

Meyer, E. et al.: Typology of Out-of-Home Eaters: a description of sociodemographic, lifestyle, nutritional and environmental characteristics in the NutriNet-Santé cohort

Additional File

[Supplemental Method 1: Computation of dietary scores](#)

[Supplemental Figure 1: Study sample selection](#)

[Supplemental Method 2: Construction of OHH consumption typology](#)

[Supplemental Table 1: Values of OOH-typology constructing variables](#)

[Supplemental Figure 2: Food group consumption across clusters](#)

Meyer, E. et al.: Typology of Out-of-Home Eaters: a description of sociodemographic, lifestyle, nutritional and environmental characteristics in the NutriNet-Santé cohort

Supplemental Method 1: Computation of dietary scores

The **PNNS-GS2** (National Nutrition Health Guidelines Score) is a score aiming to measure the adherence of individuals' diets to the official French dietary recommendations. For calculation, 13 dietary components are considered. 7 are considered beneficial (fruits and vegetables, nuts, legumes, whole grains, milk and dairy products, fish and seafood, and added fats), and 6 are deemed unfavourable (red meat, processed meat, sweets, sweetened beverages, alcoholic beverages, and salt). For each positive component, scores ranging from 0 to 2 are assigned, while negative components are scored from 0 to -2, based on average French portion sizes. Additionally, the consumption of organic foods is considered for certain categories (fruits, vegetables, legumes, and whole-grain foods). Adherence to the recommendations is assessed by assigning scores to the intake of each food group. Weighting factors are applied to food groups based on their health impact. The score is penalised on energy intake if an energy intake of more than 105% of energy expenditure is detected, which means that the score is reduced by the same proportion. The total score can range from $-\infty$ to 14.25, with higher scores indicating better dietary quality (1).

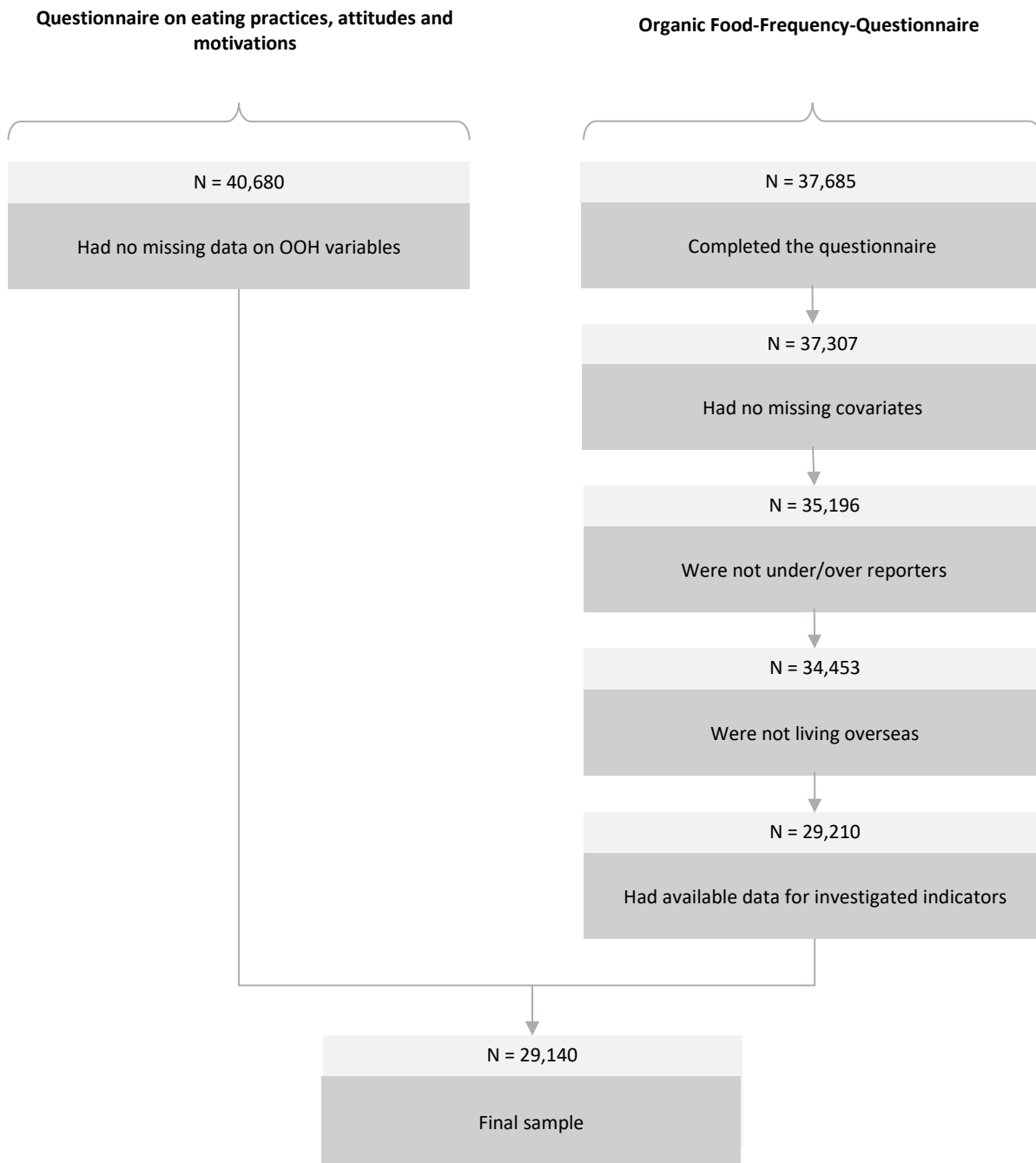
The **PANDiet** (Diet Quality Index based on the Probability of Adequate Nutrient Intake) score measures nutrient adequacy. A total of 28 nutrients are used for calculation, building two sub-scores, the Adequacy Sub-score (AS) and the Moderation Sub-score (MS). The AS presents the adequacy for 28 nutrients (protein, total fat, Linolenic acid, α -Linolenic acid, Eicosapentaenoic acid, Docosahexaenoic acid, fibre, vitamins (A, B1, B2, B3, B5, B6, B9, B12, C, D and E), calcium, copper, iodine, bioavailable iron, magnesium, manganese, bioavailable zinc, phosphorus, potassium, selenium) whose intake should meet a certain reference while the MS concerns the average adherence probability for 6 nutrients (protein, total fat, sugars, saturated fatty acids, cholesterol, and sodium) that should not exceed a certain value. The latter includes 12 penalty values if the limits are exceeded. Computed values range between 0 and 100, higher value indicates better dietary quality (2).

The **cDQI** (Comprehensive Diet Quality Index) comprises the plant-based diet quality index (pDQI) and the animal-based diet quality index (aDQI). The computation is based on 17 food groups (11 plant-based foods and 6 animal-based foods). Different food groups are considered depending on their healthful or unhealthy contribution. Healthful plant-based food groups include wholegrain products, vegetables (excluding potatoes), fruits, nuts, seeds, legumes, vegetable oils, coffee and tea, while unhealthy components include fruit juices, refined grains, potatoes, sugar-sweetened beverages, sweets and desserts. Fish, seafood, dairy and poultry are considered animal-based healthful food groups. Processed meat, red meat and eggs are counted as unhealthy animal-based components. Depending on their consumption quantity, scores from 0 to 5 per food group are assigned. The score increases (for favourable components) and decreases (for unfavourable components) proportionally using quintiles from no consumption to maximum consumption. Thus, the calculated score ranges from 0 to 85, a higher score indicates higher dietary quality of both animal-based and plant-based components (3).

Meyer, E. et al.: Typology of Out-of-Home Eaters: a description of sociodemographic, lifestyle, nutritional and environmental characteristics in the NutriNet-Santé cohort

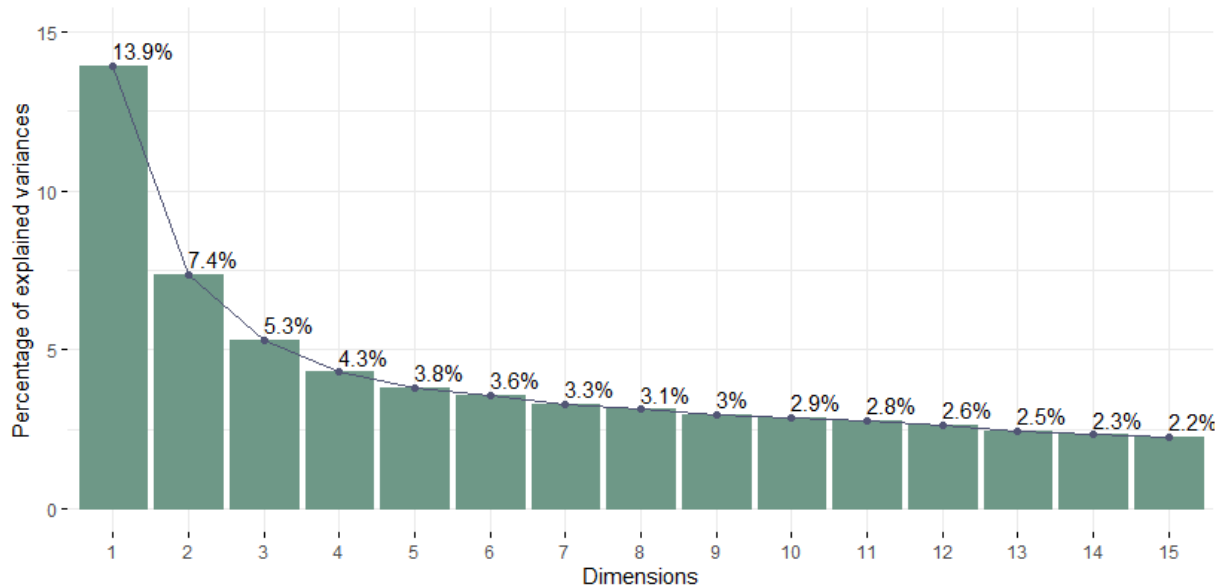
The **ELD-I** (EAT-Lancet Diet Index) represents the dietary adherence to the EAT-Lancet diet. This diet promotes increased quantities of plant-based foods in diets with positive impacts on human and planet health (4). It comprises the following 14 food groups: potatoes and tubers, fruits, vegetables, whole grains, dairy, beef/lamb/pork, chicken and other poultry, eggs, fish, legumes, nuts, saturated oil, unsaturated oils, and added sugar. The score is calculated based on consumed quantities of the respective food groups and is displayed as continuous values that can be negative or positive. The higher the values, the higher the adherence to the EAT-Lancet diet (5).

Supplemental Figure 1: Study sample selection



Supplemental Method 2: Construction of OHH consumption typology

Scree plot as decision criterion for number of dimensions to retain in MFA:



Factor Loadings of quantitative variables

Description	Variable	Dim.1	Dim.2	Dim.3
Number of times per week eating OOH at lunchtime on weekdays	num_hd_midi_sem	1.0979349	-1.3495018	-0.6989206
Number of times per week eating OOH in the evening on weekdays	num_hd_soir_sem	0.3819118	0.22706	-0.1851816
Number of times per week eating OOH on weekends	num_hd_we	0.4601147	0.2833144	-0.2369407

Factor Loadings of qualitative variables (per category)

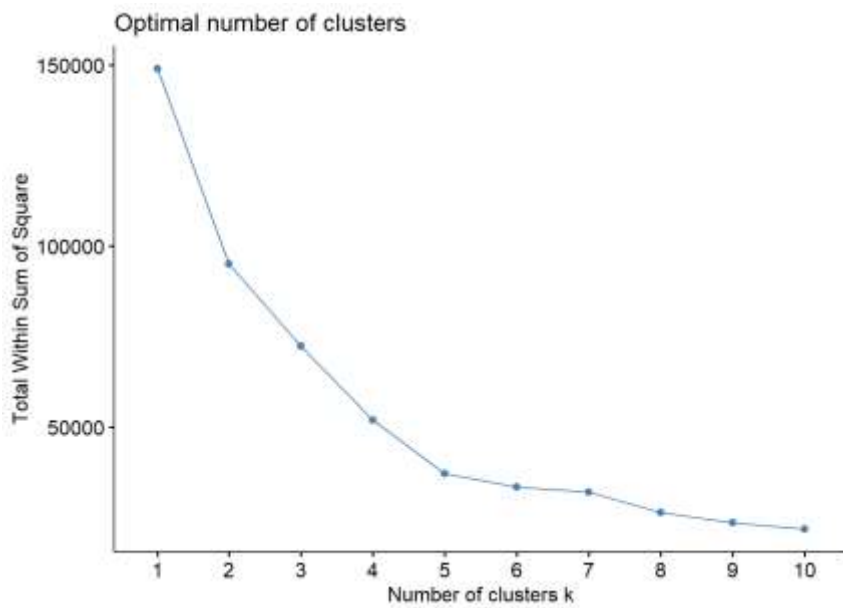
Description of each variable			Variable	Dim.1	Dim.2	Dim.3
Frequently	Self-prepared meals	At lunchtime on weekdays	mi_sem_prep_fré	0.91652301	-0.80416848	-0.420736219
Never	Self-prepared meals	At lunchtime on weekdays	mi_sem_prep_jam	-0.65400096	0.4032676	0.059511818
Sometimes	Self-prepared meals	At lunchtime on weekdays	mi_sem_prep_par	1.53020523	-0.68624941	0.223883058
Frequently	Restaurant meals	At lunchtime on weekdays	mi_sem_rest_fré	0.77427171	-0.0401285	0.030920988
Never	Restaurant meals	At lunchtime on weekdays	mi_sem_rest_jam	-0.76110683	0.34296612	0.021088852
Sometimes	Restaurant meals	At lunchtime on weekdays	mi_sem_rest_par	1.42700458	-0.80203884	-0.066511333
Frequently	Take-away meals	At lunchtime on weekdays	mi_sem_emp_fré	1.03793615	-0.65017111	-0.206092341
Never	Take-away meals	At lunchtime on weekdays	mi_sem_emp_jam	-0.59653487	0.32104624	0.028114158
Sometimes	Take-away meals	At lunchtime on weekdays	mi_sem_emp_par	1.48145726	-0.7802272	-0.040517713
Frequently	Delivery meals	At lunchtime on weekdays	mi_sem_liv_fré	1.88826522	-0.988284	0.927676608
Never	Delivery meals	At lunchtime on weekdays	mi_sem_liv_jam	-0.07186174	0.02583433	-0.035266059
Sometimes	Delivery meals	At lunchtime on weekdays	mi_sem_liv_par	2.53705136	-0.88141581	1.244954376
Frequently	Canteen meals	At lunchtime on weekdays	mi_sem_can_fré	0.74987836	-0.72995996	-0.71848131
Never	Canteen meals	At lunchtime on weekdays	mi_sem_can_jam	-0.34913919	0.25106871	0.129048182
Sometimes	Canteen meals	At lunchtime on weekdays	mi_sem_can_par	1.53800554	-0.82471763	0.082385324
Frequently	Meals at family/friends	At lunchtime on weekdays	mi_sem_fam_fré	1.07404951	0.2859967	-0.085712216
Never	Meals at family/friends	At lunchtime on weekdays	mi_sem_fam_jam	-0.40405359	0.0714327	-0.026993118
Sometimes	Meals at family/friends	At lunchtime on weekdays	mi_sem_fam_par	1.39152435	-0.36366709	0.131894567

Meyer, E. et al.: Typology of Out-of-Home Eaters: a description of sociodemographic, lifestyle, nutritional and environmental characteristics in the NutriNet-Santé cohort

Frequently	Self-prepared meals	At evenings on weekdays or weekends	soir_we_prep_fré	1.18601351	0.83106801	-0.554457804
Never	Self-prepared meals	At evenings on weekdays or weekends	soir_we_prep_jam	-0.73200843	-0.38758246	0.126569841
Sometimes	Self-prepared meals	At evenings on weekdays or weekends	soir_we_prep_par	1.57193509	0.63949597	0.059884998
Frequently	Restaurant meals	At evenings on weekdays or weekends	soir_we_rest_fré	0.94407139	0.66122226	-0.332922961
Never	Restaurant meals	At evenings on weekdays or weekends	soir_we_rest_jam	-1.0660458	-0.47472139	0.241735755
Sometimes	Restaurant meals	At evenings on weekdays or weekends	soir_we_rest_par	1.39876372	0.42534414	-0.219694563
Frequently	Take-away meals	At evenings on weekdays or weekends	soir_we_emp_fré	1.17741524	0.8458355	-0.699450171
Never	Take-away meals	At evenings on weekdays or weekends	soir_we_emp_jam	-0.39660721	-0.17935077	0.0325419
Sometimes	Take-away meals	At evenings on weekdays or weekends	soir_we_emp_par	1.69092433	0.73212147	-0.076155824
Frequently	Delivery meals	At evenings on weekdays or weekends	soir_we_liv_fré	1.65354593	0.67653946	-0.6926557
Never	Delivery meals	At evenings on weekdays or weekends	soir_we_liv_jam	-0.14559055	-0.03980267	-0.00568255
Sometimes	Delivery meals	At evenings on weekdays or weekends	soir_we_liv_par	2.11745506	0.55722473	0.155712983
Frequently	Canteen meals	At evenings on weekdays or weekends	soir_we_can_fré	1.13231129	0.9971186	-1.215189476
Never	Canteen meals	At evenings on weekdays or weekends	soir_we_can_jam	-0.09699374	-0.06591158	0.000788183
Sometimes	Canteen meals	At evenings on weekdays or weekends	soir_we_can_par	1.78591467	1.15308863	0.306078519
Frequently	Meals at family/friends	At evenings on weekdays or weekends	soir_we_fam_fré	1.12353957	0.62687676	-0.427255304
Never	Meals at family/friends	At evenings on weekdays or weekends	soir_we_fam_jam	-1.10034617	-0.50111231	0.266687427
Sometimes	Meals at family/friends	At evenings on weekdays or weekends	soir_we_fam_par	1.25352342	0.44707911	-0.137312011
Frequently	Self-prepared meals organic	At lunchtime on weekdays	midi_sem_prep_bio_fré	1.33066054	-0.90647592	0.45467207
Never	Self-prepared meals organic	At lunchtime on weekdays	midi_sem_prep_bio_jam	-0.44888183	0.24353317	-0.097139953
Sometimes	Self-prepared meals organic	At lunchtime on weekdays	midi_sem_prep_bio_par	1.70389992	-0.84141858	0.293750631
Frequently	Restaurant meals organic	At lunchtime on weekdays	midi_sem_rest_bio_fré	1.80079375	-0.27663873	1.625758565
Never	Restaurant meals organic	At lunchtime on weekdays	midi_sem_rest_bio_jam	-0.22572971	0.05857231	-0.15503679
Sometimes	Restaurant meals organic	At lunchtime on weekdays	midi_sem_rest_bio_par	2.36580056	-0.62429415	1.603638727
Frequently	Take-away meals organic	At lunchtime on weekdays	midi_sem_emp_bio_fré	1.36007416	-1.07533557	0.97232525
Never	Take-away meals organic	At lunchtime on weekdays	midi_sem_emp_bio_jam	-0.22489377	0.08432246	-0.138950433
Sometimes	Take-away meals organic	At lunchtime on weekdays	midi_sem_emp_bio_par	2.51320735	-0.90094115	1.543124218
Frequently	Delivery meals organic	At lunchtime on weekdays	midi_sem_livr_bio_fré	2.38036752	-2.11709951	3.065471865
Never	Delivery meals organic	At lunchtime on weekdays	midi_sem_livr_bio_jam	-0.0314375	0.01018592	-0.039381842
Sometimes	Delivery meals organic	At lunchtime on weekdays	midi_sem_livr_bio_par	4.16682572	-1.24704304	5.213395387
Frequently	Self-prepared meals organic	At evenings on weekdays or weekends	soir_we_prep_bio_fré	1.66257925	1.0566712	0.318138717
Never	Self-prepared meals organic	At evenings on weekdays or weekends	soir_we_prep_bio_jam	-0.4388197	-0.22933019	-0.059404619
Sometimes	Self-prepared meals organic	At evenings on weekdays or weekends	soir_we_prep_bio_par	1.87480542	0.94893597	0.238510237
Frequently	Restaurant meals organic	At evenings on weekdays or weekends	soir_we_rest_bio_fré	2.04816298	0.81997477	1.020974006
Never	Restaurant meals organic	At evenings on weekdays or weekends	soir_we_rest_bio_jam	-0.27631441	-0.10344825	-0.135697952
Sometimes	Restaurant meals organic	At evenings on weekdays or weekends	soir_we_rest_bio_par	2.33312255	0.8704076	1.144919869
Frequently	Take-away meals organic	At evenings on weekdays or weekends	soir_we_emp_bio_fré	1.67972556	1.50237679	0.223825216
Never	Take-away meals organic	At evenings on weekdays or weekends	soir_we_emp_bio_jam	-0.15200213	-0.07254448	-0.091750018
Sometimes	Take-away meals organic	At evenings on weekdays or weekends	soir_we_emp_bio_par	2.83900806	1.33226256	1.73922794
Frequently	Delivery meals organic	At evenings on weekdays or weekends	soir_we_livr_bio_fré	1.43982394	2.30714573	-0.286908282
Never	Delivery meals organic	At evenings on weekdays or weekends	soir_we_livr_bio_jam	-0.03560199	-0.01377432	-0.036120654
Sometimes	Delivery meals organic	At evenings on weekdays or weekends	soir_we_livr_bio_par	4.42980201	1.66061622	4.547527675

Meyer, E. et al.: Typology of Out-of-Home Eaters: a description of sociodemographic, lifestyle, nutritional and environmental characteristics in the NutriNet-Santé cohort

Scree plot as decision criterion for the optimal number of clusters:



Supplemental Table 1: Values of OOH-typology constructing variables NutriNet-Santé study (2014, n = 29,140)¹

	Cluster 1		Cluster 2		Cluster 3		Cluster 4		Cluster 5	
	Weekday-only eaters		Frequent weekday and weekend eaters		Organic eaters		Weekend and evening eaters		Home-only eaters	
N	5598		6999		1820		5540		9183	
%	19.21		24.02		6.25		19.01		31.51	
	Mean	95% CI	Mean	95% CI	Mean	95% CI	Mean	95% CI	Mean	95% CI
Absolute number of times of eating OOH (times per week)										
At lunchtime on weekdays	3.81	3.77 ; 3.85	3.63	3.59 ; 3.66	2.84	2.76 ; 2.92	0.3	0.29 ; 0.32	0.13	0.12 ; 0.14
In the evening on weekdays	0.02	0.02 ; 0.02	0.83	0.8 ; 0.85	0.89	0.85 ; 0.92	0.63	0.61 ; 0.65	0.01	0.01 ; 0.01
On weekends	0.05	0.04 ; 0.05	1.16	1.15 ; 1.17	1.1	1.07 ; 1.12	1.03	1.02 ; 1.05	0.02	0.01 ; 0.02
	Cluster 1		Cluster 2		Cluster 3		Cluster 4		Cluster 5	
N	5598		6999		1820		5540		9183	
%	19.21		24.02		6.25		19.01		31.51	
Type of meal at lunchtime on weekdays when eating OOH										
<i>Summarised frequency in %</i>										
Self-prepared										
Frequently	36.42		36.29		22.36		3.01		1.55	
Sometimes	27.63		31.72		52.47		2.56		0.59	
Never	35.94		31.99		25.16		94.42		97.87	
Canteen										
Frequently	28.87		31.23		13.19		2.38		1.12	
Sometimes	17.17		19.49		27.25		0.97		0.27	
Never	53.97		49.28		59.56		96.64		98.61	
Restaurant										
Frequently	14.13		17.42		26.43		15.00		5.58	
Sometimes	41.25		52.49		63.35		3.86		1.05	
Never	44.62		30.09		10.22		81.14		93.38	
Delivery										
Frequently	0.41		0.36		1.26		0.04		0.01	
Sometimes	2.59		4.66		14.40		0.20		0.03	
Never	97.00		94.99		84.34		99.77		99.96	
Take away										
Frequently	8.13		8.52		8.57		1.59		0.71	
Sometimes	40.46		51.36		65.22		3.16		0.81	
Never	51.41		40.12		26.21		95.25		98.49	
At family / friends										
Frequently	3.70		7.20		10.82		5.83		1.27	
Sometimes	22.49		35.46		51.92		9.01		2.86	
Never	73.81		57.34		37.25		85.16		95.86	
Type of meal in the evening on weekdays or on weekends when eating OOH										
<i>Summarised frequency in %</i>										
Self-prepared										
Frequently	0.61		33.25		24.34		37.49		0.32	
Sometimes	0.46		33.69		53.08		32.56		0.20	
Never	98.93		33.06		22.58		29.95		99.49	
Canteen										
Frequently	0.05		2.70		0.88		2.36		0.01	
Sometimes	0.09		6.84		14.34		9.55		0.05	
Never	99.86		90.46		84.78		88.09		99.93	
Restaurant										
Frequently	3.20		35.31		34.34		49.95		1.66	
Sometimes	2.18		56.34		59.51		42.33		0.65	
Never	94.62		8.36		6.15		7.73		97.69	
Delivery										
Frequently	0.02		1.40		1.04		0.90		0.00	
Sometimes	0.14		13.10		22.31		7.38		0.01	
Never	99.84		85.50		76.65		91.71		99.99	
Take away										
Frequently	0.20		3.60		2.69		3.92		0.04	
Sometimes	0.32		34.38		49.89		32.31		0.14	
Never	99.48		62.02		47.42		63.77		99.81	

Meyer, E. et al.: Typology of Out-of-Home Eaters: a description of sociodemographic, lifestyle, nutritional and environmental characteristics in the NutriNet-Santé cohort

At family / friends					
Frequently	2.34	47.66	41.92	53.45	0.79
Sometimes	2.48	46.95	51.37	41.61	1.03
Never	95.18	5.39	6.70	4.95	98.17

Type of meal at lunchtime on weekdays when eating OOH (organic)

Summarised frequency in %

Self-prepared					
Frequently	14.33	9.64	23.19	0.83	0.51
Sometimes	27.37	27.39	52.64	0.34	0.04
Never	58.31	62.97	24.18	98.83	99.44
Restaurant					
Frequently	0.54	0.19	3.30	0.27	0.16
Sometimes	11.65	4.90	70.16	2.08	0.52
Never	87.82	94.91	26.54	97.65	99.31
Delivery					
Frequently	0.16	0.00	0.38	0.00	0.00
Sometimes	0.16	0.00	10.93	0.00	0.01
Never	99.68	100.00	88.68	100.00	99.99
Take away					
Frequently	1.39	0.36	2.69	0.20	0.07
Sometimes	12.43	6.37	62.14	0.31	0.08
Never	86.17	93.27	35.16	99.49	99.86

Type of meal in the evening on weekdays or on week-ends when eating OOH (organic)

Summarised frequency in %

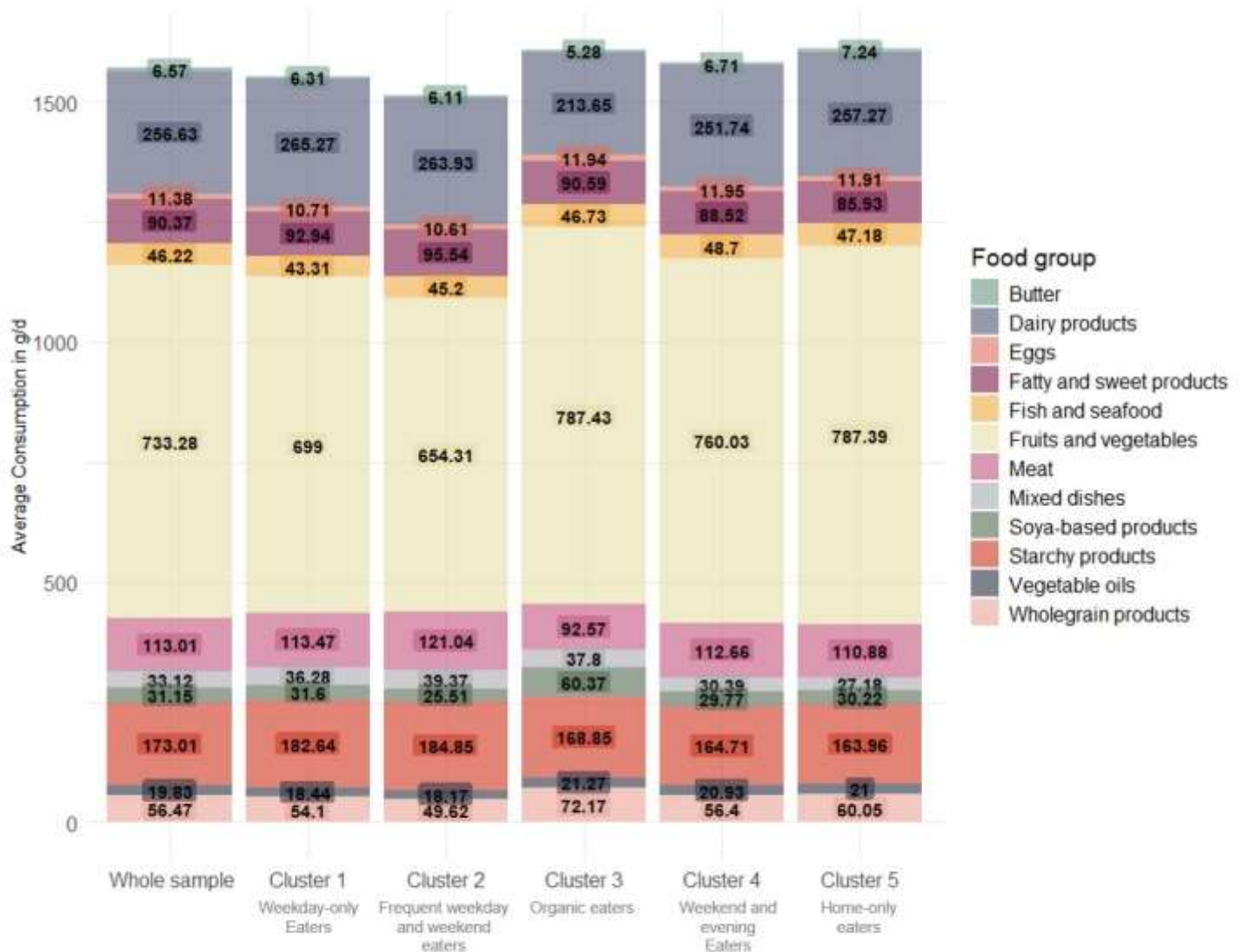
Self-prepared					
Frequently	0.09	3.83	10.05	5.97	0.03
Sometimes	0.07	26.09	63.90	32.80	0.01
Never	99.84	70.08	26.04	61.23	99.96
Restaurant					
Frequently	0.04	0.51	3.85	1.08	0.02
Sometimes	0.32	8.66	71.98	17.96	0.05
Never	99.64	90.83	24.18	80.96	99.92
Delivery					
Frequently	0.00	0.01	0.05	0.09	0.00
Sometimes	0.00	0.07	11.59	0.25	0.00
Never	100.00	99.91	88.35	99.66	100.00
Take away					
Frequently	0.02	0.13	0.71	0.43	0.00
Sometimes	0.00	2.44	43.02	9.01	0.00
Never	99.98	97.43	56.26	90.56	100.00

¹ Values are means (SD) for continuous variables and percentages for categorical variables.

P-values are based on type III ANOVA test or χ^2 test, as appropriate, all P-values < 0.0001
Data is unadjusted.

Supplemental Figure 2: Food group consumption across clusters (g/d)

Values are energy-adjusted means of intakes (g/d) derived from ANCOVA. Food groups are constructed as follows: Butter includes all forms of butter; Dairy products include milk, yogurts, fresh cheese, cheese; Eggs include all forms of eggs; Fatty and sweet products include milky desserts, cookies, sweets, croissants, pastries, chocolate, biscuits, ice cream, honey and marmalade, cakes, chips, salted oilseeds, salted biscuits, dressings; Fish includes fish and seafood; Fruits and vegetables include all vegetables, soups, fresh fruits, fruit juice, compote, dried fruits; Meat includes all types of meat (pork, beef, poultry, offal, etc.) and processed meat; Mixed dishes include sandwich, prepared foods such as pizza, hamburger, ravioli, panini, salted pancake, etc.; Soya-based products include tofu, soya-based meat substitute and vegetable patties, soya-based yogurt, soya-based milk; Starchy products include legumes, grains, potatoes, cereals, bread; Vegetable oils include different types of plant-based oils; Wholegrain products include wholegrain pasta, rice, bread. Drinks are excluded.



Meyer, E. et al.: Typology of Out-of-Home Eaters: a description of sociodemographic, lifestyle, nutritional and environmental characteristics in the NutriNet-Santé cohort

Supplemental Material References

1. Kesse-Guyot E, Chaltiel D, Fezeu LK, Baudry J, Druesne-Pecollo N, Galan P, et al. Association between adherence to the French dietary guidelines and the risk of type 2 diabetes. *Nutrition*. 2021 Apr;84:111107.
2. Gavelle E de, Huneau JF, Mariotti F. Patterns of Protein Food Intake Are Associated with Nutrient Adequacy in the General French Adult Population. *Nutrients*. 2018 Feb 17;10(2):226.
3. Keaver L, Ruan M, Chen F, Du M, Ding C, Wang J, et al. Plant- and animal-based diet quality and mortality among US adults: a cohort study. *British Journal of Nutrition*. 2021 Jun;125(12):1405–15.
4. EAT. The Planetary Health Diet [Internet]. [cited 2024 Jul 24]. Available from: <https://eatforum.org/eat-lancet-commission/the-planetary-health-diet-and-you/>
5. Kesse-Guyot E, Rebouillat P, Brunin J, Langevin B, Allès B, Touvier M, et al. Environmental and nutritional analysis of the EAT-Lancet diet at the individual level: insights from the NutriNet-Santé study. *Journal of Cleaner Production*. 2021 May;296:126555.
6. Francois Husson, Julie Josse, Sebastien Le, Jeremy Mazet. FactoMineR: Multivariate Exploratory Data Analysis and Data Mining [Internet]. 2006 [cited 2024 Jul 24]. p. 2.11. Available from: <https://CRAN.R-project.org/package=FactoMineR>