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Assessing consumers' norms regarding food safety standards in retail chain stores

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Smart^(T)outis



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- Literature review
- Aim of the survey
- Materials and Methods
- Methodology (Principal Component Analysis)
- Results
- Conclusions

Literature Review

Components influencing consumer behavior referring to retail chain stores



Lu, P.H. (2011)

Customer Satisfaction towards Retailers



125 clients of 3 stores

location	• reliability
friendly services from the employees	• products' quality and safety
attractive atmosphere	

Literature Review

Components influencing consumer behavior referring to retail chain stores



Bucko, J., *et al.* (2018)

Online shopping: Factors that affect consumer purchasing behavior

221 internet users'
average age 21 years



Literature Review

Components influencing consumer behavior referring to retail chain stores



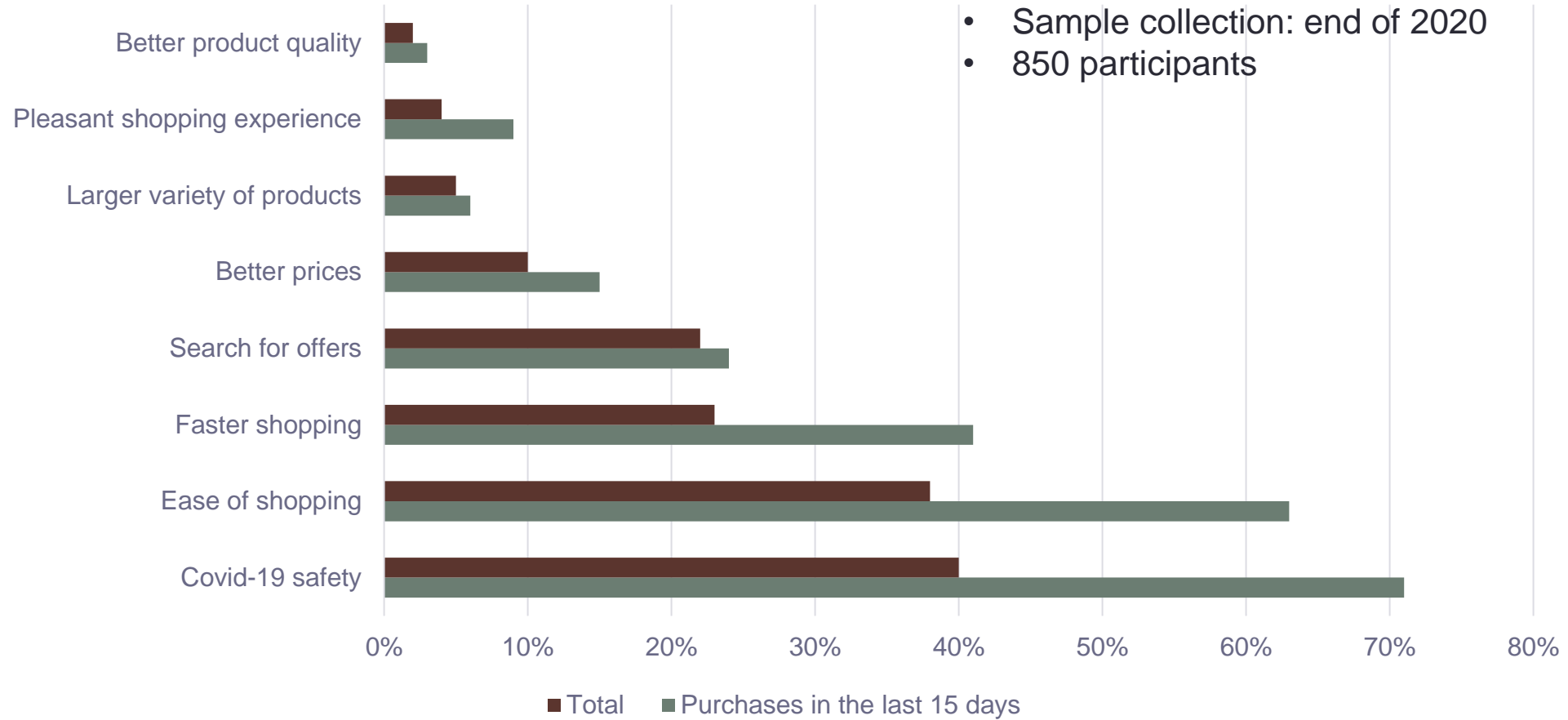
Jowkar, A., *et al.* (2018)

A factor analysis of identifying the customer behavior patterns : A case study in Europe.



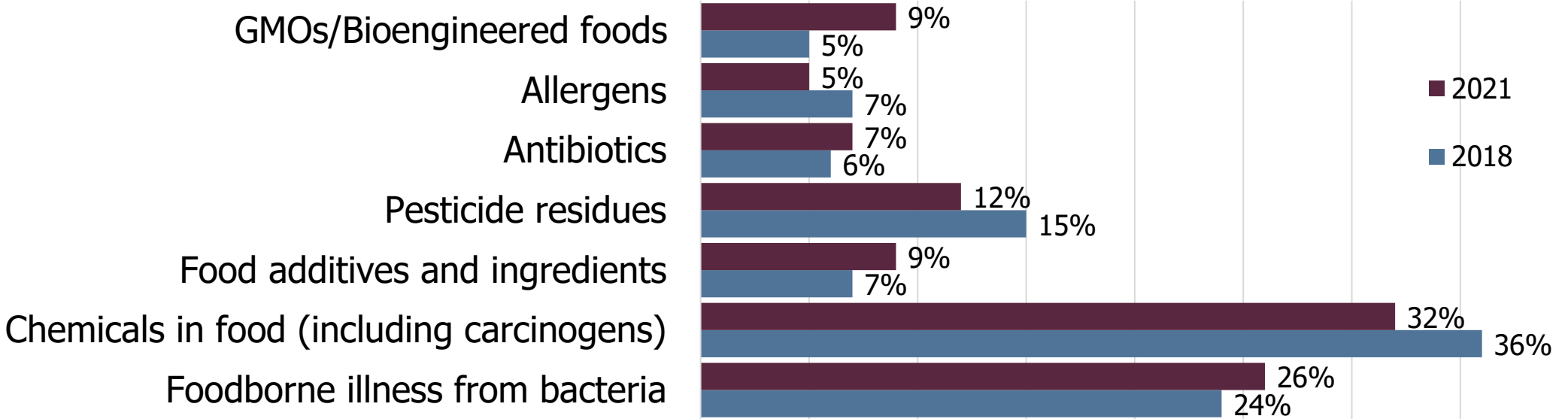
Consumer trends in research area

Key benefits of shopping from supermarkets



Literature Review

Most important food safety issue to consumers in 2018 VS 2021



Source: International Food Informational Council, 2021

Aim of the survey

- ❖ Assessment factors influencing consumers' perceptions regarding food safety standards in supermarkets
- ❖ Correlation of these factors with the socio-economic characteristics of the sample



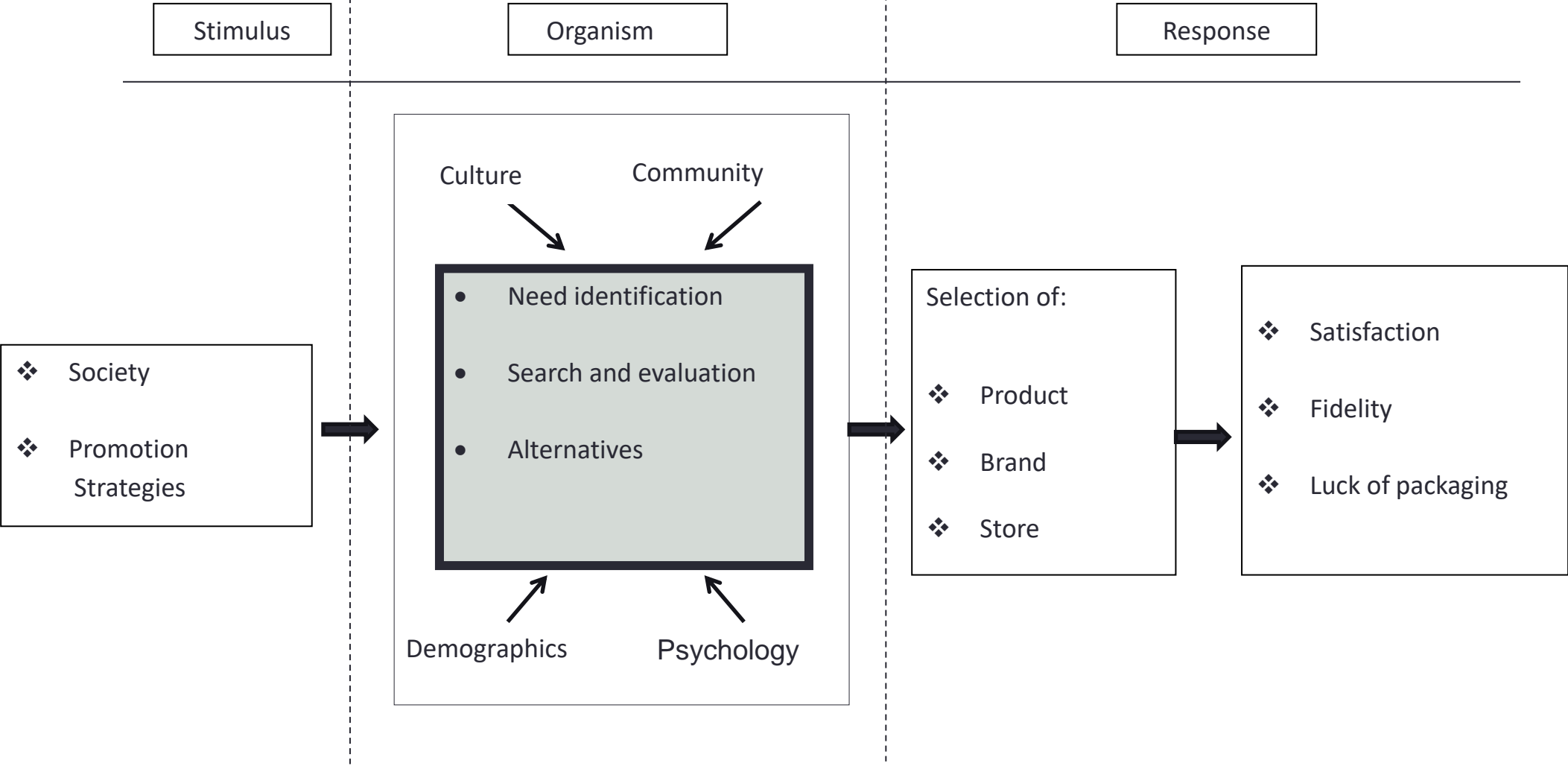
- ❖ Creation of a consumer profile
- ❖ Understanding the way of thinking and needs of Greek consumers in a period of innovative progress in the field of retail trade

Two hypotheses were tested in this survey:

1. Consumers awareness regarding food safety issues (emphasizing on the awareness regarding chemical disinfestation in supermarket warehouses).
2. Criteria for selecting retail chain store for both physical and digital stores.

S-O-R Model

Factors influencing consumers' decision making



Material- Methods

Where?

- Greece

When?

13/5/2022 – 27/8/2022

How?

- University of Thessaly mail services
- Personal messages through e- mails and social media
- Printed questionnaires -personal interviews

Sample:

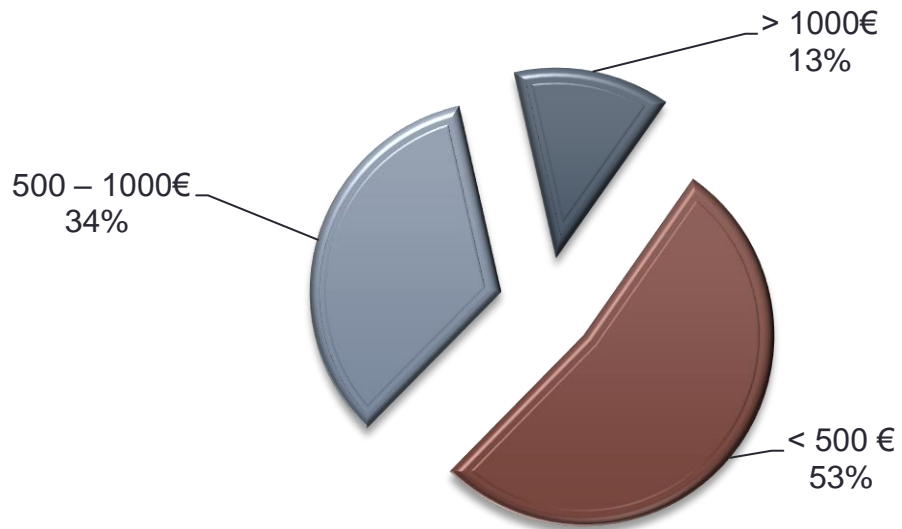
- A total of 540 questionnaires
- Structured sample of people aged 18-80+ years old

(Principal Component Analysis - PCA)

- Charles Spearman “Demonstration of Formulae for True Measurement of Correlation”, 1907
- Common factors in large dataset
- Requirements:
 - Quantitative or scale values [**Likert scale 1-5**]
 - Large samples [**540 questionnaires**]
- Still 3 conditions to be met:
 - **Kaiser-Meyer-Olkin (KMO) index, 0.5-0.7-0.8 [0.847]**
 - **Barlett’s sphericity test, Sign. <0.05 [0.00]**
 - **Factor loadings 0.4 - 0.5 - 0.7 - 0.8**

Sample characteristics

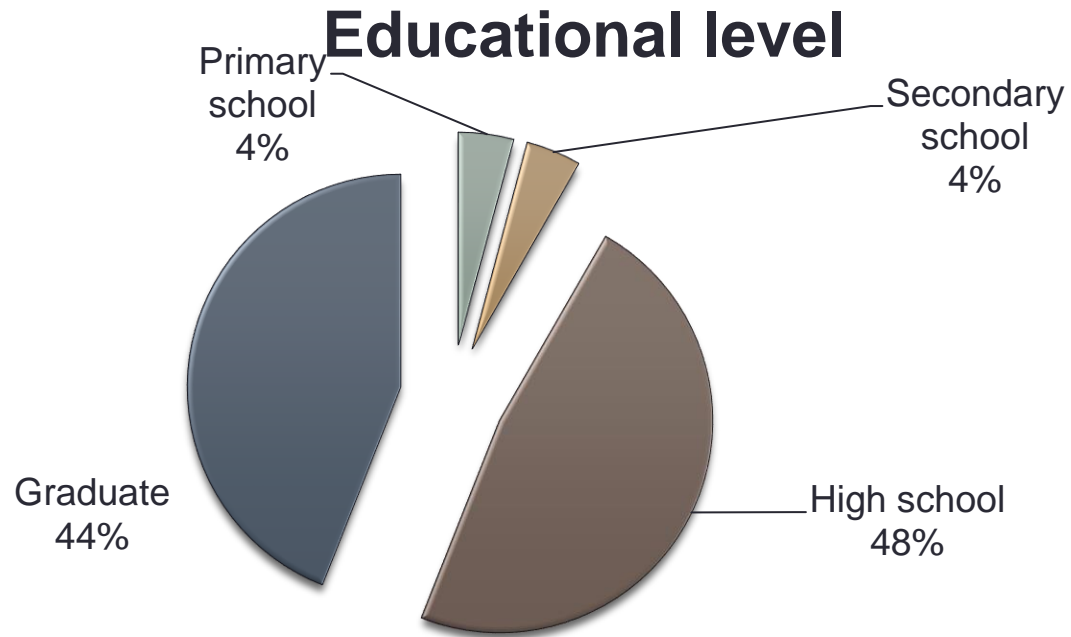
Income per month



Age group stratification

Age Groups	Country Population	%	Sample Characteristics	%
20-29	1,350,868	15.5	94	17.4
30-39	1,635,304	18.8	116	21.5
40-49	1,581,095	18.2	95	17.4
50-59	1,391,854	16.0	83	15.4
60-69	1,134,045	13.0	62	11.5
70-79	1,017,242	11.7	58	10.7
80+	583,334	6.7	32	6.0
Total	8,693,742	100.0	540	100.0

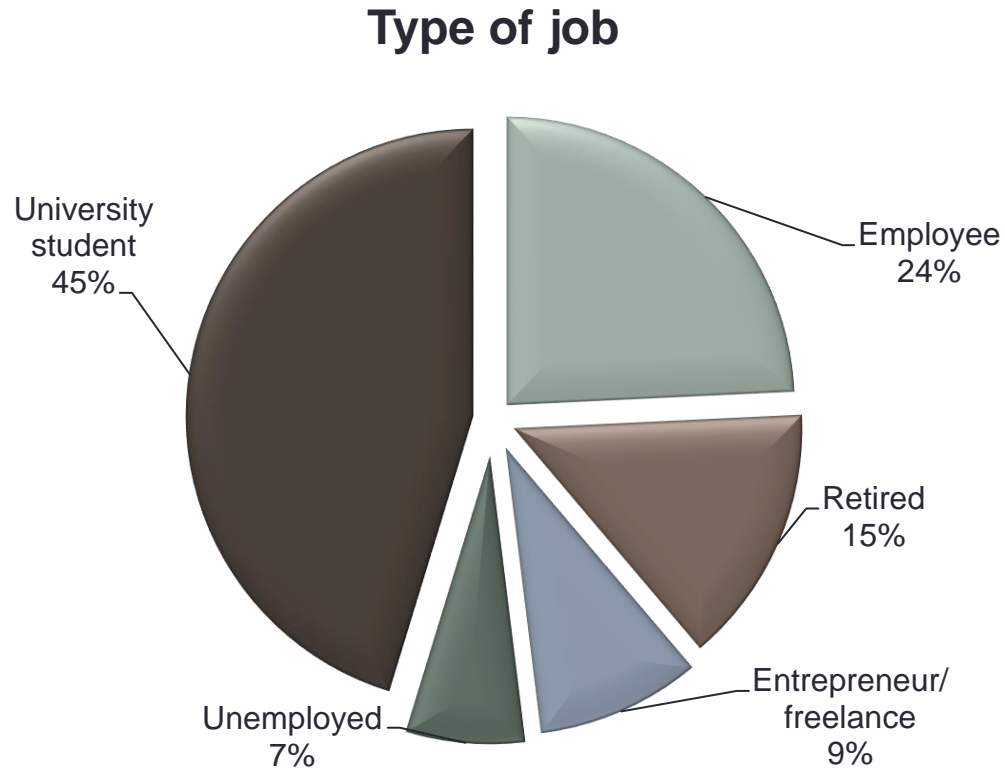
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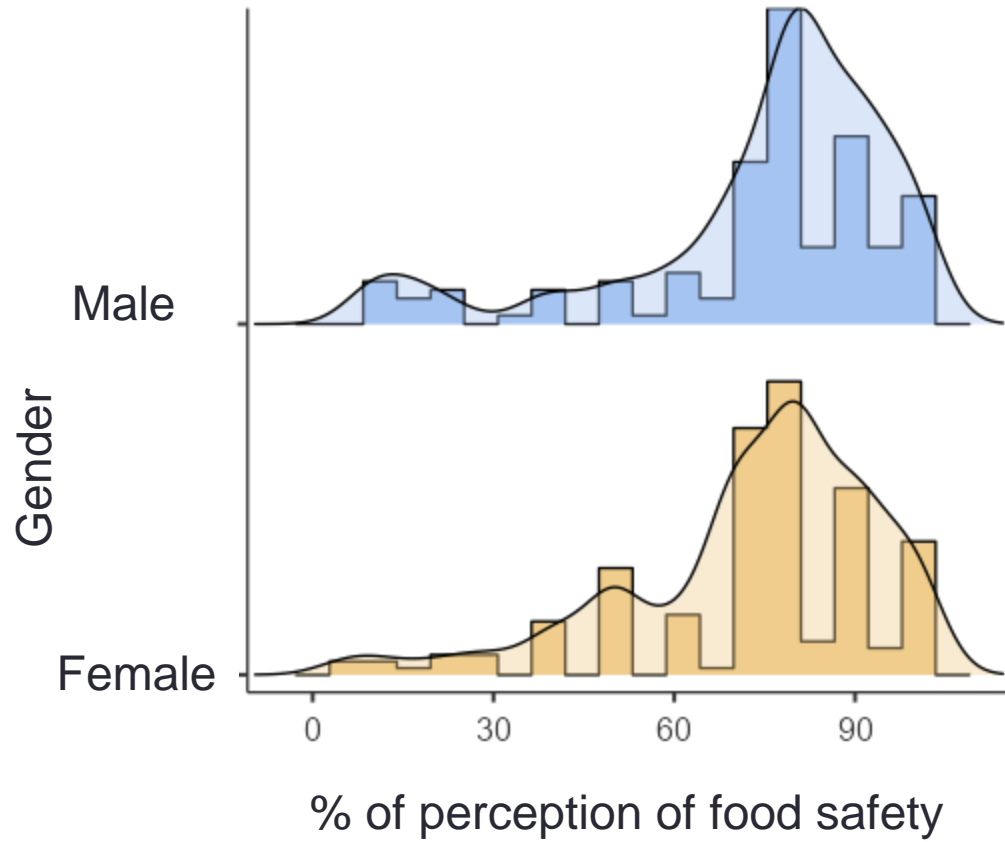
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PCA- Overall sample

		H ²	Component
			1
Q 14	Food safety and consumption	.627	.813
Q 13	Variety of products	.574	.798
Q 15	Adequacy of products	.741	.768
Q 19	Overall product quality	.562	.761
Q 20	Store cleaning- food safety	.527	.733
Q 16	N of items in discount	.667	.605
Q22	Low prices	.510	.0571

1st Component
 (27.3%)
 Main criteria for choosing
 a chain store market

- Safety
- Quality
- Prices

PCA- Overall sample

		H ²	Component
			2
Q 36	I believe that chemical disinfestation during food storage downgrade the quality characteristics of the products.	.688	.846
Q 35	It is hazardous to consume food that has been chemically disinfected during storage.	.644	.811
Q 34	I believe that chemical disinfestation during food storage is not a good practice.	.609	.801
Q 37	I believe that in the warehouses of most supermarkets, not all the necessary protection measures against organisms causes food safety issues are observed	.624	.576

2nd Component
(15.9%)
Consumer awareness-
Chemical disinfestation
impacts on food safety

PCA- Overall sample

		H ²	Component
			3
Q 26	Facilities (shelves area, large refrigerator, kindness of chasiers)	.576	.738
Q 24	Waiting time in cashier	.570	.725
Q 25	Opportunity of Online shopping	.617	.629
Q 22	Ability to park easily	.554	.616
Q 23	Distance from home	.4565	.585

3rd Component
 (13.15%)
 Store services
 *Facilities
 *E-commerce
 *Accessibility

PCA- Overall sample

		H ²	Component
			4
Q 14	When I purchase food, I always check its composition and nutritional value.	.676	.804
Q 11	When I purchase food, I always check the expiration date.	.770	.685
Q 15	When I purchase food, I always check its place of origin	.617	.677
Q 12	I have knowledge of good eating habits	.584	.545

4th Component
(8.51%)
Label information related to food safety issues:
*Nutritional value
*Expiration date
*Place of origin

PCA- Overall sample

		H ²	Component
			5
Q 26	It is hazardous to consume a food product that has recently expired	.820	.769
Q 24	An opened package of food is hazardous to consume	.719	.668
Q25	The outside of a rusted can poses a safety risk	.652	.567

5th Component
 (7.78%)
 Food safety risks- Avoid:
 *Recently expired
 *Opened packages
 *Rusted cans

Results

Correlation of socio-economic characteristics with the main PCA components

COMPONENTS	SOCIOECONOMIC CHARACTERISTICS					
	Age	Gender	Education	N of children	Income	Type of employment
Main criteria for choosing a chain store market	*	**	-	-	**	-
Consumer awareness- Chemical disinfestation impacts on food safety	-	*	**	-	-	*
Store services	**		-	**	*	**
Label information	**	*	-	**	-	-
Food safety risks						

3rd Component:

- ❖ 45 yo: concerned of prices
- ❖ Women: more aware of food safety issues, chemical disinfestation in supermarket warehouses and more willing to adopt good eating habits
- ❖ ↓ income: ↑ awareness about prices
- ❖ <35 yo: interested for safety and quality

4th Component:

- ❖ >50%: more and more interested in the label (expiration date, price ↑ or origin, nutritional value)
- ❖ High educational level ↑ awareness about health issues and the use of chemicals in food disinfestation
- ❖ 35-44 yo: willing to pay for a product on the label or which the safety information is clearly stated

Conclusions

- Despite consumer interest in food prices, it has been shown that food safety issues remain high in importance in the consumer choice process
- Adoption of healthy eating habits
- Awareness about food safety issues- Concern about chemical disinfestation
- Differentiation of consumers beliefs according to their socio-economic characteristics

❖ **5 components influencing supermarket selection**

- ❖ Food safety issues
- ❖ Key parameters for supermarket selection: In store services (facilities, products organization, cleanliness of the store, staff adequacy)
- ❖ Looking for a store where the waiting time at the checkout is as minimum as possible
- ❖ Price- offers
- ❖ Quality and variety of products

❖ **Future research**

- ❖ Adoption of food safety new technologies (insect traps, use of sensors for recognition and timely treatment)
- ❖ Objective: improvement of food quality and safety, reduction of operating costs, and conditions will be created for the increase in consumer loyalty to retail chain stores

Thank you for your interest!

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