

## Study on Consumers' Opinion Towards Doggie-to-go-bags in the Context of Food Waste Management

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### Abstract

*The restaurants are an excessive source of food waste, being critically influenced by the kitchen staff, waiters and consumers. The consumers' plate waste is identified as a critical source of restaurant food waste (RFW). An alternative to minimize this RFW would be for customers to take home extra food in doggie-to-go-bags (takeaway containers). However, the existing social rules in numerous countries discourage consumers for asking for doggie-to-go-bags. In this research, it was surveyed a number of 200 costumers from Republic of Moldova in order to explore their opinion toward doggie-to-go-bags. Although surveyed consumers approve the doggie-to-go-bags, they are resistant to ask for doggie-to-go-bags (80% of them reported that there were not enough leftovers to justify a doggie-to-go-bag, 79% of them said that they usually eat all the food, while 49% were too embarrassed to ask for one).*

**Key words:** restaurant, plate food waste, management, doggie-to-go-bag, takeaway container

**J.E.L. classification:** E30, J43, L66, M11, N50, O13, O15, Q13, Q17

### 1. Introduction

Food waste can occur along the entire food supply chain, from farm to final consumption (hospitality level and households level) (Afzal *et al*, 2022, p.1; Lins *et al*, 2021, p.2). The hospitality sector produces a significant quantity of food waste, being the third-largest generator of food waste in Europe, right behind households, primary agricultural and food processing industries (Filimonau *et al*, 2019, p.1; Filimonau *et al*, 2020, p.4; Stoica *et al*, 2022, p.753; Stoica *et al*, 2022, p.754; van Herpen *et al*, 2021, p.1). The hospitality sector includes hotels and restaurants that offer their clients food and drink, or a place to sleep (Stoica *et al*, 2022, p.754).

Restaurants represent an excessive source of food waste, being critically influenced by the kitchen staff, waiters and customers (Schrank *et al*, 2023, p.1; Stoica *et al*, 2022, p.754). Being more specifically, the restaurant food waste (RFW) is frequently categorised as arising from staff and customers' plates (Santos-Peñate *et al*, 2023, p.612; van Herpen *et al*, 2021, p.2). The customers' plate waste (food left on customers' plates when they have finished eating; extra foods) is identified as a critical source of RFW, makes up nearly one-third of all RFW (Dolnicar *et al*, 2020, p.1; Miroso *et al*, 2018, p.563; Stoica *et al*, 2022, p.754; van Herpen *et al*, 2021, p.2). The RFW generation has negative environmental effects (e.g. an excessive contribution to the global carbon footprint, global water usage, and solid waste generation), socio-economic concerns (e.g. global food insecurity) and enormous global food price inflation (Bohdanowicz, 2005, p.192; Chauhan *et al*, 2021, p.1; Demetriou, 2022, p.2; Guțu, 2021, p. 685; Kim *et al*, 2023, p.2; Miroso, 2023, p. 93; Schrank *et al*,

2023, p.1; van Herpen *et al*, 2021, p.2). The restaurants can provide different portion sizes (as a strategy to reduce RFW), but the customers’ expectations, socio-demographics, as well as social norms, make it almost impossible for restaurants to provide an ideal portion size for every consumer (which is the key player in reducing RFW) (Kim *et al*, 2023, p.2; van Herpen *et al*, 2021, p.1). Doggie-to-go-bags, a potential solution to deal with RFW, are takeaway containers/bags/boxes in which customers can take the extra foods (uneaten foods) home for later consumption. Unfortunately, in some countries, doggie-to-go-bags are hardly used as the concept goes against the prevalent social rules (van Herpen *et al*, 2021, p.1).

## 2. Theoretical background

Social norms, typically developed over time, are accepted rules that guide customers’ behavior. Even if they are ineffective for society, social norms tend to persist. In the case of extra foods at restaurants, these social rules found in numerous countries suggest customers to leave foods on their plate that end up being thrown away. Consequently, the customers tend not to ask for a doggie-to-go-bag and may experience feelings of shame when they go against this social norm, motivating an unsustainable behavior (van Herpen *et al*, 2021, p.2).

The success of managerial approaches to mitigate RFW will depend on the national hospitality (van Herpen *et al*, 2021, p.3). The hospitality sector in Republic of Moldova is well-set, but seriously underexplored, RFW in Republic of Moldova being evenly understudied (suggesting the need for RFW research). This study aims to identify the reasons why customers from Cahul (Republic of Moldova) ask or not to ask for doggie-to-go-bags. The use of doggie-to-go-bags can considerably reduce plate waste.

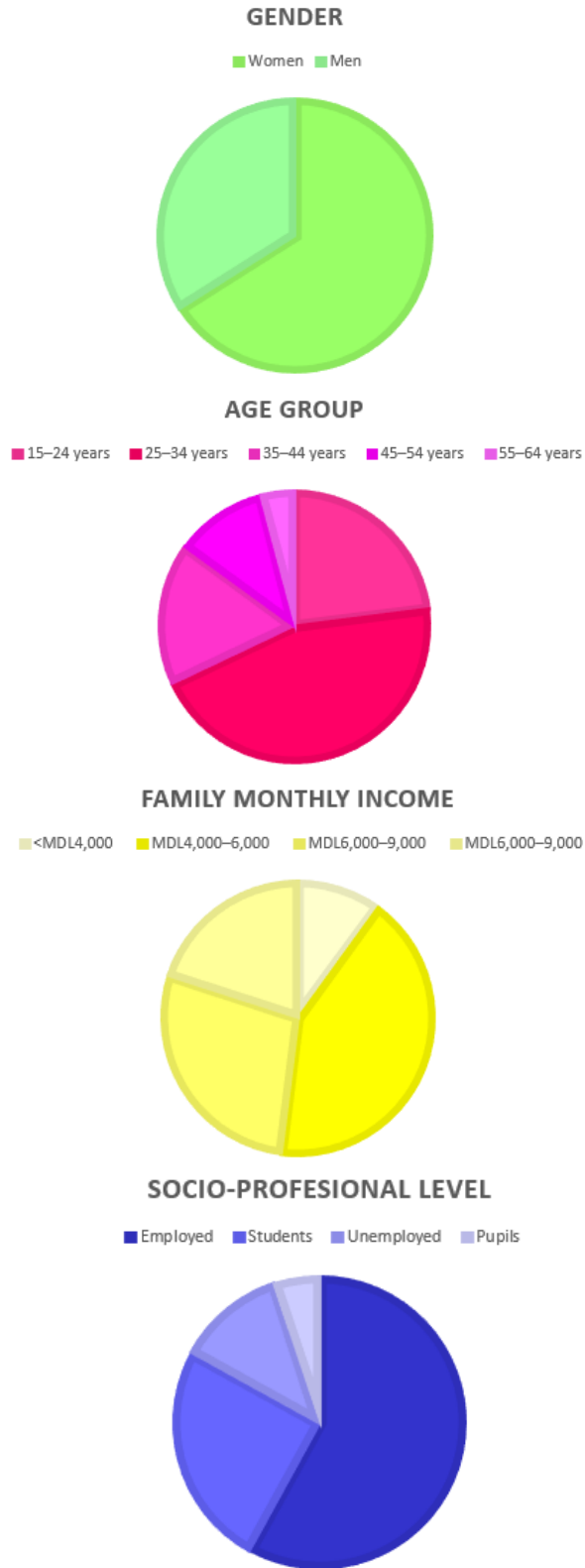
## 3. Research methodology

The questionnaire survey is one of the well-established approaches in RFW research (Kim *et al*, 2023, p.5). For data collection for this research, a survey on 200 customers was conducted in the representative restaurants from Cahul Municipality, the third largest city in Republic of Moldova (with expenses of over 68 million MDL and 37,217 inhabitants), characterised by a fast development of the foodservice sector. The anonymity and confidentiality of each customer were assured. The group of respondents was defined by: (i) gender (men and women), (ii) age (15–24 years, 25–34 years, 35–44 years, 45–54 years, 55–64 years, 65+ years), (iii) family monthly income (<4,000 MDL; 4,000–6,000 MDL; 6,000–9,000 MDL; >9,000 MDL; MDL – Moldovan Leu) and (iv) socio-professional level (pupils, students, employees, unemployed people). The questionnaire has comprised six items (four items regarding socio-demographic variables and two items that explored the customers’ opinion on the ask or not to ask for doggie-to-go-bags, *i.e.* What are the motivations for requesting a doggie-to-go-bag?, What are the reasons for not asking for a doggie-to-go-bag?).

## 4. Results and discussion

*Demographic description of the study participants.* Among the 200 respondents, 66% were women customers and 34% were men customers. The age range of the participants was 15 to 64 years. In terms of age group, the highest proportion (45%) was in the 25–34 years range, followed by 23% in the 15–24 years range, 17% in the 35–44 years range, 11% in the 45–54 years range and 4% in the 55–64 years range. About family monthly income, for the majority of interviewed customers (90%), it was above the minimum salary (4,000 MDL); thereby: 42% had a salary between 4,000–6,000 MDL; 28% had a salary between 6,000–9,000 MDL; 20% had a salary more than 9,000 MDL. In terms of socio-professional levels, 58% of participants were employed, 25% were students, 12% were unemployed and 5% were pupils (Figure 1).

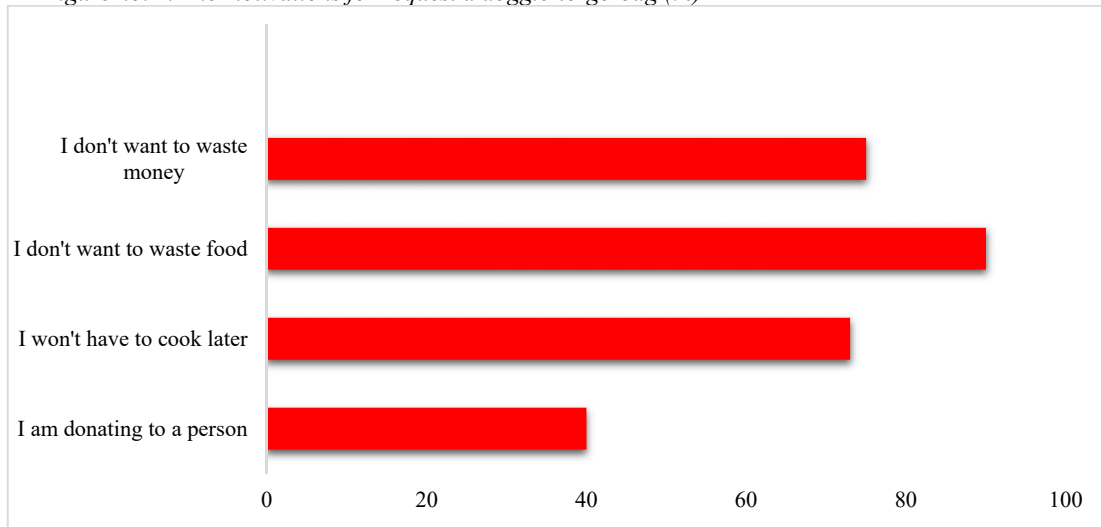
Figure no. 1. Demographic description of the study participants



Source: (own creation)

*Customers' opinion on the ask or not to ask for doggie-to-go-bags.* The opinion of customers regarding doggie-to-go-bags (request / not ask for) are revealed in the Figures 2 and 3. The reasons why respondents request doggie-to-go-bags are showed in the Figure 2.

Figure no. 2. The motivations for request a doggie-to-go-bag (%)

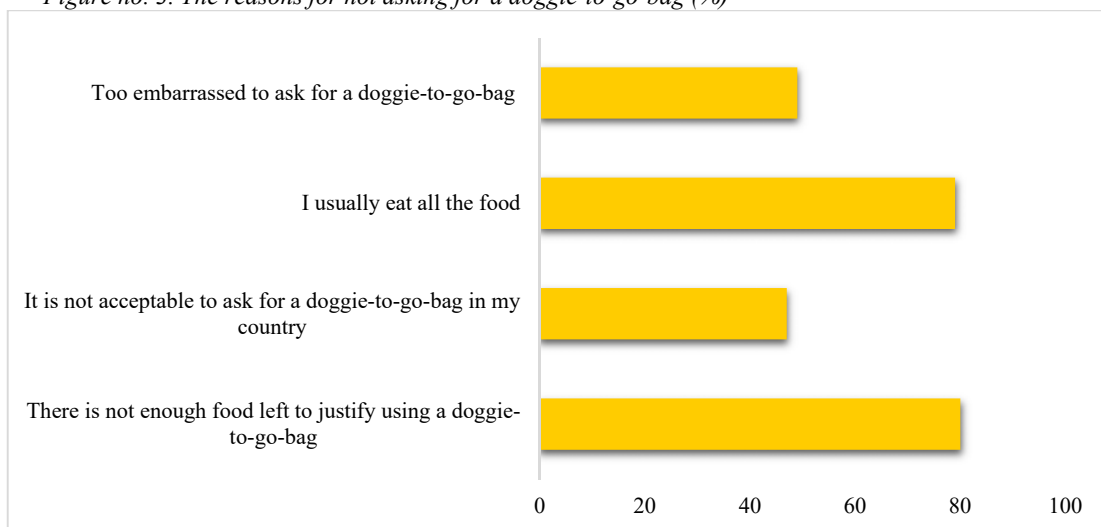


Source: (own creation)

From the Figure 2, it is clear that respondents don't want to waste food (90%), the food saving reason being found to be the most beneficial for requesting a doggie-to-go-bag. 75% of respondents justify that by using a doggie-to-go-bag they are saving money (the second biggest motivation), while 73% of them would take the extra food in a doggie-to-go-bag to avoid cooking later, saving time/effort for the next day spent at home. Some of them (40%) thought they could take a doggie-to-go-bag to donate their extra food to people in need. The socio-demographics variables influence the intention to request a doggie-to-go-bag, therefore women, younger and unemployed people, people with lower income and students were more likely to request a doggie-to-go-bag. Women have been expected to share food inside their family, to be more concerned about protecting the environment, and prefer to reduce their waste more than men) (Kim *et al*, 2023, p.4).

The obstacles/motivations for not asking for a doggie-to-go-bag are depicted in the Figure 3.

Figure no. 3. The reasons for not asking for a doggie-to-go-bag (%)



Source: (own creation)

80% of the study participants thought that there were not enough extra foods on their plates to justify using a doggie-to-go-bag to take home the leftovers (they usually eat all the food – 79%), being the highest chosen reason. Almost half of the respondents who can't finish their meals at restaurants (49%) thought that it would be embarrassing to ask for a doggie-to-go-bag, being not acceptable to ask for a doggie-to-go-bag in their country (47%). It suggests that the social norms in restaurants tend to persist, having a huge effect on customers' desire to ask for a doggie-to-go-bag. It was also found that men, older and employed people, and people with higher incomes were more likely not to ask for a doggie-to-go-bag.

## 5. Conclusions

Although restaurants generate an excessive amount of food waste, they receive less attention than other food waste contributors (farms, food processing, households). The customers' plate waste is acknowledged as a big food waste generator found in restaurants. In order to reduce the plate food waste, some excellent options to avoid throwing away the leftovers were developed, like doggie-to-go-bags (takeaway containers) in which the customers can take home the unserved food in order to consume it later or to give it to someone else. However, the social norms discourage customers from asking for doggie-to-go-bags, they tend not to ask for doggie-to-go-bag and may experience feelings of shame. This exploratory study aimed to identify the reasons why consumers from Cahul (Republic of Moldova) ask or not ask for doggie-to-go-bags. It was surveyed a number of 200 restaurant customers from Cahul (Republic of Moldova) and it was noticed that although the customers approve the doggie-to-go-bags (save food, money, time/effort), they are resistant to ask for doggie-to-go-bags (they reported that there were not enough leftovers, and surprisingly almost half of them felt too embarrassed to ask the waiters to pack their extra food).

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