and energy (kilojoules [kJ]) intake from beverages and percent consuming ten different beverage groups.

Results—Mean beverage consumption was 1611 ml/d in boys and 1316 ml/d in girls. Energy intake from beverages was about 1966 kJ/d and 1289 kJ/d in European boys and girls respectively, with sugar-sweetened beverages (carbonated and non-carbonated beverages, including soft drinks, fruit drinks and powders/concentrates) contributing to daily energy intake more than other groups of beverages. Boys and older adolescents consumed the most amount of per capita total energy from beverages. Among all age and gender subgroups sugar-sweetened beverages, sweetened milk (including chocolate milk and flavored yogurt drinks all with added sugar), low-fat milk, and fruit juice provided the highest amount of per capita energy. Water was consumed by the largest percent of adolescents followed by sugar-sweetened beverages, fruit juice, and sweetened milk. Among consumers, water provided the greatest fluid intake and sweetened milk accounted for the largest amount of energy intake followed by sugar-sweetened beverages. Patterns of energy intake from each beverage varied between countries.

Conclusions—European adolescents consume an average of 1455 ml/d of beverages, with the largest proportion of consumers and the largest fluid amount coming from water. Beverages provide 1609 kJ/d, of which 30.4%, 20.7%, and 18.1% comes from sugar-sweetened beverages, sweetened milk, and fruit juice respectively.

Keywords

adolescents; Europe; sugar-sweetened beverages; sweetened milk; fruit juice

Introduction

Extensive research on patterns and trends in beverage consumption in the United States have shown increased intake of sugar-sweetened beverages (defined as all carbonated and non-carbonated beverages, including soft drinks, fruit drinks and powders/concentrates) and declines in the consumption of milk (Harnack, Stang et al. 1999; Popkin and Nielsen SJ 2003; Nielsen and Popkin 2004; Bleich, Wang et al. 2009; Popkin 2010). There is debate about the health effects of these observed changes; some (James, Thomas et al. 2004; Ebbeling, Feldman et al. 2006; Malik, Schulze et al. 2006; Sanigorski, Bell et al. 2007; Vartanian, Schwartz et al. 2007; Libuda and Kersting 2009; Malik, Popkin et al. 2010), but not all (Andersen, Lillegaard et al. 2005; Sun and Empie 2007) epidemiologic and smaller experimental studies report an association between sugar-sweetened beverage intake and adverse metabolic outcomes and there is a lack of quality intervention and randomized controlled clinical studies that carefully examine these associations (Gibson 2008).

The literature on beverage consumption among European populations is just emerging, with studies from France (Lioret, Dubuisson et al. 2010), England (Gibson 2010) and Germany (Kohler 2007) examining trends and patterns among adolescents and children. To date, however, there are no data from a pan-European study of adolescents. The Healthy Lifestyle in Europe by Nutrition in Adolescence Cross Sectional Study (HELENA-CSS) creates the opportunity to understand the amounts of beverages consumed among adolescents across urban Europe. The study utilized standardized collection of in-depth dietary data among adolescents 12.5 – 17.5 years old in ten cities in nine European countries.

Methods

Study Design

The HELENA-CSS (http://www.helenastudy.com) is a multi-center study of lifestyle and nutrition among European adolescents located in urban settings from 10 cities in 9 different

countries: Athens and Heraklion, Greece; Dortmund, Germany; Ghent, Belgium; Lille, France; Pecs, Hungary; Rome, Italy; Stockholm, Sweden; Vienna, Austria; and Zaragoza, Spain (Moreno, De Henauw et al. 2008). For fluent reading only the country names are used herein. The underlying aim of HELENA-CSS was to obtain standardized, harmonized, and reliable data from a sample of adolescents on a range of nutrition and health-related parameters (De Henauw, Gottrand et al. 2007). Detailed descriptions of sampling and recruitment procedures, data collection and analysis strategies, and quality control activities are described in detail elsewhere (Moreno, De Henauw et al. 2008). The study was approved by Research Ethics Committees in each city involved and written informed consent was obtained from participating adolescents and their parents (Beghin, Castera et al. 2008).

Study Sample

Adolescents aged 12.5–17.5 were selected using a multi-stage random cluster sampling procedure from the 10 selected European cities. Study recruitment was conducted at schools, with all students in the first two randomly selected classrooms invited to participate. A class was considered eligible if participation was ≥70%. If participation rates fell below 70%, the class was excluded and another class (in the same age group) was invited from the same school. The response rate for the schools and classes differed importantly between countries (with Austria having the lowest participation rate (57% of schools) and France the highest (92% of schools)). The global participation rate for pupils within the participating classes also differed importantly between countries (ranging from 61% for France to 85% for Germany). Within the participating classes, participation rates (by definition ≥70%) ranged from 79.2% in France to 98.1% in Hungary. The total sample size of the HELENA-CSS was 3,528 adolescents. Adolescents from Hungary and Crete (n=678) were excluded due to insufficient dietary intake data as were adolescents who did not complete the second 24-hour recall (n=108) resulting in a final sample size of 2,741 adolescents (1,290 boys and 1,451 girls).

Dietary Intake

Dietary intake data were reported as the mean of two 24-hour recalls collected using a self-administered computer based 24-hour recall HELENA-dietary assessment tool (HELENA-DIAT). This tool was developed and validated in Flemish adolescents (Vereecken 2005) and then improved and culturally adapted to the 9 European countries (Vereecken, Covents et al. 2008) by participating HELENA-CSS institutions. HELENA-DIAT used special techniques to support and enhance the respondent's memory, had a number of specific reminders to probe for beverages (including water), allowed detailed description and quantification of recipes used and used series of portion size photos of standard dishes/foods.

For data on beverage intake, a number of additional steps were taken. First, beverages from all countries were translated into English to ensure that comparable groups were created in each country. Second, sugar was coded separately when consumed with tea and coffee such that the 5 minute window around each reported instance of tea or coffee consumption was examined to look for added sugar. In the same way, we searched for honey and cocoa powder (added to beverages including tea, coffee, milk and water).

Difficulties in obtaining comparable measures of kJ/gram across countries precluded the use of country specific food composition tables. Specifically, the national food composition tables were often limited in the number of foods that were included or the number of nutrients analyzed. Additionally, the definition of some nutrients differed between tables. To address this, the latest German Food Code and Nutrient Database (BLS, version II.3.1) was used instead, as this food composition database contained the largest number of nutrients and food items: approximately 12,000 coded foods, menus and menu components with up to

158 nutrient data points available for each product (Dehne, Klemm et al. 1999). Data from each country were linked to this database to ensure standardization of available measures. If a food item was missing in the German food table, calculations were made via recipes or a local food composition table for the specific country.

Beverage Groups

In accordance with recent beverage guidelines (Popkin, Armstrong et al. 2006) we initially created 17 beverage groups which were further combined to 10 groups for the sake of parsimony. Data on beverages were examined in milliliters (mL) and kilojoules (kJ) of intake from the following groups: water, low-fat milk (1.5%, 1%, and non-fat), fruit juice (100% fruit juice), whole fat milk (≥2% fat), alcoholic beverages (beer, wine, and liquor), sugar-sweetened beverages (SSB; calorically sweetened soda, <100% fruit juice drinks [or those with added sweeteners], and sports drinks), sweetened coffee, sweetened tea (contain cream and/or sugar, ≥63 kJ), sweetened milk beverages (including chocolate milk and flavored yogurt drinks all with added sugar) and other beverages (includes unsweetened coffee and tea [do not contain added cream or sugar], non caloric sweetened beverages [diet sodas or other “diet” beverages], other beverages [including 100% vegetable juice, other sweetened beverages [e.g., horchata and coconut milk], and other beverages [e.g., meal replacement drinks and instant breakfast shakes]). Sweetened milk was not differentiated by fat content since 95% of beverages in this group were sugar-sweetened high-fat milks. In some analyses, sweetened coffee and tea were further combined into a single beverage group, resulting in nine final beverage groups. Full tables containing all 17 beverages are available upon request from the corresponding author.

Statistical Analysis

All analyses were conducted in Stata 11.1 (Stata Corp. College Station, TX). Three measures of intake were examined: mean (standard error [SE]) per capita consumption (in mL and kJ) including persons who did not consume the beverage, mean (SE) percentage consuming, and mean (SE) per consumer consumption (in mL and kJ), which considers only those persons who reported consuming the beverage at least once. The focus was laid on totals across Europe and on differences by subgroups of gender (boys versus girls) and age (12.5–14.9 versus 15–17.5). For subgroup comparisons, we used student’s t-test (per capita and per consumer comparisons) and chi-squared tests (percent consuming) with statistical significance set at $p<0.05$, and Bonferroni correction for multiple comparisons. Although the sample sizes do not permit extensive comparison or statistical testing between countries, we briefly examine per capita energy intake from beverages and the percent of total energy coming from beverages across the 8 countries studied. Patterns between countries for fluid intake (mL) were similar and are thus presented as an online supplementary table only (online Table 4).

Results

European Totals

Per capita—Across Europe, the largest amount of per capita fluid consumed among adolescents came from water, followed by fruit juice, other beverages, and low-fat milk (Figure 1). Sugar-sweetened beverages accounted for the largest amount of per capita energy intake from beverages, followed by sweetened milk. This suggests that although a greater amount of fruit juice (in fluid mL) was consumed, sweetened milk provided more energy overall.

Among boys and girls, older and younger adolescents, water accounted for the largest amount of per capita fluid intake, with sugar-sweetened beverages and fruit juice as the next

two largest contributors (Figure 2). Older adolescents (15–17.5 years) consumed more water (p=0.002) than younger adolescents. Boys and older adolescents consumed significantly more sugar-sweetened beverages, though the difference was greater between genders (Figure 2) than it was between the two age groups. Girls and older adolescents consumed significantly fewer mLs of sweetened milk (Figure 2).

Per capita energy consumption of beverages differed by gender and age group (Figure 3). Boys consumed more total energy from beverages (p<0.001), and more energy from sweetened milk drinks, sugar-sweetened beverages, fruit juice, high-fat milk and alcoholic beverages compared to girls (p<0.001). Among all gender and age subgroups SSB contributed most to energy from beverages with sweetened milk drinks, low-fat milk and fruit juice also being contributors (Figure 3). Energy from milk was greater among younger compared to older adolescents (p<0.05). A full set of per capita results are available online at The European Journal of Clinical Nutrition's website (online Table 1).

Percent consuming—In the sample of European adolescents, 87.9% consumed water. Sugar-sweetened beverages were the next most commonly consumed beverages (at about 50%), followed by fruit juice, sweetened milk drinks and other beverages (Table 1). Slightly more girls than boys consumed water (91.9% versus 83.3% respectively, p<0.001) and among girls (as compared to boys), fruit juice rather than sugar-sweetened beverages, accounted for the second most commonly consumed (second largest percent consuming) beverage (after water; Table 1). In both age groups, sugar-sweetened beverages were the second most commonly consumed beverage (after water). Sweetened milk consumption was more common among younger adolescents (p=0.008, Table 1). A full set of percent consuming results are available online at The European Journal of Clinical Nutrition's website (online Table 2).

Per consumer—Water (821 mL) provided the largest amount of per consumer fluid intake, followed by sugar-sweetened beverages (430 mL), sweetened tea (346 mL), alcoholic beverages (314 mL), fruit juice and low-fat milk (at 283 mL each, Table 2). Sweetened milk provided the greatest energy intake among consumers (1025 kJ, Table 2) in all gender and age subgroups, while sugar-sweetened beverages accounted for the second largest amount of energy intake among consumers (922 kJ, Table 2). Compared to girls, boys consumed significantly more fluid per consumer for all beverages (p<0.05), and significantly more energy per consumer for all beverages except alcoholic beverages (p<0.05), sweetened coffee, and other beverages (p>0.05). Older (15–17.5 years), compared to younger (12.5–14.9 years), adolescents reported significantly more fluid per consumer for water (p<0.001), sweetened coffee (p=0.014) and sugar-sweetened beverages (p=0.010; Table 2) and more energy among consumers for sugar-sweetened beverages only (p=0.008, Table 2). A full set of per consumer beverage results are available online at The European Journal of Clinical Nutrition's website (online Table 3).

Between country comparison

Per capita, adolescents from Germany consumed the highest amount of energy from beverages and Italian adolescents consumed the lowest, at a difference of 1086 kJ/p/d (Figure 4). In half of the countries examined sugar-sweetened beverages were the largest contributors to total beverage energy intake, while sweetened milk drinks, low-fat milk and fruit juice were the largest contributors in Spain, Sweden, and France and Greece respectively. In Belgium, for example, sweetened dairy, low-fat milk and fruit juice contributed roughly equal numbers of calories to total intake (an average of roughly 301 kJ/p/d) whereas in Sweden low-fat milk contributed more than 3 times the amount of energy compared to high-fat milk and roughly 2.5 times more energy per person per day than

sweetened milk drinks (Figure 4). Spanish adolescents had the largest per capita consumption of sweetened milk drinks (548 kJ/p/d). German adolescents had the largest percent of energy from beverages (21.2%) with Austria and Sweden consuming nearly as much energy from beverages (roughly 20%). Italian adolescents consumed the lowest percent of energy from beverages at 11.2%, followed by French adolescents with 14.5% (Figure 4). Patterns of per capita fluid and energy consumption between countries are available online at the European Journal of Clinical Nutrition's website (online Table 4).

Discussion

To our knowledge this is the first study to examine adolescent beverage intake across Europe using standardized and harmonized dietary data. With remarkable consistency among European adolescents, water is the largest contributor to fluid consumption and sugar containing beverages like sugar-sweetened beverages, sweetened milk drinks, and fruit juice accounted for the largest percent of per capita energy consumption. Across all gender and age subgroups, the percent of adolescents consuming these beverages ranged somewhat but after water, sugar-sweetened beverages and fruit juice remained the second most commonly consumed beverages. The consumption of these beverages per capita varied considerably between the participating European countries, but sugared beverages (sugar-sweetened beverages or sweetened milk) still accounted for the largest energy intake per capita in five of the eight countries examined.

Beverages represent an important source of fluids which are essential for maintaining adequate levels of hydration, but fluid needs vary considerably depending on a number of factors including age, body size, level of physical activity and perspiration, food habits, and other individual and environmental contributors (Lieberman 2007; Manz 2007). Numerous methods for assessing hydration status exist, but a single 24-hour recall is not one of them (Kavouras 2002; Shirreffs 2003; Armstrong 2005). Because the data collected in the present study was not designed to measure total fluid intake, it is not possible to comment on the degree to which beverage consumption in our sample represents inadequate, adequate or excessive *total* fluid intake. Nor does it allow us to speculate on whether or not current levels of beverage consumption are meeting, or exceeding, the hydration needs of European adolescents.

The majority of studies investigating trends in beverage consumption, and the relationship to subsequent health outcomes, have been conducted in the United States, but a few have examined dietary patterns elsewhere. In a cross-sectional survey of nearly 138,000 adolescents from 43 (primarily) European countries differences in beverage intake across countries were reported with between 7.6 and 53.1% of the samples surveyed reporting high (≥ once per day) intake of soft drinks (Janssen, Katzmarzyk et al. 2005). However, dietary intake variables were measured using a relatively crude food frequency questionnaire (asked about "non-diet soft drinks" only with no further specification), and data spanned a short time period.

In Italy, 96.1% of the sample of adolescents in 1994–96 consumed fresh water and 31.1% consumed soft drinks (more than any other age group), and the consumption of fruit juice and soft drinks among adolescents was observed to increase between 1980–84 and 1994–96 from 20.9 to 56.2 (g/person/d) (Turrini, Saba et al. 2001). These values are lower than those reported in our study, although differences in dietary intake methodologies or issues with sample selection may account for some of the observed disparities.

Longitudinal data (1985 to 1999) from the German DONALD cohort of children and adolescents (Sichert-Hellert, Kersting et al. 2001) showed increases in total water intake

which was caused by changes in beverage (rather than food) consumption. Milk (9–17%) and mineral water (12–15%) provided the most important sources of total water among 2–15 year olds. For both boys and girls (aged 9–13y), values (grams per day [g/d]) of mineral (282 and 242 g/d) and tap water (62 and 56 g/d), soft drinks (203 and 155 g/d), and juice (133 and 138 g/d) were lower, and milk (203 and 144 g/d) intake higher compared to the values observed in German adolescents in the present study. More recent results using two nationwide German nutrition surveys also showed considerable increases in total beverage intake for both younger (6- to 11-year-old) and older (12- to 17-year-old) boys and girls between 1985–86 and 2006 (Stahl, Vohmann et al. 2009), although direct comparisons to this study are difficult as we do not examine differences by age and gender subgroups for each country. Among adolescents (12–17y) the recent nationwide German 2006 study (Kohler 2007) reported considerably higher soft drink consumption among boys (480 mL) and girls (280 mL) compared to the values observed in the present study.

Similarly, fluid consumption of water (577.8 mL), juice (104.0 mL), and soda (169.3 mL) in a French sample of adolescents (12–19y) were slightly lower than the values observed in the present sample of European adolescents. However, important differences in data collection methods (3 and 7-day food records vs. 24-hour recalls), sample age (9–13y and 12–19y vs. 13–17y), and beverage definition (e.g., “soda” was defined as regular and sugar free in (Bellisle, Thornton et al. 2010) vs. sports drinks and sugar-sweetened soft drinks and fruit drinks in the present study) make direct comparisons difficult.

This study is not without limitations. Data are cross-sectional and observational, based on self-reported dietary intake. Furthermore, dietary data are mean values of two 24-hour recalls which is likely not enough time to accurately capture usual intake especially for children and adolescents where the ratio of within over between subject variability is larger (Livingstone 2000). However, we do not expect that correction for within person variability would change these descriptive data importantly. Finally the study sample is not nationally representative and thus results may not be generalized to broader adolescent populations, either in the countries surveyed or elsewhere. However, there are many strengths. First, a large sample of adolescents was selected using a random cluster sampling design, stratified by geographical location, age, and socioeconomic status. Second, the computerized self-assessment of diet allows for enhanced communication, standardization, and increased privacy and confidentiality for respondents. Such standardized dietary assessments are a prerequisite for a comparison of beverage consumption frequencies between European countries.

Conclusions

This study provides important information about the pattern of beverage intake in adolescents. Compared with research in the US and elsewhere, the levels of sweetened milk and fruit juice intake are unique for European adolescents. Across Europe, the largest amount of per capita fluid consumed among adolescents came from water, followed by sweet beverages. It is important to determine if these levels of consumption are in excess of energy needs because in such populations encouraging the shift from sweet milk to non-flavored milk is one simple option for improving energy balance and reducing saturated fat intake (Kaitosaari, Ronnemaa et al. 2003; Kaitosaari, Ronnemaa et al. 2006) and may have broader consequences for long-term health outcomes (James, Thomas et al. 2004; Ebbeling, Feldman et al. 2006; Muckelbauer, Libuda et al. 2009). Future research should examine the relationship between current beverage consumption patterns and energy intake, weight, and weight change in European adolescents.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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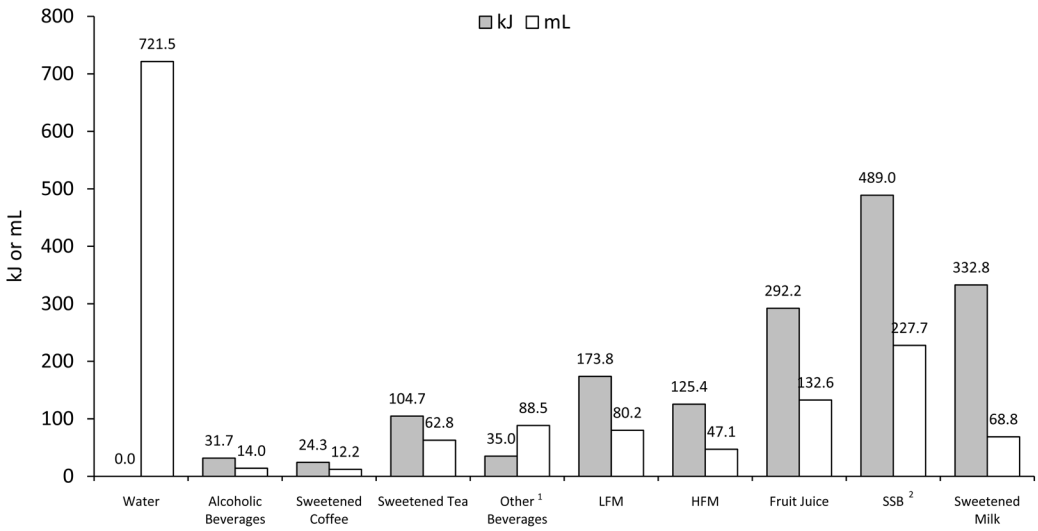

Figure 1.

Per capita fluid (mL) and energy (kJ) beverage consumption patterns among European adolescents (n=2,741) aged 12.5–17.5 years.

[1]Includes diet drinks, unsweetened coffee, unsweetened tea, vegetable juice, other sweetened beverages, and other beverages.

[2]Sugar-Sweetened Beverages; includes calorically sweetened soda, fruit drinks, and sports drinks.

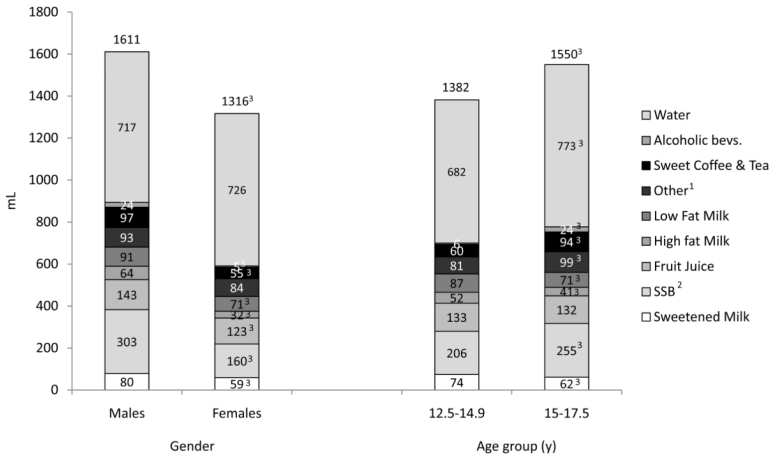

Figure 2.

Per capita fluid (mL) beverage consumption patterns among European adolescents (n=2,741) by gender and age.

[1]Includes diet drinks, unsweetened coffee, unsweetened tea, vegetable juice, other sweetened beverages, and other beverages.

[2]Sugar-Sweetened Beverages; includes calorically sweetened soda, fruit drinks, and sports drinks.

[3]Per consumer estimates for energy and fluid between gender or age groups are statistically significantly different from one another, students t-test $p<0.05$ using Bonferroni correction for multiple comparisons.

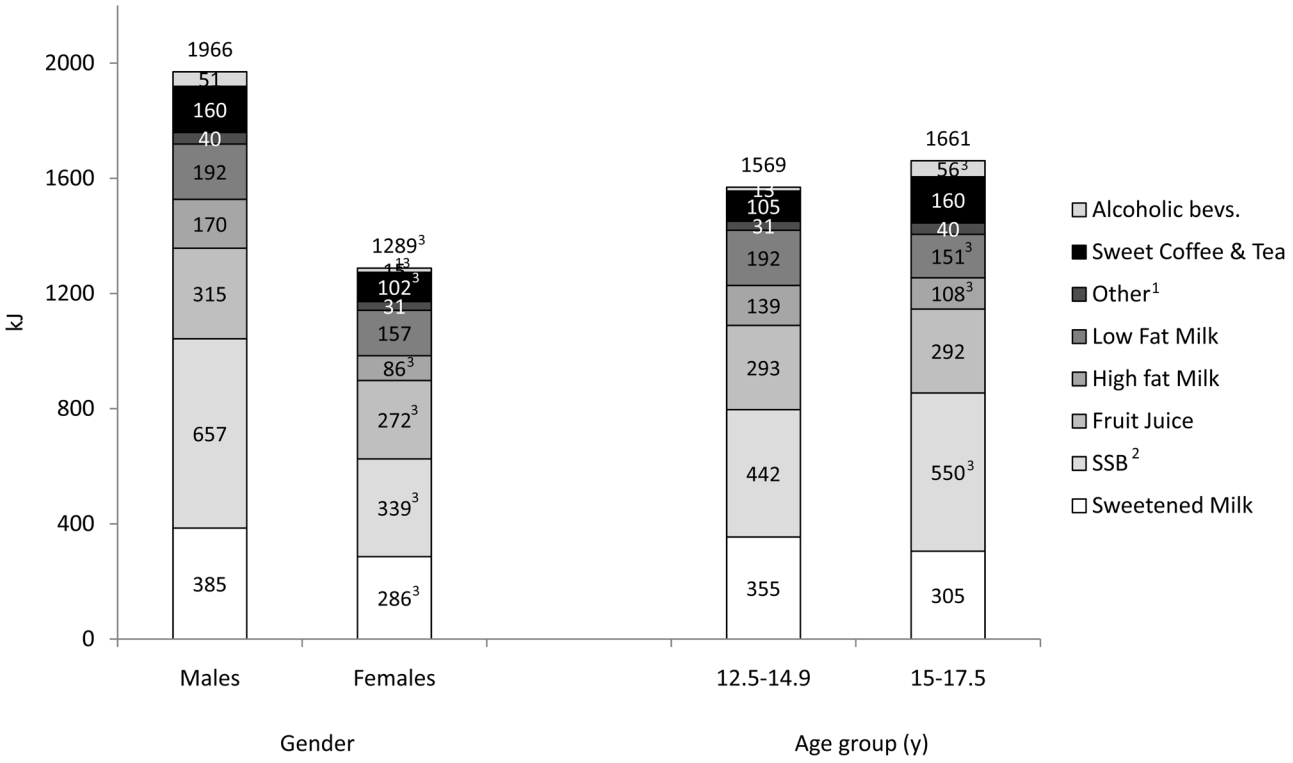

Figure 3.

Per capita energy (kJ) beverages consumption patterns among European adolescents (n=2,741) by gender and age.

[1]Includes diet drinks, unsweetened coffee, unsweetened tea, vegetable juice, other sweetened beverages, and other beverages.

[2]Sugar-Sweetened Beverages; includes calorically sweetened soda, fruit drinks, and sports drinks.

[3]Per consumer estimates for energy and fluid between gender or age groups are statistically significantly different from one another, students t-test $p<0.05$ using Bonferroni correction for multiple comparisons.

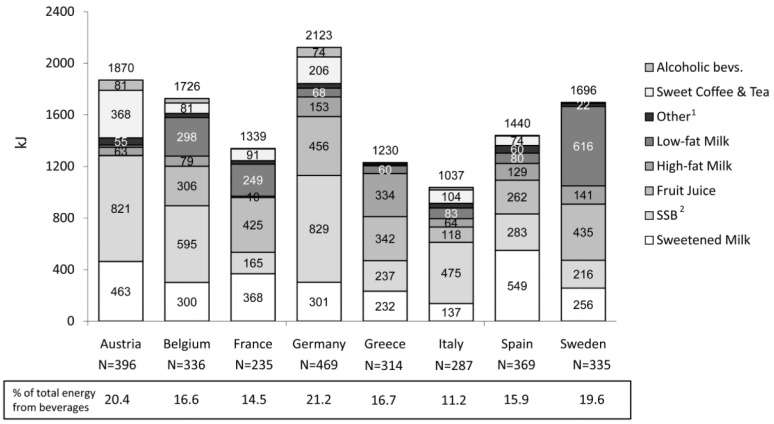

Figure 4.

Per capita energy (kJ) beverage consumption patterns across countries among European adolescents (n=2,741) aged 12.5–17.5 years.

[1]Includes diet drinks, unsweetened coffee, unsweetened tea, vegetable juice, other sweetened beverages, and other beverages.

[2]Sugar-Sweetened Beverages; includes calorically sweetened soda, fruit drinks, and sports drinks.

Table 1

Percent consuming beverages among European adolescents (n=2,741) aged 12.5–17.5 years

	Total		Gender				Age (y)			
			Boys (n=1,290)		Girls (n=1,451)		12.5–14.9 (n=1,542)		15–17.5 (n=1,199)	
Beverage	**%**	**SE**	**%**	**SE**	**%**	**SE**	**%**	**SE**	**%**	**SE**
Water	87.9	0.6	83.3	1.0	91.9	0.7[1]	88.3	0.8	87.3	1.0
Alcoholic beverages	4.5	0.4	6.5	0.7	2.6	0.4[1]	2.3	0.4	7.2	0.7[1]
Sweetened Coffee	8.1	0.5	6.9	0.7	9.2	0.8	5.3	0.6	11.7	0.9[1]
Sweetened Tea	18.2	0.7	19.6	0.1	16.9	1.0	15.6	0.9	21.4	1.2[1]
Other Beverages[2]	32.4	0.9	30.5	1.3	34.0	1.2	30.5	1.2	34.7	1.4[1]
Low Fat Milk	28.3	0.9	28.4	1.3	28.3	1.2	30.0	1.2	26.1	1.3[1]
High Fat Milk	21.4	0.8	26.0	1.2	17.4	1.0[1]	23.9	1.1	18.2	1.1[1]
Fruit Juice	46.8	1.0	45.8	1.4	47.7	1.3	48.4	1.3	44.8	1.4
SSB[3]	53.0	1.0	60.0	1.4	46.7	1.3[1]	51.0	1.3	55.5	1.4[1]
Sweetened Milk	32.5	0.9	33.6	1.3	31.4	1.2	35.1	1.2	29.1	1.3[1]

[1] Percent (standard error [SE]) consuming between genders or age groups are statistically significantly different from one another; chi-squared test, $p<0.05$ using Bonferroni correction for multiple comparisons.

[2] Includes diet beverages, vegetable juice, unsweetened coffee, unsweetened tea, other sweetened beverages, and other beverages.

[3] Sugar-Sweetened Beverages: includes calorically-sweetened soda, fruit drinks, and sports drinks.

Table 2

Fluid (mL) and energy (kJ) beverage consumption among consumers only of European adolescents (n=2,741) by gender and age

	Total		Gender				Age (y)			
			Boys (n=1,290)		Girls (n=1,451)		12.5–14.9 (n=1,542)		15–17.5 (n=1,199)	
Fluid (mL)	**Mean**	**SE**	**Mean**	**SE**	**Mean**	**SE**	**Mean**	**SE**	**Mean**	**SE**
Water	821.3	12.2	859.8	19.3	790.1	15.5[1]	772.3	15.2	884.9	19.7[1]
Alcoholic beverages	314.4	30.0	362.4	39.0	208.2	38.3[1]	250.4	48.1	341.1	37.3
Sweetened Coffee	151.1	9.4	180.3	16.8	131.5	10.7[1]	125.0	9.5	166.4	13.8[1]
Sweetened Tea	346.0	17.6	431.8	31.0	256.8	13.9[1]	343.3	24.3	347.9	25.5
Other Beverages[2]	273.3	8.5	305.5	13.9	248.0	10.3[1]	264.1	11.3	284.2	12.8
Low Fat Milk	283.1	9.5	320.5	15.2	249.7	11.6[1]	291.0	12.8	271.5	14.0
High Fat Milk	220.1	6.8	245.6	10.1	186.2	7.8[1]	217.5	7.9	223.8	12.4
Fruit Juice	283.3	6.4	312.3	10.6	258.5	7.5[1]	275.3	8.0	294.3	10.5
SSB[3]	430.0	10.5	505.2	16.2	343.2	12.0[1]	405.1	13.0	459.4	17.0[1]
Sweetened Milk	211.9	5.2	236.5	8.6	188.4	5.7[1]	211.7	7.1	212.2	7.4
Energy (kJ)										
Water	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alcoholic beverages	712.5	70.7	783.2	90.8	557.3	101.7	566.5	99.2	773.6	90.8
Sweetened Coffee	300.0	22.2	259.0	28.9	327.6	31.8	296.6	32.2	302.1	29.7
Sweetened Tea	577.4	34.7	724.3	57.3	423.8	35.1[1]	568.6	47.3	583.7	50.2
Other Beverages[2]	108.4	9.6	131.4	16.7	90.0	11.7	102.9	11.3	114.2	16.3
Low Fat Milk	614.2	25.5	677.8	34.7	556.9	37.2[1]	638.9	36.8	577.4	33.5
High Fat Milk	585.8	18.4	652.7	27.2	496.6	20.9[1]	579.5	21.3	596.6	33.5
Fruit Juice	624.3	15.1	686.6	25.1	570.7	17.2[1]	605.0	18.4	651.0	24.7
SSB[3]	922.6	22.2	1093.7	34.7	729.3	25.1[1]	865.7	27.2	989.1	36.4[1]
Sweetened Milk	1025.1	27.6	1145.6	44.4	910.4	32.2[1]	1010.4	35.6	1047.7	43.1

[1] Per consumer mean (standard error [SE]) estimates for energy and fluid between genders or age groups are statistically significantly different from one another, students t-test $p<0.05$ using Bonferroni correction for multiple comparisons.

[2] Includes diet beverages, vegetable juice, unsweetened coffee, unsweetened tea, other sweetened beverages, and other beverages.

[3] Sugar-Sweetened Beverages: includes calorically-sweetened soda, fruit drinks, and sports drinks.