

Survey on food handling practices and risk perception of Greek consumers of non-prepackaged RTE meat products

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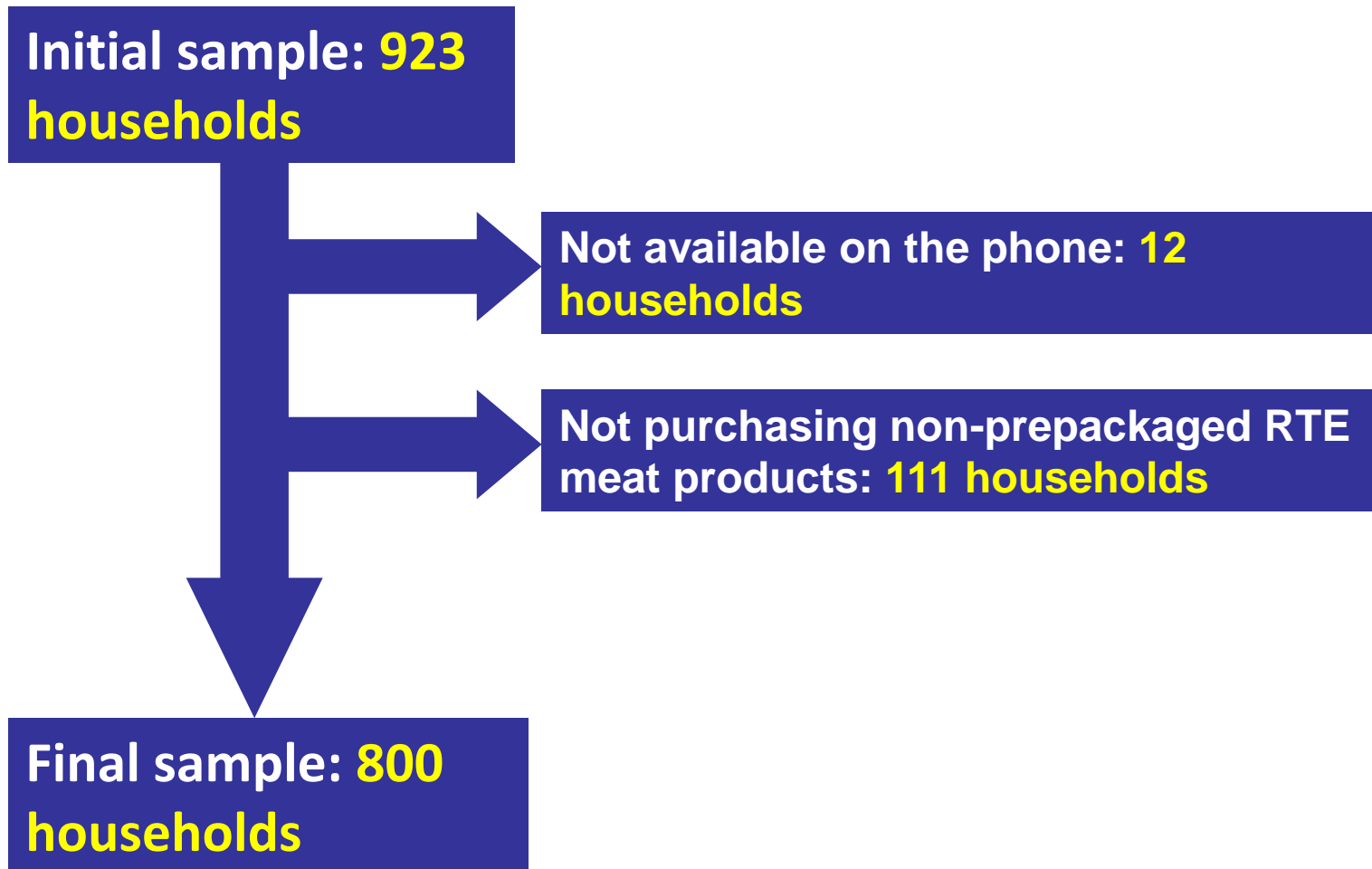
Aims of the consumers' survey

- Consumer demographic data
- Approximate consumption of non-prepackaged RTE meat products
- Consumers' handling practices
- Consumers' risk perception regarding non-prepackaged RTE meat products

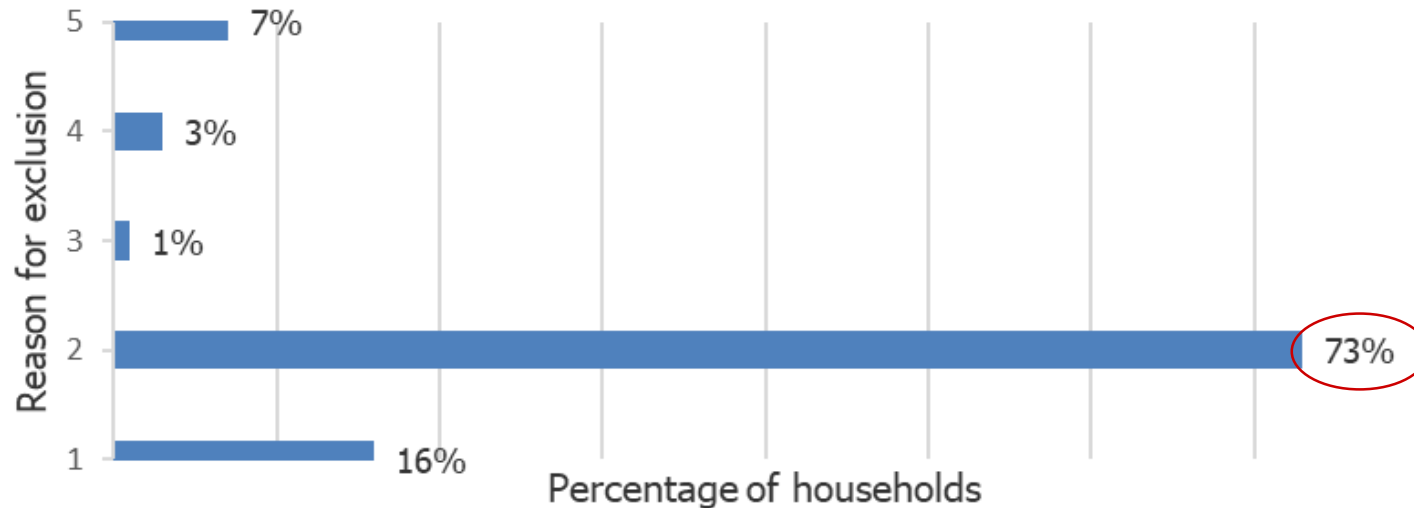
Methodology

- Validation of the questionnaire (i.e. internal validity, test-retest reliability)
- Telephone interview of the main person responsible for buying or handling non-prepackaged RTE meat products
- Sampling based on last census (2011) – sample representative of urban and rural areas in Greece
- Data collection: February - March 2018

Demographic data - sampling

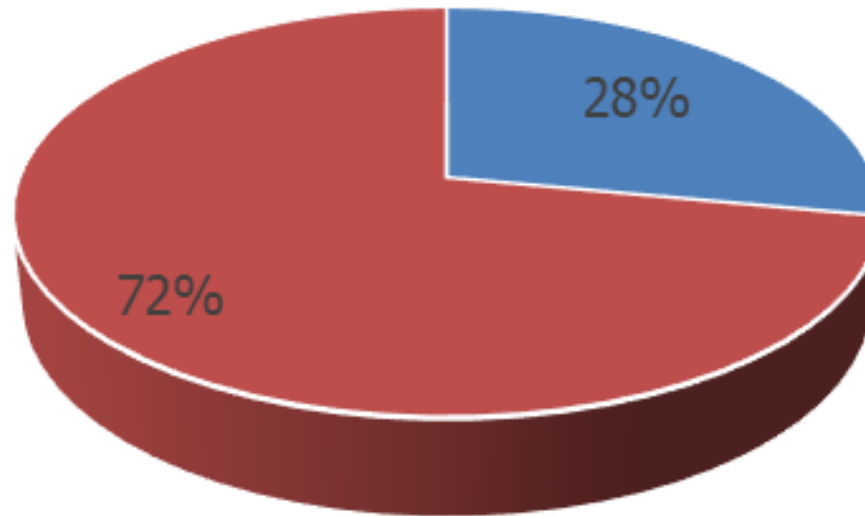


Reasons for not purchasing non-prepackaged RTE products (N=111 households)



1. We only buy prepackaged RTE meat products
2. We do not consume RTE meat products
3. The store we buy from, does not have such products
4. We mainly eat out of home
5. Other reasons

Main person responsible for buying or handling non-prepackaged RTE meat products (1)

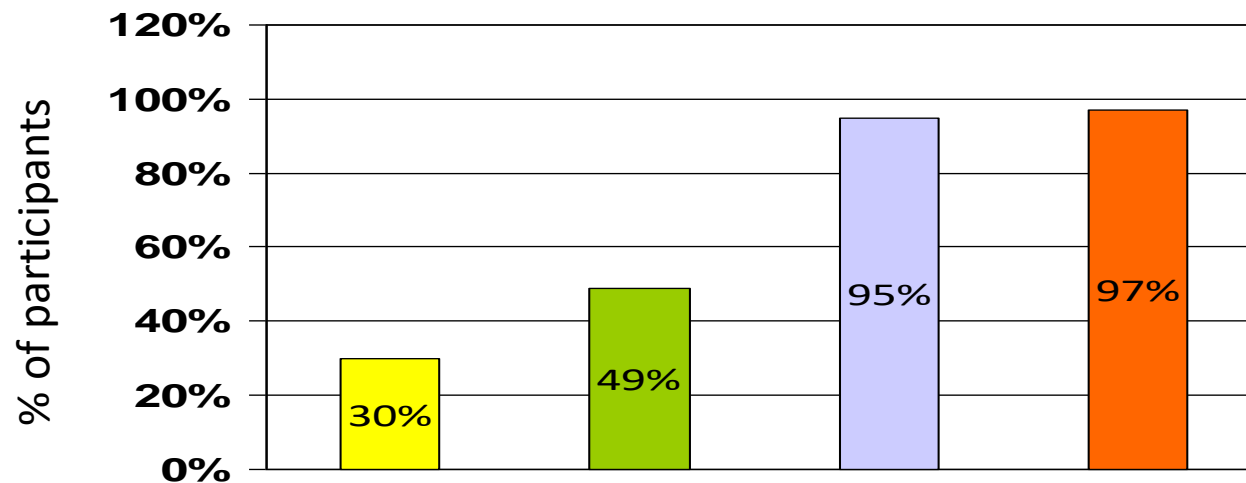


■ Male ■ Female

Age groups of the main person responsible for buying or handling non-prepackaged RTE meat products

Age groups	% of final sample (N=800)	} 70%
18-34 years old	9	
35-49 years old	32	
50-64 years old	38	
65-74 years old	14	
> 75 years old	7	

Main person responsible for buying or handling non-prepackaged RTE meat products (2)



Role of the main person

30%

The one who mainly cooks/
prepares a meal/snack/sandwich with such meat products for the members of the household

49%

Cooks/prepares a meal/ snack/ sandwich with such meat products for the members of the household

95%

The main person responsible for purchasing non-prepackaged meat products for the household

97%

Buys non-prepackaged meat products from the supermarket for the household

Demographics of the households/persons of non-prepackaged RTE meat products consumers that participated in the survey (1)

Members in the household	Number of households	Estimated number of persons	Number of <u>households</u> with at least 1 high-risk person	Number of <u>persons</u> at high-risk	Estimated number of persons at <u>no</u> high risk
1	103	103	50	50	53
2	230	460	131	194	266
3	172	516	74	103	413
4	215	860	56	73	787
≥5	80	480	35	54	426
Total	800 (100%)	2419	346 (43%)	474 (19%)	1945 (81%)

High risk population groups for listeriosis

- Pregnant women
- Elderly (> 65 years old)
- Children < 5 years old
- Persons with compromised immune system

Demographics of the households of non-prepackaged RTE meat products consumers that participated in the survey (2)

Members in the household	No of households with at least 1 high-risk person	No of households with at least 1 child <5 y old	No of households with at least 1 senior	No of households with at least 1 pregnant	No of households with at least 1 immuno - compromised
1	50	0	50	0	0
2	131	1	122	3	6
3	74	17	58	1	0
4	56	19	38	0	0
≥5	35	9	27	1	0
Total	346 (43%)	46	295	5	6

Consumption of non-prepackaged RTE meat products

- Available food consumption data from Greece at the commencement of the study:
 - not nationally representative
 - limited range of products compared to those available in the Greek market today
 - no differentiation between those products initially prepackaged at the retail establishment and those not
 - data referring to average daily consumption (consumption per instance (per eating session) is more appropriate for the estimation of the risk of listeriosis)
 - consumption data not linked with consumer handling practices
- → **need for a new survey**

Purchase of different types of non-prepackaged RTE meat products (N=800 households)

	No of households	%
• Mortadella	122	15
• Parizer	217	27
• Boiled turkey	328	41
• Smoked turkey	410	51
• Boiled ham	87	11
• Smoked ham	93	12
• Smoked steak	54	7
• Boiled chicken	42	5
• Smoked chicken	42	5

Usual and maximum frequency of purchase of non-prepackaged meat products per month

	Usual purchase	Maximum purchase
	% of households	% of households
Once per month	31	17
Twice per month	23	21
3 times /month	10	11
4 times /month	26	25
5 times /month	3	12
6 times /month	1	3
7 times /month	1	1
8 times /month	2	5
9 times /month	0	0
10 times /month	2	2
>10 times /month	1	3

Consumers of non-prepackaged RTE meat products

	Number of consumers	Total sample (N=2355)	Consumers <u>only</u>
		%	%
Smoked turkey	944	40.08	53.64
Boiled turkey	707	30.02	40.17
Parizer	438	18.60	24.89
Mortadella	218	9.26	12.39
Smoked ham	147	6.24	8.35
Boiled ham	129	5.47	7.33
Smoked steak	86	3.65	4.89
Smoked chicken	85	3.60	7.83
Boiled chicken	71	3.01	4.03

Frequency of consumption of non-prepackaged RTE meat products per month (N=1760 individuals)

Times /month	Mortadella N=218	Parizer N=438	Boiled turkey N=707	Smoked turkey N=944	Boiled ham N=129	Smoked ham N=147	Smoked steak N=86	Boiled chicken N=71	Smoked chicken N=85
	%	%	%	%	%	%	%	%	%
1	16	10	10	10	14	14	28	21	12
2	14	6	6	7	8	11	15	6	12
3	6	3	6	4	7	6	3	3	5
4	9	8	13	9	15	16	12	21	13
5	5	4	5	5	2	6	6	3	3
6	0	2	2	2	2	3	1	7	5
7	0	0	0	1	1	0	1	1	2
8	4	11	8	8	8	7	6	1	9
9	0	0	0	0	1	0	0	0	0
10	5	5	5	6	7	4	7	3	7
>10	41	51	45	48	35	33	21	34	32

Quantity of non-prepackaged RTE meat products consumed per month (N=1760 individuals)

Grams	Mortadella N=218	Parizer N=438	Boiled turkey N=707	Smoked turkey N=944	Boiled ham N=129	Smoked ham N=147	Smoked steak N=86	Boiled chicken N=71	Smoked chicken N=85
	%	%	%	%	%	%	%	%	%
<100	40	24	31	28	31	32	54	42	34
101-150	6	12	12	11	13	16	10	10	18
151-200	4	5	5	6	8	5	7	7	12
201-250	1	2	3	6	5	12	6	4	2
251-300	6	8	6	5	4	5	3	1	8
301-350	0	0	0	3	4	2	1	3	0
351-400	4	4	3	0	0	0	0	0	0
401-450	0	2	3	2	0	0	0	3	0
451-500	0	0	0	0	0	0	0	0	0
>500	39	43	37	39	35	28	19	30	25

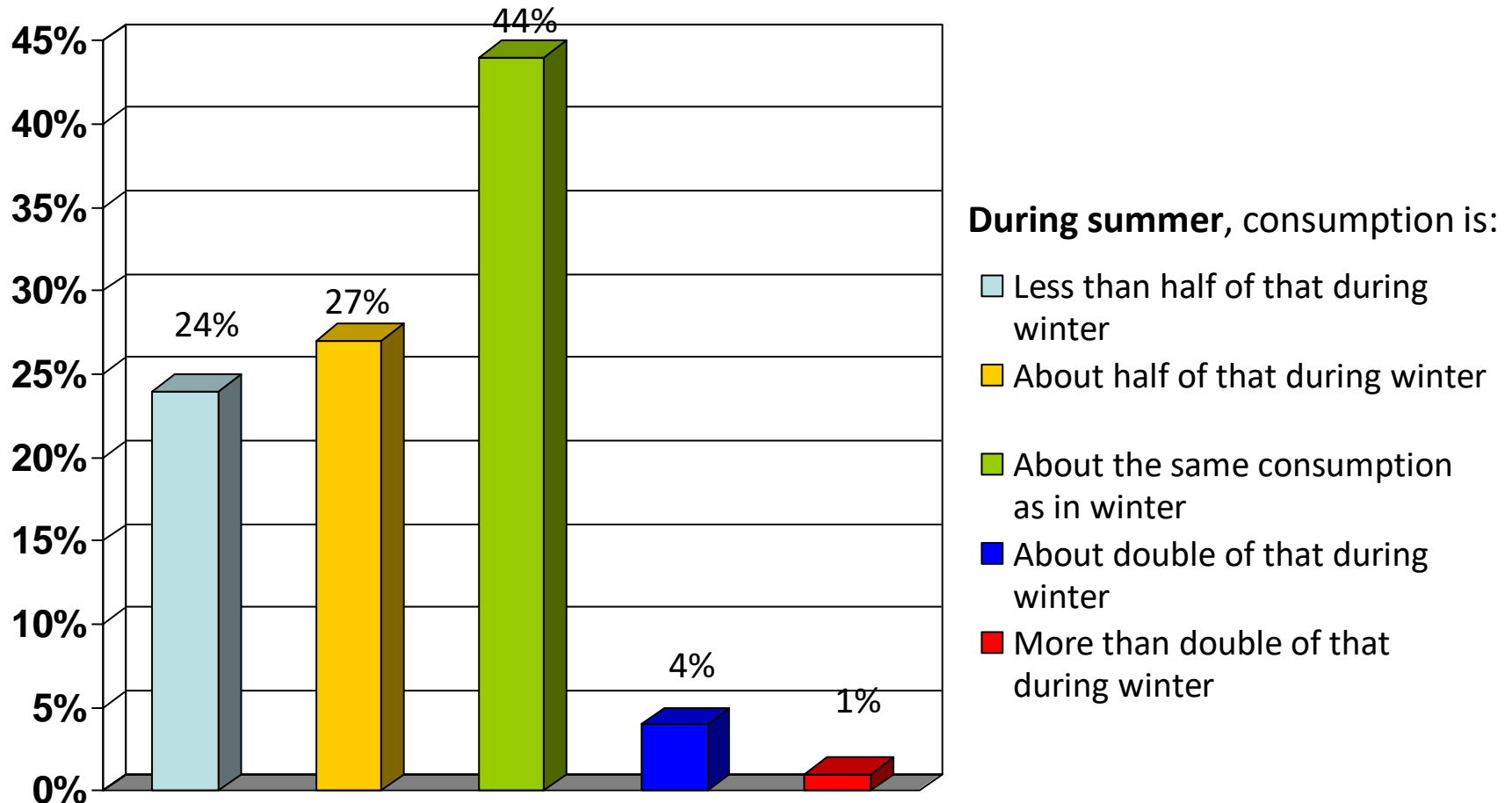
Usual consumption per person per eating occasion for each type and combination of RTE meat products per month (N=1760 individuals)

Number of slices	Mortadella N=218	Parizer N=438	Boiled turkey N=707	Smoked turkey N=944	Boiled ham N=129	Smoked ham N=147	Smoked steak N=86	Boiled chicken N=71	Smoked chicken N=85	Combination of RTE meat products
	%	%	%	%	%	%	%	%	%	%
1	51	64	65	71	58	55	67.5	72	74	64
2	28	20	20	17	19	22	17.5	16	12	19
3	9	5	5	5	5.5	11	9.5	4	5	6
4	6.5	5	3	1.5	2.5	2	3.5	3	3	3.5
5	3	1	2.5	1.5	8	2.5	1	0	0	3
6	0	1	0.5	1	1	0.5	0	1	0	1
7	0.5	0	0.5	0	0	0	0	0	0	0
8	0.5	0	0.5	0.5	0	1	0	0	0	0
9	0	1	0	0.5	0	3	0	0	1	0.5
≥ 10	1.5	3	3	2	6	3	1	4	5	3

Maximum consumption per person per eating occasion for each type and combination of RTE meat products per month (N=1760 individuals)

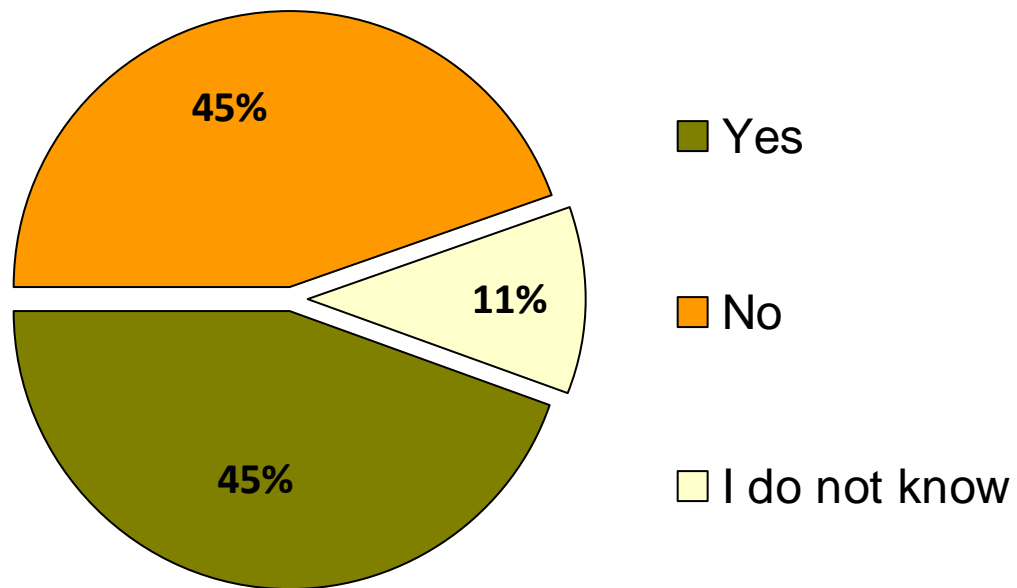
Number of slices	Mortadella N=218	Parizer N=438	Boiled turkey N=707	Smoked turkey N=944	Boiled ham N=129	Smoked ham N=147	Smoked steak N=86	Boiled chicken N=71	Smoked chicken N=85	Combination of RTE meat products
	%	%	%	%	%	%	%	%	%	%
1	23	31	31	36	31	27	26	30	33	31
2	35	38	38	38	39	32	50	30	39	36
3	16	10.5	11	10	7	12	10	5	13	11
4	11	7.5	7	5	5	11	6	15	5	7
5	6	3	4	3	6	5	2	3	1	4
6	2	1	1	2	1	3	0	7	2	2
7	0	0.5	1	0.5	0	0	0	0	1	1
8	2	1	1	1	0	1	0	0	0	1
9	0	0.5	0	0.5	0	3	0	0	0	0.5
≥ 10	5	7	6	4	11	6	6	10	6	7

Seasonal differences in RTE meat products consumption (summer vs. winter)



Handling practices (1)

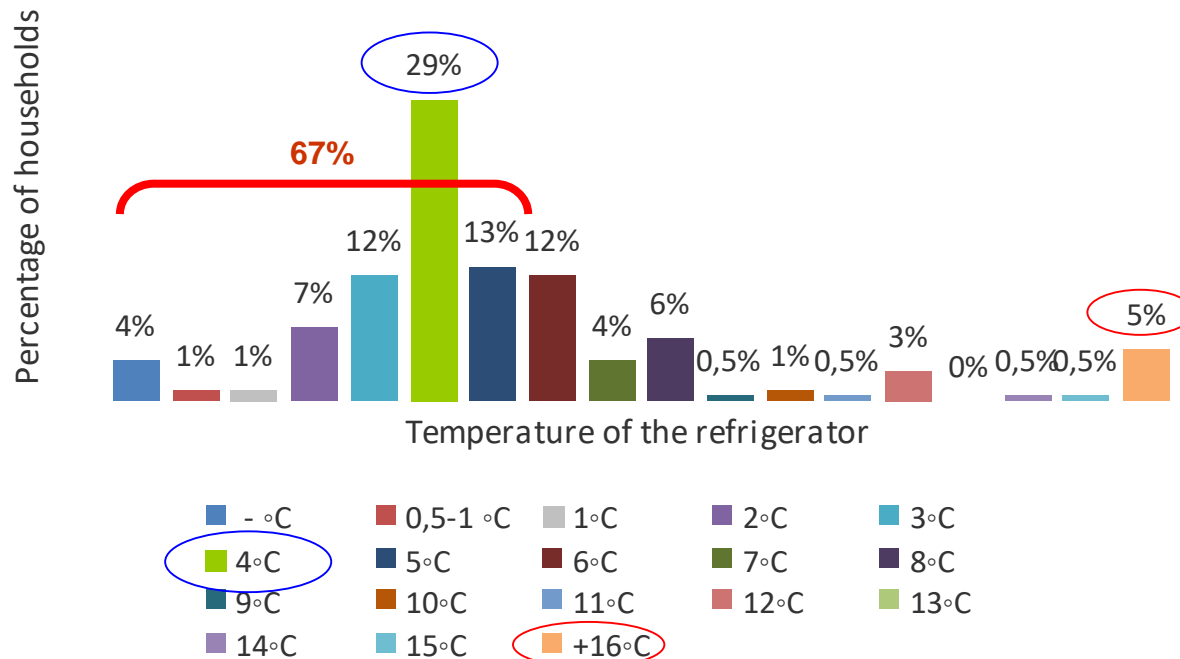
- Presence of thermometer/temperature indicator in the refrigerator



Handling practices (2)

- Knowledge of **refrigeration temperature**

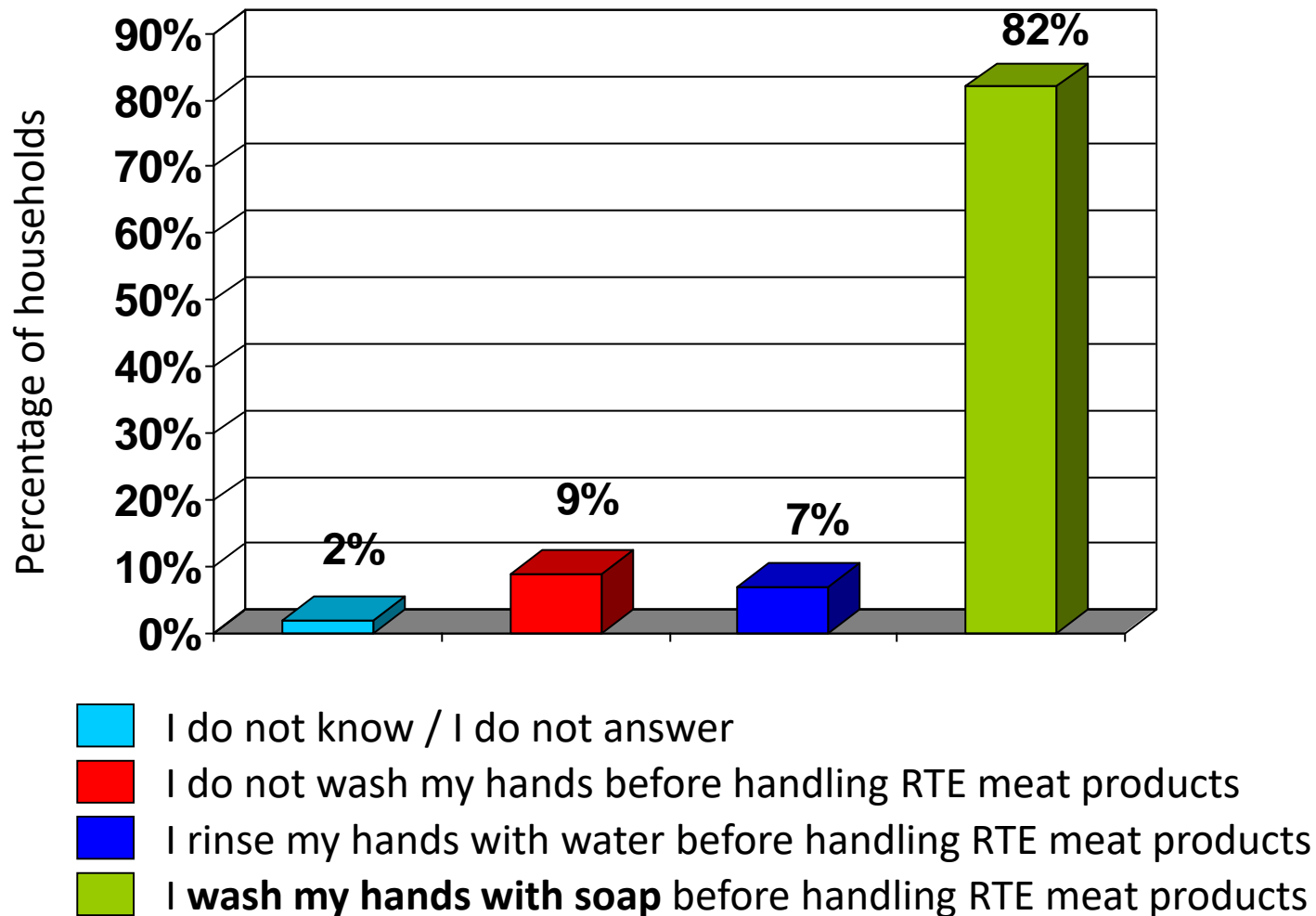
Answer	Sample (N)	%
Yes, I know	388	48.5
No, I do not know	412	51.5



Time length between the purchase of RTE meat products at the retail store and their placement in the refrigerator at home

	Sample (N)	%
<30min	653	82
30' - 1h	130	16
1 - 1½ h	8	1
1½ - 2 h	3	0.5
2 - 2 ½ h	1	0
2 ½ - 3 h	1	0
> 3h	0	0
I do not know	4	0.5

Practice of washing hands before handling non-prepackaged RTE meat slices



Habit of removing the RTE meat slices from their supermarket wrap, before placing them in the refrigerator

	%	
Always	30	42%
Usually yes	12	
Sometimes yes, sometimes not	6	52%
Usually not	11	
Never	41	

Habits regarding the placement of RTE meat slices after their removal from the wrap (N=383 households)

	In a container well-sealed (e.g. Tupperware)	In a container without lid	On a plate or with other foodstuff
I always remove them from their wrap	95%	3%	2%
I usually remove them from their wrap	75%	4%	21%
Sometimes I remove them from their wrap	86%	5%	9%
I usually do not remove them from their wrap	54%	9%	37%

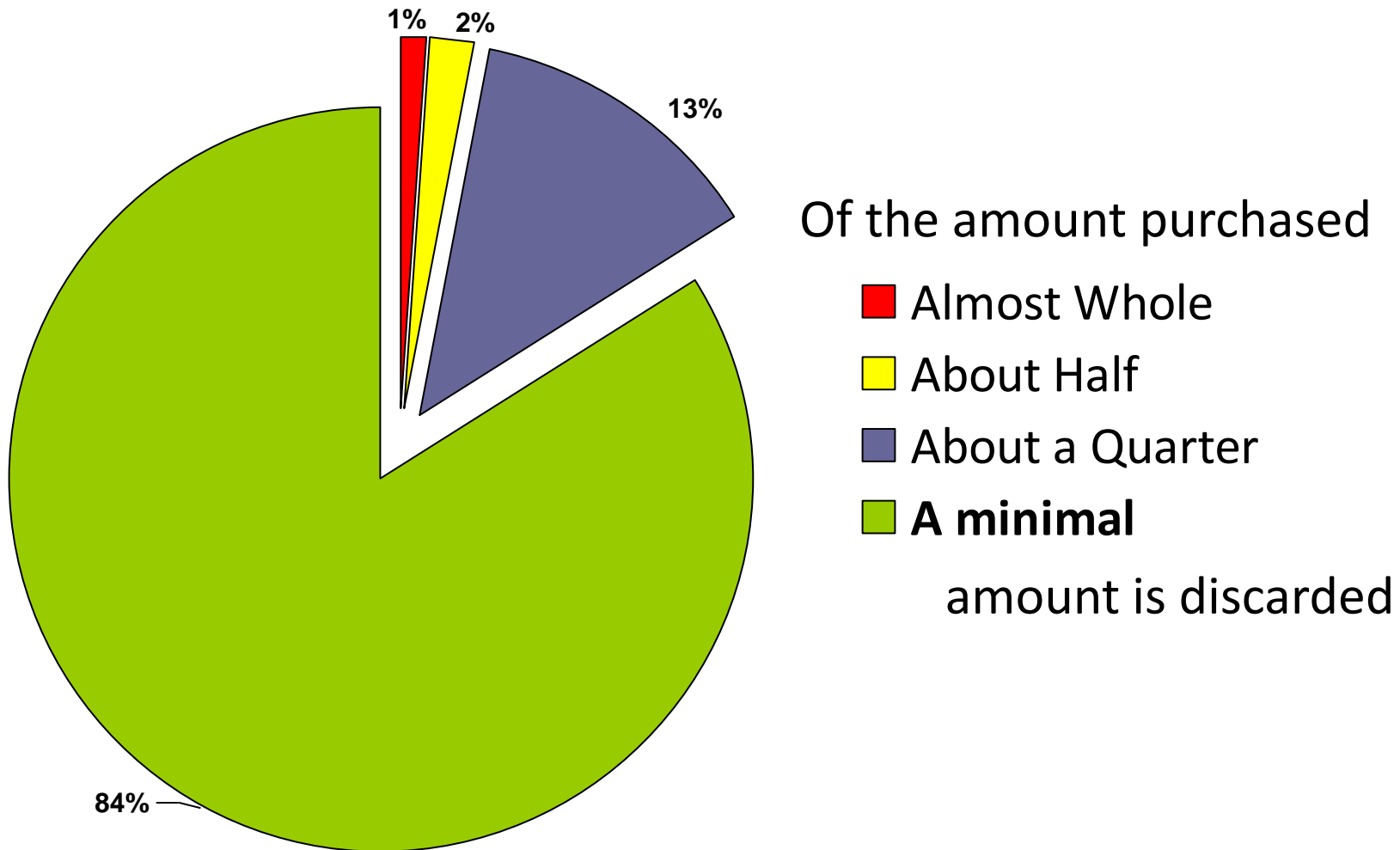
Length of storage of RTE meat slices

	Usual no of days		Max no of days	
	N	%	N	%
Up to 3 days	124	16	61	8
4-7 days	580	72	539	67
8-10 days	66	8	126	16
11-15 days	12	2	44	5
> 15 days	3	0	8	1
I don't know	15	2	23	3

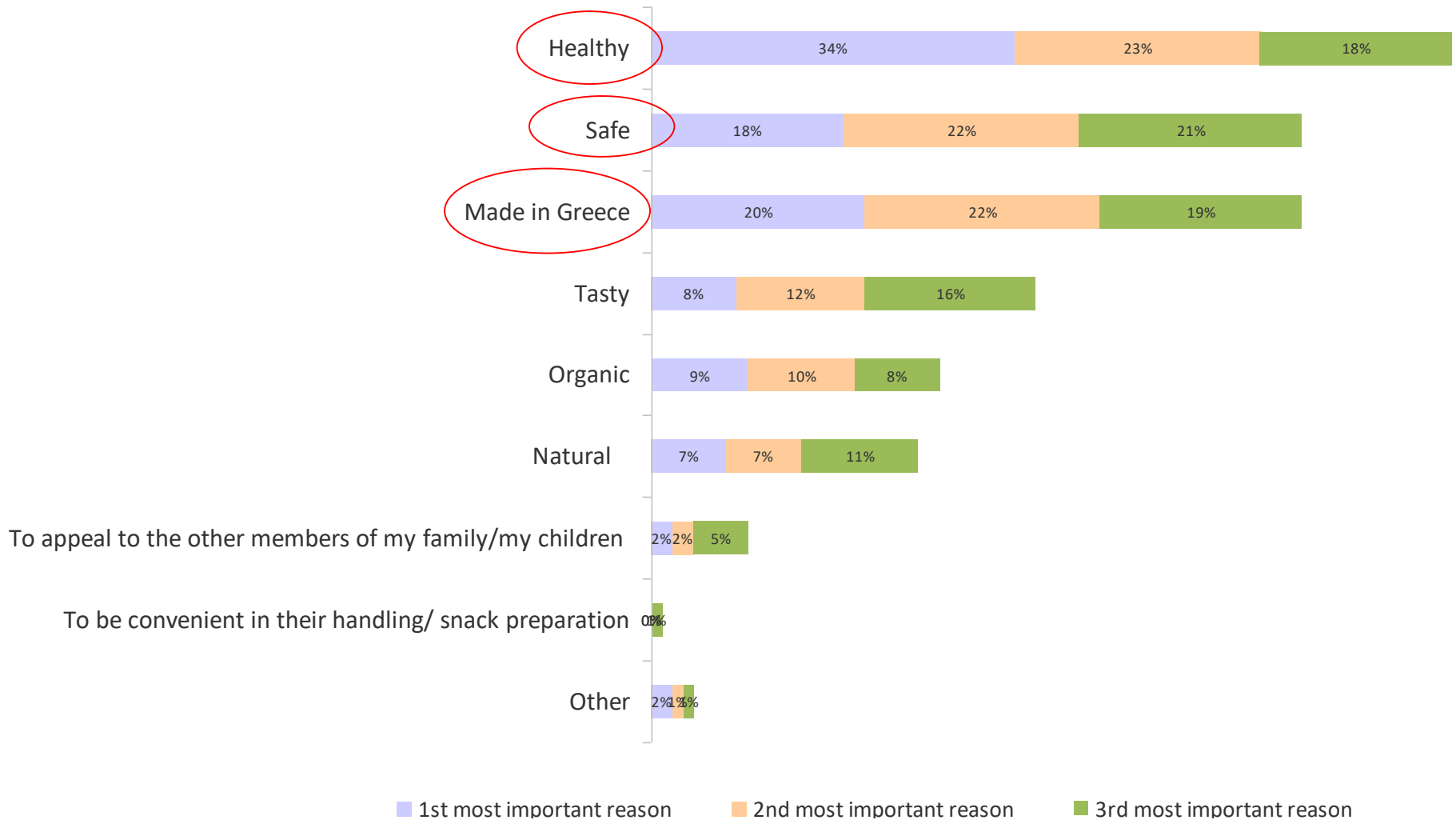
Frequency of discarding purchased RTE meat products

	Sample (N)	%
• Almost every time I buy meat products	11	1
• About half of the times I buy meat products	22	3
• About a quarter of the times I buy meat products	81	10
• Rarely	448	56
• Never	238	30

Quantity of RTE meat product slices, when discarded



Important criteria for meat product selection



Food poisoning

- Households reported food poisoning: **8%** (64 households)
- Source of food poisoning (among the 64 households) -
 - Food prepared **out of home** : **81%** (52 households)
- Association of consumption of meat products with the food poisoning that a member of the household has suffered: **2%** (17 households)
- Knowledge of the pathogen that caused food poisoning (among the 17 households) : **1** household
(*Salmonella*)

Consumers' perception regarding *Listeria*

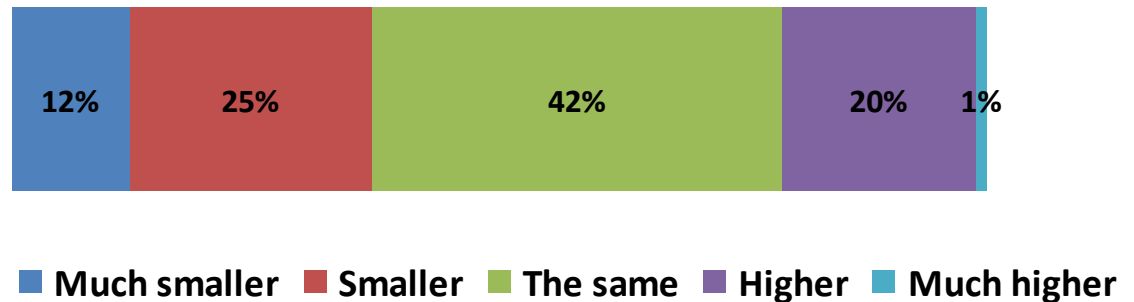
■ Knowledge of the foodstuffs associated with the growth of *Listeria* and the risk of listeriosis



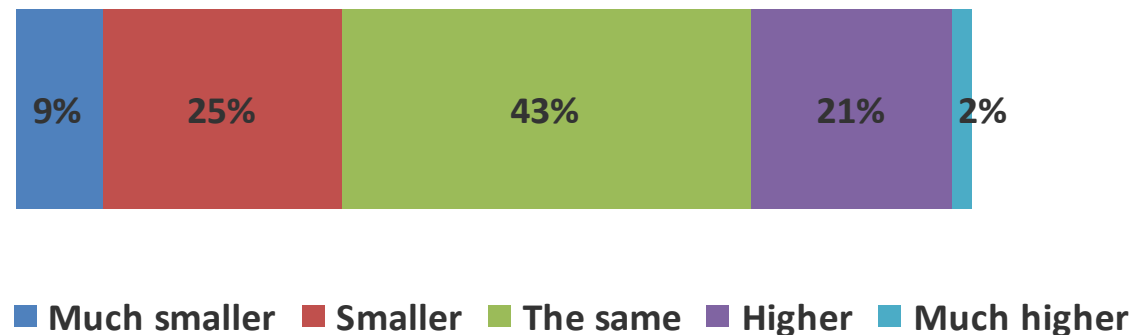
	Spontaneous N=38	Prompted N=399
– Smoked, sliced meat products	35%	15%
– Cooked, sliced meat products	27%	21%
– Ready-to-eat sandwiches containing meat products	10%	23%
– Soft cheese (e.g., anthotiros, mizithra)	5%	14%
– Smoked fish (e.g., salmon)	4%	9%
– Ready-to-eat, pre-cut salads	2%	14%
– Other	13%	
– Do not know	27%	

Attitude/beliefs of consumers regarding meat products

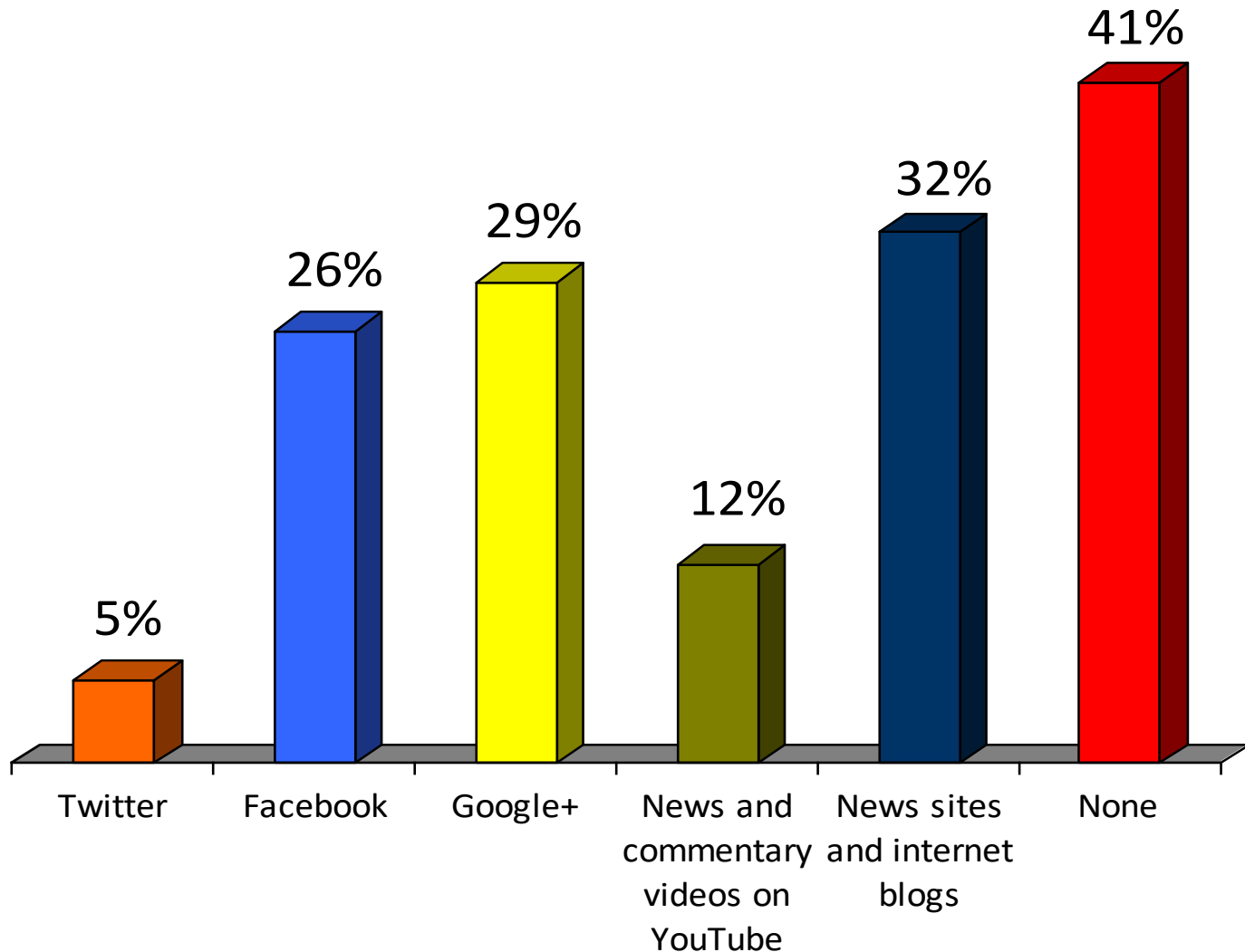
“Compared to the average individual of my age, the likelihood to experience health problems because of the consumption of meat products is”:



“The risk for my health associated with the consumption of meat products for me, personally, is”:



Use of internet to stay informed about food-related issues



Concluding remarks (1)

- Poor awareness and insufficient knowledge regarding the temperature of the refrigerator
- Short duration of exposure of RTE meat products to room temperature from purchase to their placement in the fridge (<30min)
- Placement of RTE meat slices usually in well-sealed containers alone, if removed from the supermarket wrap (most but not all households) → ↓ risk of cross-contamination, potential for improvement
- Hand washing with soap before handling RTE meat products (82%) → ↑ level of personal hygiene & ↓ risk of cross-contamination
- Minimal waste of non-prepackaged RTE meat products
- Long storage duration of non-prepackaged RTE meat products (> 1 week) in some households → ↑ growth of *Listeria*

Concluding remarks (2)

- “Safety” high in the selection criteria for RTE meat products
- Few reported cases of food poisoning (8% of households), attributing their cause mainly to food prepared out of home
- Low awareness regarding Listeria with only 50% of the participating households having heard of it
- Poor knowledge of foods that can cause listeriosis
- Need for easily accessible by consumers information on safe food handling practices (e.g. through the use of brochures at points of purchase with simple guidelines for proper food preparation and storage or print on supermarket/grocery bags of the website that contains food safety information by public authorities for the lay people)

Thank you for your attention!

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