

DETERMINANTS OF FOOD WASTE BEHAVIOUR IN GREEK HOUSEHOLDS

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Abstract

Since the Earth Summit in 1992 aspects concerning the consumption behaviour of households have been increasingly emphasised in waste management policy and there have been highlighted the higher priorities of the waste hierarchy, with great significance in the necessity for changes in household behaviour. Yet even though waste prevention principally is to be prioritised, it is rarely an integral part of the local waste management. Waste prevention implies a reconfiguration of the value systems of individuals, followed by a responsible rearrangement of lifestyles and habits around it. Today it is clear and well recognised that food waste is a social problem, with a solution lying on social interventions, as much as on the technological fix. Aspects concerning the consumption behaviour of households are no less important than the technical or economic aspects in waste management research and decision-making.

The aim of the present study is to analyse Greek consumers' food waste behaviour and to investigate the most important determinants that influence the intention to reduce food waste and consequently the generation of less food waste. For this purpose a study was conducted using a structured questionnaire, mainly based on the Theory of Planned Behaviour (TPB) [1]; 921 completed questionnaires were obtained.

The findings from this study provide useful indicators to the Greek waste management authorities in identifying mechanisms for future development and implementation of food waste prevention activities in household programmes and targeted communication campaigns.

Introduction

The last decade there has been an increasing interest in exploring the use of social psychology theories in order to analyse public's view and influencing factors towards participation in waste prevention actions, especially regarding food waste, a major waste stream, whose production is effectively linked to individuals' day-to-day behaviour. Interventions to change household waste generation behaviours may be more effective if grounded on an appropriate theory across environmental psychology. In order to identify relevant theories, which may apply to food waste prevention behaviour, an extended literature review was carried out. Compared to research on the quantity of wasted food and the global impact of the food system, studies of consumer food waste behaviour are much less prevalent [2]. Most of the identified papers were based on the TPB [3-12], The generation of food waste at the consumer level should be treated not as a single behaviour, but as a result of multiple behaviours that may increase the likelihood of wasting food or the quantities of discarded food. Some of the identified behaviours that result in increased quantities of household food waste include: buying and/or cooking too much; not planning meals in advance; failing to compile or comply with a shopping list; failing to carry out a food inventory before shopping; impulse purchases; throwing away food that has passed its sell-by-date [13-16]; the desire to be 'good' providers on family members, especially children and guests [17-18]; and the desire to shop, cook and prepare food with convenience (less trips to the shops means over-purchase)[19-21]. Furthermore low public awareness of the negative impact of household food waste [13, 22-23] and a lack of awareness of one's own food waste contribution [13-15,24] also result to larger wastage.

Methodology

The present study aims to examine the effect of psycho-social factors, food-related routines, household perceived capabilities and socio-demographic characteristics on self-reported food waste arisings, in order to understand the factors that influence the food waste prevention behaviour of the individual. Survey data gathered among 921 Greek respondents measured consumers' intentions not to waste food, attitudes towards food waste, perceived behavioural control on capability to deal with household food-related activities, planning and shopping routines, social and moral norms related this aspect, specific knowledge of waste prevention, environmental awareness and environmental routines.

The dataset was collected using personal interviews via a structured questionnaire in the period between April and July 2017. The survey was targeted to Greeks between the age of 18 and 75 who are responsible, at least to some extent, for cooking in their household, or for grocery shopping, as it is the behaviour of these individuals that affects the

production of food waste, according to the literature [25-26] and common sense. Participants were asked to fill in a questionnaire composed of 67 questions concerning their attitudes towards food waste, knowledge of the environmental problems related to food waste, intention to reduce food waste, habits, and self-reported food waste behaviour. They were asked to estimate the percentage of food they generally throw away for various food types (e.g. bread, dairy products, fruit, vegetables, fish, meat, unfinished food on plates). This categorization was made because it has been established that participants provide a more realistic estimation of their food waste when they considered different food types separately, as opposed to estimating food waste volume in total [25]. The last section of the questionnaire contained questions on the socio-demographic characteristics of the respondents and their households.

For data processing, we applied Exploratory Factor Analysis (EFA), which is a multivariate statistical approach used for the initial investigation and summary description of a large number of variables through their aggregation. The method ad finds application in many areas of behavioural sciences (sociology, psychology, molecular biology, genetics, medicine), where it is not possible to directly measure the concepts of primary interest [27]. As a statistical processing tool for analyzing and evaluating primary data, the statistical software STATA 12 was used.

Results and discussion

A total of 4 factors screened by EFA were extracted from 49 questions (variables). The number of factors was determined based on eigenvalues above 1. Those factors are labeled as: 1. Attitude towards food waste; 2. Environmental Knowledge; 3. General enviromental attitude; and 4. Locus of Control. The results of EFA are shown in Table 1 (pattern matrix)

Table 1. Exploratory Factor Analysis result

Questions	Attitude towards food waste	Environmental Knowledge	General Enviromental Attitude	Locus of Control
It is important for me not to throw food	0,6141			
Buying exactly the amounts of food I need so I do not throw them is environmentally responsible behavior	0,5996			
The prevention of food waste contributes to the conservation of the natural resources of the planet	0,5679			
I feel guilty when I throw food	0,5305			
By preventing food waste I save money	0,4525			
Most people, whose opinion I am interested in, consider it important not to throw food	0,3847			
It's hard to predict exactly how much food my household needs for a regular week	-0,3761			
Do you list the food you want to buy before you go shopping?	-0,4466			
I participate in the recycling of all waste streams	-0,4608			
I buy eco-friendly products (they have the eco-label)	-0,4846			
I believe that I can not do anything to reduce the food waste I produce	-0,5015			
Did you try to reduce the food you throw away in the previous 3 months?	-0,5046			
Do you check your food stores before making purchases	-0,5056			
I consume water wisely in my everyday actions	-0,5236			
Did you try to cook and prepare exactly the amount of food your household needs in the previous 3 nonths?	-0,5375			
I take care in my everyday life to save energy (I turn off the lights, switch off the devices, I disconnect the charger from the power outlet	-0,5419			
Replace common light bulbs with energy saving bulbs	-0,5546			
Sustainable Development		0,5431		
Biodiversity		0,5214		
Climate Change		0,4393		
Waste Hierarchy		0,4384		
Every citizen has an obligation to protect the environment			0,4073	
Economic growth should not be at the expense of the environment			0,3932	
When humans interfere with nature it often produces disastrous consequences			0,3834	
The responsibility for food waste lay with the food producers rather than the individual.				0,3715
The problem of waste can not be solved by citizens but by the state				0,3873
Nothing I do does not affect the environment because I am only one person				0,3190

All factors are strong and stable since they contain 3 or more statements and account for 83.28% of the total dispersion. Proposals related to "Social norm" were excluded from this model due to their low load. The lack of correlation between subjective rules and the behavior of food waste prevention has been highlighted in previous studies [4,8]. In conclusion, the production of food waste has been established as a socially acceptable process, on the one hand, because there is no awareness of the quantities produced, and on the other hand, because the waste producing behaviours are not visible to the surrounding to be criticized. Many consumers believe that waste is "an inevitable consequence of consumption", so they evaluate their production as a normal and self-evident practice applied by all of the people, which is not considered as a non-environmentally responsible behaviour [13,28].

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