

Nutritional content of street and take-away food purchased in Bosnia and Herzegovina: results from the FEEDcities project

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INTRODUCTION

Eating out of home is popular in cities from Eastern Europe, where nutrition transition is occurring¹. However, data on its consumption is scarce. This study aimed to characterise street-food (SF) and take-away food (TF) purchases and their nutritional composition in Sarajevo and Banja Luka, Bosnia and Herzegovina.

METHODS

A cross-sectional study was conducted between June and August 2017, according to a predefined protocol². Eligible SF (n=134) and TF vending sites (n=133) surrounding food markets were selected through random and systematic sampling procedures. Data on the food items purchased, including their quantities and classification into homemade and industrial, were collected through direct observation. A total of 119 (Sarajevo) and 120 (Banja Luka) samples of the most commonly available foods were collected for chemical analysis of fatty-acids, sodium and potassium. This study was approved by the Ethics Committee of ISPUP (CE16058) and by local authorities.

RESULTS

- A total of 755 customers were observed.
- The most commonly purchased SF were sweet pastries/confectionery, water and soft drinks/juices.
- TF customers bought most frequently savoury pastries/snacks, breads and main dishes.
- Overall, almost half (43.7%) of customers purchased at least one industrial food or beverage.

Figure 1. Ready-to-eat foods (A) and beverages (B) purchased by street food and takeaway food customers (n=755).

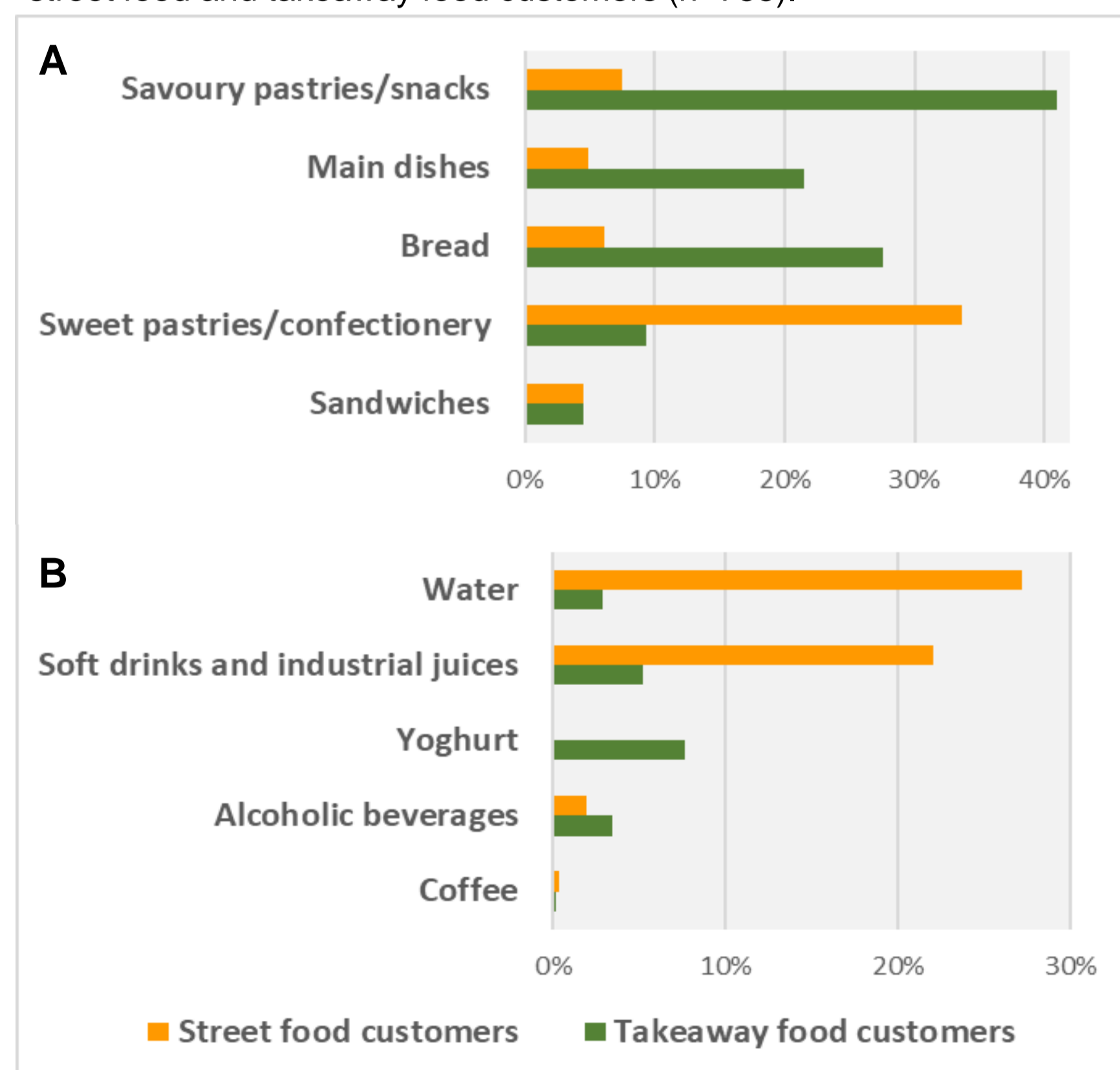
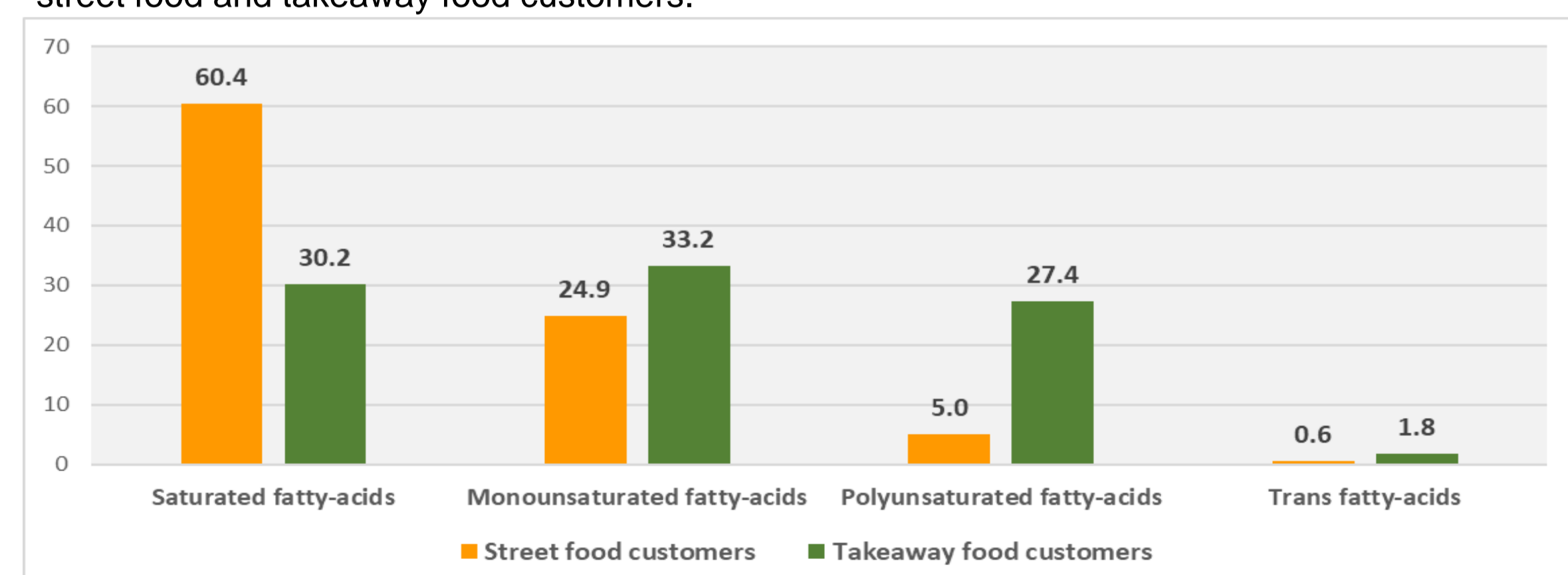


Table 1. Nutritional content (per serving) of the meals purchased by a sub-sample (n=474*) of street food and takeaway food customers.

	Total n=474	Street food customers n=129	Takeaway food customers n=345	p
Serving size (g)	159 (83-294)	66 (66-172)	179 (96-318)	<0.001
Total fat (g)	18.7 (7.7-32.0)	13.9 (8.2-18.9)	22.0 (6.6-37.1)	<0.001
Saturated fatty-acids (g)	8.44 (1.95-12.48)	7.67 (4.20-9.23)	8.81 (1.18-14.18)	0.633
Polyunsaturated fatty-acids (g)	2.58 (1.35-6.05)	0.78 (0.63-1.55)	4.03 (1.72-6.67)	<0.001
n-6 (g)	2.49 (1.26-5.75)	0.76 (0.57-1.52)	3.79 (1.44-6.58)	<0.001
n-3 (g)	0.09 (0.06-0.19)	0.07 (0.03-0.09)	0.13 (0.07-0.27)	<0.001
Trans fatty-acids (g)	0.18 (0.05-0.92)	0.08 (0.04-0.17)	0.48 (0.05-1.16)	<0.001
Monounsaturated fatty acids (g)	6.70 (1.61-10.29)	3.31 (1.61-6.59)	7.75 (1.89-12.49)	<0.001
Sodium (mg)	838 (365-1934)	89 (39-475)	1241 (540-2140)	<0.001
Potassium (mg)	285 (154-500)	162 (143-292)	323 (154-536)	<0.001
Sodium/Potassium ratio	5.9 (4.8-7.2)	0.6 (0.5-5.6)	6.1 (5.6-7.4)	<0.001

All values are presented as median (P25-75). Values in bold represent statistically significant differences according to Mann-Whitney's U test (p<0.05). *Only customers purchasing foods with laboratorial data and beverages of known composition (e.g. coffee, soft drinks) were included. Customers purchasing only beverages were not included.

Figure 2. Lipid profiles (g/100g of total fat) of the meals purchased by a sub-sample (n=474*) of street food and takeaway food customers.



*Only customers purchasing foods with laboratorial data and beverages of known composition (e.g. coffee, soft drinks) were included. Customers purchasing only beverages were not included.

- Overall, saturated fat was the highest contributor to total fat content (39.6%), followed by mono-unsaturated (32.3%), polyunsaturated (22.1%) and *trans* fatty-acids (1.5%).
- Higher proportions of saturated fatty-acids were identified in purchases from SF customers, while higher *trans*-fat levels occurred in food bought by TF customers.
- A single SF or TF meal accounted for 38.0% of the maximum daily intake recommendation for saturated fatty-acids³.
- TF meals supplied 21.6% of the maximum daily intake recommendation for *trans*-fat⁴.
- SF and TF meals supplied 41.4% of the maximum daily intake recommendation for sodium, with a molar sodium to potassium ratio far above the recommended value of one³ in TF meals.

CONCLUSIONS

Frequent purchase of industrial foods reflects the westernization of eating habits. The meals bought presented high contents of saturated fat, *trans*-fat and sodium. Food security and nutrition policies aiming to improve the urban food environment in these settings should target the use of healthier fats and salt reduction in both homemade and industrial products.