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Leveraging Religion to Reduce Food Waste: Examining Food Waste Through the Lens of Islam and Arab Hospitality

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Abstract: Food waste is a real environmental challenge worldwide. It is a major sin in Islam; yet it is ubiquitous in Muslim society, a society where the majority of people say that Islam is critical in their life. Ingrained in moral aspects of overconsumption, a conundrum this paradox study tries to unravel is why plate waste is prevalent in the Arab Muslim society, despite the teaching of the Quran [Muslim's holy book] and Sunna [teaching and acts of prophet Muhammad] against wanton waste. The influence of religiosity on environmental concern and intentions to reduce food waste in Islam and Christianity has been widely examined. However, our understanding of why religious people waste food remains limited. This serendipitous qualitative inquiry is the first to examine food waste from the nexus triad -food waste, hospitality, and religion, and comprehensively. Findings suggest that the conception of contemporary Arab hospitality, entrenched in Karam/generosity, and entangled with the interpretation of sin and God's mercy, is a major contributing factor to plate waste perpetuation. The gravity of food waste warrants a new conceptualization of Arab generosity. Suggestions for plate waste prevention in this cultural context, grounded in the interviews and the Quran, are presented.

Keywords: food waste; hospitality; religion; sustainability; Islam; sin

1. Introduction

About 40% of total global food is lost or wasted annually (Tutundjan and Maroun 2023). The Food and Agriculture Organization of the United Nations (FAO 2011) defines food waste "as food that is fit for human consumption but has been removed from the food supply chain, either by choice or because it has spoiled or expired (UNEP 2022, p. 10-11). In 2015, the United Nations General Assembly adopted a set of Sustainable Development Goals (SDGs). SDG 12 calls for halving per capita global food at the retail and household levels and reducing food loss along the supply chains by 2030.

Food waste in tourism is a significant issue, especially in the hospitality sector, where large amounts of food are often prepared but not consumed (e.g., Pirani and Arafat, 2016; Sakaguchi and Potts, 2018; Filimonau and De Coteau, 2019; Silvennoinen, 2019; Thomas et al., 2020; UNEP, 2021; Filimonau et al., 2023). Food waste in tourism is a critical issue that intersects with environmental sustainability, food security, and economic loss. It exacerbates environmental degradation through increased greenhouse gas emissions from food decomposition in landfills and the unnecessary use of resources in food production. The hospitality industry is a significant contributor to food waste globally, and has become a key concern (e.g., Alsuwaidi et al. 2022; Chen and Wu 2022; MacInness et al. 2022; Zhu et al. 2024). For example, "Restaurants waste one fifth of the food they buy; much is left behind on people's plates" (Dolnicar and Juvan 2019, p. 1).

Food waste and sustainable tourism are closely intertwined, as minimizing food waste is a critical component of promoting sustainability within the tourism sector. Recent sustainable tourism academic studies explore the causes and potential solutions to reduce food waste in the tourism

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sector, generated by food production, consumption, and disposal in tourist destinations (Filimonau and Gherbin 2017).

The food waste literature is well established, however, relatively little is known about plate waste in out-of-home dining (Gössling and Peeters 2015; Juvan et al. 2018; Dolnicar and Juvan 2019), particularly from a cultural perspective (Tutundjan and Maroun 2023; UNEP 2022). Plate waste is generally defined as the quantity of edible portions of food served that is uneaten and is a common reason for food loss at the consumer and foodservice levels (Luu 2020). Food waste is considered an injustice, a human activity causing climate change and associated negative impacts on society and the environment (UNEP, 2021).

Food waste has no frontier (FAO 2021; Baran et al., 2024). It is ubiquitous in the Arab region (UNEP 2021). Yet only a paucity of studies investigated the issue in this culture (Pirani and Arafat 2016; Abiad and Meho 2018; Mattar et al. 2018; Baig et al. 2019; Papargyropoulou et al. 2019; Dhir et al. 2020; Bilali and Ben Hassen 2020). Those focusing on plate waste and consumer behavior in this cultural context are even more scarce (Filimonau et al. 2022; Tutundjian and Maroun 2023).

According to the FAO (2011), the Gulf Cooperation Council (GCC) countries are "among the biggest culprits" of food waste, not only relative to spoiled or leftover food, but also to over-nutrition (cf. obesity) due to over-consumption (UNEP 2022). Serafini and Toti (2016) identified food and drink over-consumption as another type of food waste, leading to obesity. The rate of obesity is also prevalent in the region (World Obesity Atlas 2023). Moreover, the region's limited natural resources and increased dependency on food imports jeopardize its food security, and make the levels of food wasted both uneconomical and environmentally harmful (UNEP 2022). The present study focuses on plate waste at casual-dining restaurants in this region, from the consumer side.

Besides being high on food waste, paradoxically, the GCC countries are also defined as highly religious countries, "where much larger shares of the population, both young and old, say religion is *very* important to them" (Pew Research Center 2024). Minton et al. (2020) sarcastically asked the question, "Is it godly to waste food?" Environmentally conscious behaviors and ethics for environmental responsibility, including compassion are strongly promoted within the Quran. A study by Helfaya et al. (2018) found that 675 verses in 84 chapters throughout the 30 parts of the Quran encompass content relating to the protection of the natural order of the components of the natural world. One factor affecting food waste reduction behavior which has attracted the attention of academics is religiosity, "as the divine religions have strictly forbidden waste" (Baran et al., 2024, p. 1).

Previous studies about the effect of religiosity on food waste, however, have found mixed and contradictory results (Baran et al., 2024), and are predominantly quantitative (Pirani and Arafat, 2016; Silvennoinen et al., 2019). This is because food waste is often measured in terms of volume, weight, and economic loss, which require numerical data collection, such as waste audits, surveys, and statistical analyses. Qualitative studies, on the other hand, are important for understanding the human and organizational dimensions behind food waste (Sakaguchi et al., 2018).

Therefore, the concern of the present study is not whether religiosity predicts or promotes food waste reduction or not. Rather, a conundrum the present study seeks to unravel is why plate waste is prevalent in the Arab Muslim society, despite the teaching of the Quran/ القرآن and the Sunna/ سنة for moderation (I'tidaal/ الاعتدال) and against squandering (Tabtheer/ تبذير) and excess (Issraaf/ إسراف)? The consonance that exists between Islam and moderation (Wasaṭiyyah/ وسطية) in behavior (Kamali 2015) is exemplified in many Quranic verses, such as this one: this one: "And those who, when they spend, are neither wasteful nor stingy, but choose a middle course between that [are righteous]" (Quran, 67:136). Illustrations from the two principle sources of Islamic law (Sharia/ شريعة إسلامية) addressing food waste are plenty (Hallaq 2005). However, for example, while wanton waste is considered a sin in the Islamic tradition, ironically, it is during the month of Ramadan (Abiad and Meho, 2018) and other annual religious festivals, such as the Hajj and Ashoura, that significant amounts of food waste are generated over short periods, both inside and outside the home (UNEP, 2022). Furthermore, the region is also known for its Arab hospitality (Al-diyyafa/ الضيافه), which is an integral part of Islam (Sobh et al. 2013). Arab hospitality, however, has been criticized for its

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excessive generosity (Karam/ الكرم) (e.g., Shryock 2004). The paradoxical discrepancy that exists between being religious, hospitable, and wasting food begs the simple and yet puzzling research question: "why is plate waste prevalent in the Arab Muslim society despite the teaching of Islam against wanton waste?"

Sustainable Development Goal 12 calls for reducing food loss along the supply chains by 2030. Several industry initiatives have been developed to curtail food waste (e.g., Ciulli et al. 2020; Dolnicar 2020; UNEP, 2022), however, no study examined food waste from the nexus triad -food waste, hospitality, and religion, comprehensively. This study contributes to the non-cognitive-based attitudes approach to food waste prevention (Zhu et al., 2024). Findings may mobilize Muslims to act against wanton food injustice and contribute to food waste prevention in this part of the world. Indeed, scholars in the field of religious studies have made strong claims about the potentials of religion in addressing human-induced environmental degradation (Gottlieb 2008; Hitzhusen and Tucker 2013; Posas 2007). This responds to Baran and colleagues' (2024, p. 12) question: "how should policymakers leverage religion [to reduce food waste]?"

2. Study Background and Rationale

2.1. Food Waste

Food waste estimates emanating from households, retail establishments, and the food service industry, totaled 931 million tons each year globally. Nearly 570 million tons of this waste occurs at the household level, with the global average of 74 kg per capita of food wasted each year. Of the food waste generated in 2019, 61% came from households, 26% from food services, and 13% was generated from retail (UNEP 2021).

Food waste results from agricultural production (i.e., wastage of cereals, meat, fruits, vegetables, fish and seafood, milk and eggs, and oil crops), and throughout the supply chain phase, including preparation, post-harvest handling and storage, distribution, food processing, consumption, end-of-life (FAO 2013), deteriorating food quality, visual appearance, low value, unwanted surplus, policy regulations, and consumer preference (Tutundjan and Maroun 2023).

Food waste generation has a plethora of negative effects, including the exploitation of freshwater use, environmental pollution, and over use of natural resources (Martin-Rios et al. 2020). Food waste accounts for 20 percent of global greenhouse emission, and has a direct bearing on climate, water, land, and biodiversity, which is driving hunger and malnutrition around the world (FAO 2013). Food wastage represents a missed opportunity to improve global food security and to meet the demand of an increasing world population (Action Against Hunger 2023). Food waste management can contribute to climate change mitigation, which in turn would have positive effects on natural and societal resources. It can be reduced at global, regional, and national scales, both from the industry and consumer side (UNEP 2021).

2.2. Food Waste in the Arab Region

Food waste in West Asia is estimated at 34%. For example, Bahrain wastes 132kg per capita per year or 216161 tons per year, Oman: 95kg or 4703222 tons; Qatar: 95kg or 267739 tons, Saudi Arabia: 105kg or 932675 tons, and Kuwait: 95kg or 397727 tons per year) (FAO 2011). It is estimated to be around 31% for cereals, 33% for roots and tubers, 29% for oilseeds and pulses, 56% for fruits and vegetables, 23% for meat and poultry, 30% for fish and seafood, and 20% for milk and dairy (FAO 2011). During the fasting month of Ramadan, it is estimated that 30% to 50% of the food prepared in Saudi Arabia is thrown away. In Qatar and UAE that estimate is 25% and 40% respectively. It is ironic that significant food waste is generated during religious celebrations (Abiad and Meho 2018).

To stress the urgency of food waste mitigation in the region, Tutundjian and Maroun (2023) emphasized that the "region is one of the most water-scarce regions in the world with renewable water supplies in most countries falling below the absolute water scarcity level of 500 cubic meters per capita per year. With 70% of its land being dry, climate change effects are accelerating aridity and decreasing the productive capacity of the limited agricultural land by an average of 10%. Today, the

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region imports most of its food with an annual bill exceeding US$33 billion, and the limited local agricultural produce consumes the largest chunk of the region's water supplies" (p. 17). Yet, it is considered a champion in food waste.

2.3. Food Waste in Hospitality

The hospitality industry is a significant contributor to food waste globally. Its contribution to total food waste is estimated at 21% (Dhir et al. 2020). Hospitality waste includes water, energy, and food waste (Alsuwaidi et al. 2022). The literature identified a diversity of topics related to food waste, including food waste quantification, the composition of waste, waste handling, doggy bags, the attitude of consumers, demographic factors, government regulations, interventions, composting, and landfills. With specific reference to restaurants, for example, Dhir et al. (2020) identified several independent variables contributing to food waste generation in hospitality and food service, including, type of ingredients used, dishes served, opening hours, overproduction and food spoilage, inaccurate prediction of customers, policy operations, and poor coordination between various functional departments. Furthermore, food can be wasted during preparation, serving, and consumption. Hence, overproduction, production procedures, food menu, portion sizes are also contributing factors.

Food waste can be researched from several angles, such as prevention/reduction, handling, and stakeholder and managerial perspectives. Food waste research also focuses on stages of food waste generation, food waste generation by type of hospitality establishment, causes of food waste, control practices, and geographical locations (e.g., Reynolds et al. 2019; Kim et al. 2019; Dhir et al. 2020).

The hospitality industry has implemented a few strategies to reduce food waste, such as measuring and monitoring food waste, reducing plate portion sizes, improving inventory management, and donating food surplus to local charities. For example, Reynolds et al. (2019) conducted a review of global academic literature from 2006 to 2017 focusing on food waste prevention interventions at the consumer/consumption stage of the supply chain, and found that, plate size intervention resulted in 57% food waste reduction in hospitality environments. They also concluded that changing nutritional guidelines by promoting healthy diet reduced vegetable waste by up to 28%. Information campaigns was another effective strategy that resulted in up to 28% in food waste reduction. Dolnicar (2020) identified a comprehensive list of intervention approaches involving nudges, including "changing defaults, simplification, leveraging social norms, increasing convenience, disclosure, warnings, pre-commitment strategies, reminders, elicitation of behavioural intentions and providing feedback with information of their past choices and the consequences that have resulted from these choices" (p. 7).

Moreover, studies in hospitality focusing on food waste have tested models comprising attitudinal and environmental factors, such as perceived value of sustainability, environmental awareness concerns, feelings of pride and guilt, and moral norms. They proposed a few behavioral-based strategies to food waste reduction in restaurants (e.g., Luu 2020; Alsuwaidi et al. 2022; Chen and Wu 2022). For Kallbekkens and Soelen (2013), the unwillingness of consumers to get leftovers packaged as a food waste strategy is due to perceived embarrassment associated with social stigma or the feelings of countering social norms (Filminau et al. 2022). MacInnes and colleagues (2022) identified habit as an important driver for food waste. They proposed behavioral interventions to modify bad habits and reinforce the automacity of good ones. Stangherlin and de Barcellos (2018), identified the "good provider identity", a desire to be a good parent, partner or host, associated with affection and abundance" (p. 2374), as an important psycho-social concept that drives food waste. More recently, Zhu et al. (2024) found that respect for authority, as an affective component of attitude, has a positive effect on buffet food waste reduction.

2.4. Religion, Islam and Food Waste

According to Pew Research Center (2024), 84% of the people in the world identify as religious. Religion continues to hold a central place in understanding and predicting human behavior (Albelaiki 1997). Mathras et al. (2016) maintained that an individual's personal commitment to

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comply with the divine rule could affect not only his or her personal social communication, but also the decisions in selecting and consuming products and services.

Religions shape the worldviews and moral attitudes of their adherents and how they approach nature (Watson and Kochore 2012). Koehrsen (2021) explained that the increasing focus on culture and values in research on climate change appears to have encouraged directing attention to religion (Ives and Kidwell 2019). Minton (2020) argued that religion promotes pro-environmental behavior. The nexus between religious issues and sustainability issues is a field of research that has been expanding over the past decade (Helfaya et al. 2018). Religion and food waste are interconnected (Baran et al., 2024). Their study suggests that religiosity promotes food waste reduction and is positively related to consumer attitudes, activism, personal norms, and subjective norms. The study concluded that "religiosity has an impact on the food waste reduction intention of Muslims, whereas no such effect was found for Christians" (p. 10).

Many religious traditions have teachings and practices related to food waste that can influence attitude towards this issue. Some religions appeal to moral or ethical reasons to motivate people to reduce food waste, such as compassion for the poor, care for the creation, or obedience to God's will (Abiad and Meho, 2018). Excerpts from the Quran observe the role of balance in people's eating and drinking behavior, and hence have a direct bearing on food waste. For example, Allah says: "And He enforced the balance. That you exceed not the bounds; but observe the balance strictly, and fall not short thereof" (Quran, 55:7-9). In another verse Allah emphasizes moderate eating, when He says: "Eat and drink but avoid excess" (Quran, 20:81). Also, in his Hadith/ حديث (collection of sayings), Prophet Muhammad cautions people about overindulgence in food consumption and wasting of food. He says, "A human being fills no worse vessel than his stomach. It is sufficient for a human being to eat a few mouthfuls to keep his spine straight. But if he must (fill it), then one third of food, one third for drink and one third for air" (Sunan Ibn Majah 3349, Book 29, Hadith 99). In Islam, food is seen as a blessing from Allah, and wasting it is considering a sin. Deviating from the "right" way (e.g., moderation in consumption) generates environmentally harmful behavior.

3. Method

3.1. Study Area

The GCC includes six oil-rich Arab countries -Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and UAE- connected by numerous cultural, religious, and political similarities (WorldAtlas, 2017) constitute the Khaleeji identity (Alsharekh and Springbord, 2012). The region presents a valid background to study food waste in a context where generosity, religion, and food waste collide (UNEP, 2022; Tutundjan and Maroun, 2023). Moreover, besides the prevalence of food waste, an additional reason to focus on this region is the pervasiveness of obesity, which the Food Ethics Council (2023), considers another form of food waste. According to the metabolic food waste indicator, overnutrition has an impact on the environment, expressed as carbon, water, and land footprint (Serafini and Toti, 2016). Of the 195 countries represented, with 45.36% of adults with obesity Kuwait ranks 10; Qatar ranks 11 (43.76%), Saudi Arabia ranks 16 (41.11%); Bahrain ranks 22 (37.19); UAE ranks 46 (31.55%), and Oman ranks 58 (30.19%) (World Health Organization, 2024).

3.2. Serendipity

My initial research motivation was to examine the antecedents of food waste in this part of the world. However, during my fieldwork, I serendipitously found out that the participants' food waste rhetoric was revolving more around the inconsistent relationship that exists between food waste and Islamic theology; the reason for which I deviated from my first research question to re-orient my research focus on understanding why Muslims are high on food waste despite the religious belief that food waste is antithetical to the teachings of their religion and prophet. To illustrate, one participant says, "people don't question their behavior, although food is considered sacred. I don't think people ask themselves why they do it. They know that it is haram. It is even customary if you find a piece of bread in the street you take it, kiss it, and put it in a 'safe' corner. That's how much

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bread is sacred in our culture. That's all. Many times, I see tables full, plates almost half full or even untouched, I feel hurt and shame. I ask myself why they do that. Walla haram. Is it because they can afford it, they want to show off? They don't care, they are not afraid of Allah?" Being an Arab Muslim myself, I had no a-priori understanding about the whys of plate waste from this research window. My naïve answer would simply relate to what Nieto-Garcia et al (2024) referred to as "consumer hypocrisy", an existing discrepancy between what consumers believe and what they do.

3.3. Projective Technique of Interviewing

People were not comfortable talking about food waste. They would say, "yes, people waste food", "yes, food waste is a big issue in our society", "I do my best not to throw food", or "I know many people don't care. I try not to order many foods". In fact, it has been reported that people who commit ethical or moral transgressions may experience guilt and shame through tension, remorse, or regret, and thus may not be honest about their actions (Tangney, 1995). Authors posited that people tend to underestimate the amount of food they waste, think that they waste less compared to others, and overestimate their efforts to avoid food waste (Pelt et al., 2020). Hence, survey responses for sensitive topics are known to suffer from social desirability bias (Tourangeau and Yan, 2007). In the context of religion, the existence of social desirability bias for sensitive questions has been amply investigated (El-Zoghbi, 2013). To overcome social desirability bias (Furnham, 1986), I used the projective technique of interviewing, by putting the focus on people in general and not on the participants themselves. Derived from psychoanalysis, in particular Sigmund Freud's clinical work on personality and paranoia, the projective technique is an indirect form of questioning that encourages respondents to project their underlying motivations, beliefs, attitudes or feelings regarding the issues of concern. It helps the interviewer "to delve beneath the surface and access consumers' unspoken feelings, perceptions, attitudes and values" (Doherty and Nelson 2010, p. 400). For example, instead of asking "why do you waste food when you dine out?", I asked "why do you think *people* in general, in your country, waste food despite their religious belief in this regard?" This open-ended question was perceived as less personal, not confrontational or emotionally-charged, and thus more approachable.

I then probed for more clarification with questions such as, "where does the habit of ordering more food come from?", "what is this part of culture that tells people to waste food?", "what is the meaning of generosity/Karam in your culture?", "what does Islam say about food waste?" and "how do you think people feel about leaving portions of food in their plates when they dine out?", "why is plate waste customary in the country?".

3.4. Reflexivity

Being a Muslim Arab who lives in Kuwait helped me to build trust and be a conversational partner with the participants, and understand the emic without being obtrusive. The outsider/insider position, or "studying one's own in the Middle East", helped me to "rethink the familiar" (Bolak 1996, p. 107). I am thus reflexively aware of the fact that my analysis is contextually situated, and that the knowledge gained from the interviews is a co-constructed knowledge involving the data I obtained from the participants' words and my reflexive interpretation (Finlay 2002). I conducted all the interviews in English and took notes simultaneously. English is widely spoken and understood in the region.

3.5. Sample

I randomly interviewed 64 Muslim participants (34 males and 30 females) from all socioeconomic and demographic backgrounds in Kuwait, Saudi Arabia, Qatar, and UAE, including students, academics, researchers, people employed in the public and private sector, and retired, aged between 19 and 72 years old. Intercepted participants were screened out based on their religiosity. The most commonly used research questions to assess **religiosity** is: "how important is religion in your life?" (Pew, 2024). Only those who said that religion was very/important in their life were

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interviewed. I conducted unstructured in-depth interviews in Malls, hotels, restaurants, and universities, lasting between 20 and 45 minutes to complete.

I followed the protocol for qualitative interviewing and ethics in qualitative research identified by Creswell (2013). I explained the purpose of my research and gave people the opportunity to participate. After receiving their consent to interview, I stressed the importance of voluntary participation, anonymity, and confidentiality. I interviewed between 12/2/2023 and 19/7/2023 until I achieved "theoretical saturation" (Glaser and Strauss, 1967). 17 participants offered to be re-contacted for more information. Eventually, I used member checking to probe for more elaboration. For validation, I followed up with six participants via WatsApp. Bearing in mind that differences may exist between plate waste and household waste, I clearly informed the participants that the research project was about wasting food at casual-dining restaurants.

3.6. Data Analysis

To assure dependability, I started the transcript analysis with open coding by making constant comparisons for similar concepts, using the participants' own words in the transcript for color-coding emerging thematic patterns (Corbin and Strauss 2008). After that, through inductive reasoning, I went back to the literature aiming to assess and foster fit with appropriate bodies of literature (Corley and Schinoff 2017). The Quran and the Sunna were the two major sources cited by participants. For credibility, I shared the transcript with two colleagues, asking them for a separate reading to confirm, reject, or add themes. The strongest themes explaining the relationship between food waste, hospitality, and religion are captured in-vivo in the findings. They are represented in excessive generosity/karam, minor sin, and God's mercy.

4. Findings And Discussion

4.1. Karam/Generosity as Harbinger of Plate Waste

Karam, which is an outstanding trait of Arab hospitality (Almaney 1981), emerges as a strong factor explaining people's thoughtlessness and irresponsible attitude and behavior towards plate waste. Participants acknowledge that food waste is religiously unacceptable, yet they partake in it automatically and repeatedly, albeit not purposely. For them, it is always customary to order more food than less, to show one's karam towards the guest. Doing otherwise would be violation of a cultural norm. One participant says, "we have to be generous. It's our culture. We grow up with our parents being generous to us. We see how our parents treat their guests and family members. When we grow up we do like them. We like to eat out. We order a lot of food to please everyone. This is how it's in our culture". Karam, for them, is about a culture of showing kindness and care for the guest. One participant explains, "You do even more karam to people you don't know much. You want to please them. This is part of Arab hospitality".

Behind this "intrinsically" motivated generosity hides an "ugly" generosity which is predominantly extrinsically motivated. One participant says, "people, you know, when you invite them, you know they will to talk about the event. You have to show your generosity to them. You order more food, because they will judge you no matter what you give them. So, to be in the safe side of gossip you are always inclined to overorder".

Karam is also about reciprocity. One participant argues, "if I invite you I expect the same treatment. People always want to exceed and to do better than the other. So, if I invite you for dinner, I will do my best to please you by ordering more variety of dishes to show I care. I am responsive to your previous invitation. I always try to exceed. I am generous. We always want to do more and better. It's in our DNA. Honestly, sometimes, it feels like competition. This competition turns into something like showing off. It becomes a pressure on you". Another participant clarifies, "you know, here people gossip a lot. It's a small country and everybody knows everybody or a close friend of that one and a family member of that one. We talk in our diwaniya/gatherings about everything, and we are careful about what we say. So, you want people to say good things about us, or at least not too bad things. People here they want to impress each other". Another one summarizes the culture

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of karam as follows: "we hate being silent. We like to share our experience, even with food. Food is very important in our life. People talk about the taste of the food of this restaurant and that restaurant. They talk about the variety of food, and they share their comments directly or on Instagram or Facebook. They write about it. It's about sharing their experience but also to show off, gossip, and judge". Another one comments, "failure to provide karam means low character and personality weakness. Karam is also about reputation. Reputation is too important in our culture". Indeed, low character and bad reputation are personal characteristics that attract criticism in the Arab culture. Writing about karam in the Arab hospitality, Shryock (2004), explained, "guests, in other words, will make your reputation or break it, so handle them with care. Treat them reverently" (p. 523).

Unfortunately, the karam which is about showing off, reciprocity, judging, gossip, and reputation has transformed virtuous (Islamic) karam -in the Quran, karam is associated with justice and goodness (Quran, 90:100)- into a "frivolous" karam; a karam that is extrinsically-oriented, and hence a harbinger of food waste. Allah orders people to "not squander wastefully" (Quran, 26:103), for 'He does not love the wasteful" (Quran, 141:51). The question that follows is: since Muslims know that food waste is 'sinful/haram', why they continue doing it?

4.2. Food Waste as a Minor Sin

The influence of religion on Muslim consumers was observed across the spectrum of studies (Salam et al. 2019). In all its forms, food waste is deeply unethical (Gjerris and Gaiani 2013) and is considered wrong and ungodly, according to Islamic theology (Sobh et al., 2013; Hassan et al. 2022; Filimonau et al. 2021). Participants are aware of the magnitude of food wasted in the country and its impacts on people and nature. While they do not like wasting food, they also acknowledge, with disarray, that they are, however, active contributors. One participant says, "oh, food waste is a huge problem in my country. everywhere, at home and in restaurants. When you see it, you realize how bad it is, but you see that you do it yourself too. I can't find a straight answer why". Another one says: "sometimes people are ashamed but they still do it. Me too, when I see food left in the plates I ask why? No, wallah [in God's name] it is haram/sinful. We shouldn't waste food like this. It's haram. People know this but they keep ordering more and more and eat less, and most of the time they leave many plates half full. Why? Good question".

The answer is that participants associate wasted food with a sinful act. Unfortunately, they refer to this sinful act as a "minor sin". One participant explains, "of course I know that I should not be doing it but I do. I know that it's wrong, but I still do it. When I think about it, I don't feel good about it. I know that it is kind of haram. Yes, I can even cite you verses from the Quran and Ahadith/teachings from the Prophet (Peace Be Upon Him). You know, we love our Prophet and we want to do good things and what he teaches us, but sometimes, you know, we are humans. Is it 'haram haram?' you see what I mean? Is it really haram with a capital H? We all make mistakes. Well, let's call the sin of leaving food on the plate a 'minor sin'. You know, in Islam we have major sins which we call kaba'irs and minor sins we call them sagha'irs. Most people will tell you that wasting food is a sin but it is small considered a small sin, not like adultery, for example, or killing a person, which are considered major sins". In fact, in Islam, the gravest sins are known as kaba'ir (كبيرة), the most heinous and unforgivable of which is called shirk/ شِركْ (associating others with God -idolatry, polytheism) (Ibn Kathir, 2020).

One participant explains, "in Islam there are major sins and minor sins. For example, let me think, a major sin, for example, is like not doing your prayer, and a minor sin is like not doing your prayer on time, because the prayer should be performed right after the call by the Moathin/the man who calls for prayer from the mosque. You can see many people pray, but many don't stick to prayer time although the Quran say that we should do our five prayers per day on their time. I think this is good example of minor and major sin, I think. We waste food but we can do things more bad than this". Another one clarifies, "people do Ramadan, they fast the whole day, which is a pillar of Islam, but at night they eat too much, too much. One is opposite to the other, I mean fasting and eating too much. They also throw a lot of food during this month because they order or cook a lot more than they need. I think they don't pay attention to it. They don't see it as sinful. Well, let's say it's a small

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sin. What can you say, we fast which is a good act, and we eat a lot or order a lot, which is not so good. When there is leftover we usually just throw it. We are humans and not angels. We are not perfect. We sin. If we do not sin we are angels. Do you agree with me? We are not angels. God created us with free will. So, we believe that minor sins have smaller punishment than major sins". Another participant clarifies, "the word sin in the Quran means violation, let me check on google… I find it: disobeying God. Muslims know what are the seven major sins: associating others with God, witchcraft, killing a soul whom God has forbidden us to kill, consuming orphans' wealth, consuming riba [usury], fleeing from the battlefield, and slandering chaste, innocent women. These have bigger consequences in front of Allah. Do you see the difference now between wasting food or one of these sins? If you go out and leave food on your plate, it is bad, but it's ok, what can I say!"

Furthermore, many participants, however, also mention that repeating the same sin turns that minor sin into a major one. For example, one participant sarcastically and alertly adds, "people also know that if they repeat a small sin it becomes a big one with big punishment. It is in the Quran and Hadith". Therefore, the next question that arises is: how do participants internalize the sin of wasting food when this sin accumulates into a major sin?

4.3. Negotiation of Minor Sin as a Contributor to Food Waste

Participants believe that the accumulation of minor sins or committing the same sinful act repeatedly turns that minor sin into a major one. In fact, The Prophet warns against being negligent with regards to minor sins. He says, "Beware of minor sins, for they accumulate until they doom a man". When answering "why Muslims persist in committing this wrongdoing despite recognizing it as a sinful act that has real potential religious consequences?", participants advance two distinct responses: the first response relates to the power of culture over religion, and the second relates to God's mercy.

4.3.1. Power of Culture

Participants are more worried about the 'cultural sin' than the religious sin associated to plate waste. One participant says, "Allah forgives but people don't forgive. I mean that you must be generous and show that when you invite someone you are kareem/generous. We even name our children Kareem. You don't think about wasted food. You think about what people will say if, God forbids, you are not at the level of their expectations. You want to have leftover food on the plates better than less food because, we have a saying that says 'people eat with their eyes'". One participant explains, "if people want to see haram they can. If they don't want to see haram, they don't see haram, you understand? They can skip haram when it suits their purpose. It's like people know it's haram. Allah does not like what they are doing but they do it anyway, because it's like they are more afraid about what people will say about them but they are not afraid from Allah. They don't feel guilty from a religious side. They care more about what people will say about them and how they see their reputation. If people say it's bad to throw food they feel guilty. They don't feel guilty from religion. It's like they manipulate religion. It's like they make the guilt small in front of Allah, but it's a big sin in front of the people if you don't offer them Karam they expect. In our culture all is about expectations and norms. It's like saying that people value excess. You know in our culture, more is always better than less. It's better to order more. It's better that the plate is full better than an empty plate".

Thus, when negotiating the severity of the sin of wasting food, participants put less weight on religion and more weight on culture. On the other hand, as I will explain below, when they think about food waste and religion, they cushion the act of wasting food by focusing on God's mercy.

4.3.2. God's Mercy

Participants believe that the sin of plate waste will be washed out through repentance (tawba/ توبة) and subsequently God's mercy (rahma/ رحمة). One participant explains, "Allah is forgiving. We sin. Allah knows all sins, but Allah is forgiving. We ask forgiveness always during our prayers".

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Another one says, "look, everyone is religious to a certain extent, but when it comes to certain sins, people become lenient. Think about this, we go to Hajj/ حَجّ (pilgrimage to Macca) to repent a lifetime of sins. Because people believe that Hajj takes away all your sins. People believe, when you do Hajj, you are as pure as a baby or a newborn. Actually, you are re-born, there are no sins written on you. It sounds funny. It is kind of it's ok to sin, and you can repent and go to Hajj to wash it away or do good deeds or repent. Some believe that they can do Omra/visit Macca many times and ask for forgiveness, again and again, because they say God gives them the opportunity to repent. It's just like saying without sin there is no repentance or forgiveness. You become pure. What I will say can shock you, God forgive me, but some people they see it as an invitation to sin. We say, 'you can sin, but good deeds will delete your sins. It is about balance between Hassanat/ حَسَنَة (good deeds) and Sayi'at/ سيئة (bad deeds/actions). More Hassanat means less Sayi'at on you. So, your positive balance of judgement, this sounds like economics or trade, I am joking, must be higher with Hassanat".

Participants take their argumentation from the Quran, and many of them were even able to spontaneously recite from the Quran, "Allah does not commit an atom's weight of injustice; and if there is a good deed, He doubles it, and gives from His Presence a sublime compensation" (Quran, 40: 29). One participant concludes, "Allah is most merciful and most forgiving. Yes, He is. Yes, Allah is merciful. Maybe people take advantage of this when it come to minor sins like wasting food".

In fact, the Quran contains 114 Sourats (chapters). Chapter 40 is titled "Forgiver/Ghafir". Every Sourat in the Quran, except one, starts with: "In the name of Allah, the most Beneficent, the most Merciful". The one chapter which does not start with this opening is called Surat Al-Tawba/The Repentance. This Quranic text structure strongly stresses the relationship between God's forgiveness and repentance. Furthermore, Muslims pray five times per day. At each prayer, they recite verses from the Quran. Each recitation is preceded by the same opening: "In the name of Allah, the most Beneficent, the most Merciful (Bismi Allah AlRahman AlRahim/بسم الله الرحمن الرحيم ". Muslims, thus, strongly believe that repentance washes away their minor sins. They are "sinners in the hands of a Merciful God". Ironically, it is this negotiation of sin and God's forgiveness and mercy that perpetuates their inhospitable behavior towards plate waste.

5. Conclusions

According to Lewis (2000), paradox "denotes contradictory yet inter-related elements -elements that seem logical in isolation but absurd and irrational when appearing simultaneously" (p. 760). Contemporary Arab hospitality is inherently paradoxical. It is a virtue, yet its excessive generosity is mired in food waste, which is perceived by Islam as an ungodly act. In fact, food wastage is "considered abhorrent within [all] faith traditions" (Yoreh and Scharper, 2020, p. 55). The interviews revealed that plate waste is perpetuated through a combination of cultural and religious factors. Manifestly, three overarching and interrelated propositions explain the perpetuation of plate waste in the Arab Muslim culture: (a) the extrinsic orientation of karam/generosity, (b) the interpretation of plate waste as a minor sin, and (c) abrogation of minor sin through repentance and God's mercy.

Participants acknowledge that food waste is religiously wrong, but concede that it is culturally tolerable. In this culture, it is always customary to order more food than less when dining out, to indulge and to show one's hospitality towards the guest. Accordingly, an infringement of this generosity would be violation of a sensitive cultural norm -karam, which is akin to Arab hospitality. This infringement is associated with the perceived embarrassment related to the social stigma of stinginess, and to the failure of reciprocal karam. This hospitality, which is customary, is extrinsically oriented, socially contagious, and environmentally careless. It is, thus, paradoxical that, in relation to generosity, Arab hospitality is indeed inhospitable towards food; a statement that runs contrary to one's expectations, especially in a Muslim society where religion is clear about wasting God's resources, and where Muslims say that Islam is very important in their life. In Islamic theology, a generosity that prompts food waste through over-ordering or over-eating is manifestly a sin and not a virtue (Quran, 2023).

The incongruous use of karam is also negotiated through the interpretation of sin. Participants are more concerned about gossip and less about God's justice. They perceive food waste as a minor

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sin, which they think, can be washed out through repentance. They use the act of atoning (for wasting food) by seeking God's forgiveness, believing that this atonement would cushion their 'minor' sin. They also believe that repetition of a minor sin accumulates into a major sin, which is more difficult to repent (Ibn Khatir, 2020). Regardless of the sin's gravity, they are still convinced that it will be abrogated through daily repentance and/or a visit to Macca, and God's Mercy.

Thus, it becomes clear that ignoring or oversimplifying the complex relationship that exists between Arab hospitality, religion (i.e., sin, repentance, mercy, forgiveness), and plate waste, not only fosters food waste but also distorts our understanding of generosity in Islam.

6. Recommendations

Baran et al. (2024, p. 11) ask: "How should policymakers leverage religiosity?" In the present study, participants emphatically believe that wasting food is a sin but continue partaking in it because of their one-sided thinking about sin and God's mercy. Therefore, a proper understanding of generosity, a balanced interpretation of sin, and an honest belief in repentance and God's mercy may rectify this one-sidedness, which, in turn, may help in overcoming the cultural mis-dictates of contemporary Arab hospitality and foster plate waste prevention in this culture. Accordingly, the promotion of "green karam/generosity" with a critical emphasis on God's punishment for transgressors are proposed as two affective remedies for plate waste. Zhu et al. (2024) explained that people from highly collectivistic cultures experience stronger empathic emotions compared to people from individualistic cultures. They suggested that affective components of attitudes have the potential to trigger positive change towards the environment via feeling and emotion. So, what is green karam and how can it be promoted?

6.1. Green Karam/Generosity

Collett and Morrissey (2007) noticed a considerable lag in investigating the consequences of generosity, arguing that the benefits of generosity "are more assumed than demonstrated" (p. 30). Indeed, wasting food is a sinful and hostile conduct that has nothing to do with Islamic generosity. The present study calls for the need to discredit the karam that results in wasteful behaviors and encourage that which promotes prosocial behaviors, towards an environment-friendly karam: a green karam.

In the midst of today's climate change and resulting environmental disasters, there is a need to promote a karam that reflects altruism rather than egoism -an intrinsically-motivated karam. Arab Muslims need to deflect from a culture-based competitive karam that revolves around reciprocal excess and showing off -an extrinsically-motivated karam, and re-embrace the karam of the Quran and Sunna: a virtuous and responsible karam, conditioned on sustainable practices based on the principles of moderation and nature stewardship. Ibn Kathir (2020, p. 2822) explained, "Allah enjoins moderation in living. He condemns miserliness and forbids extravagance".

There is also a need to redefine karam with an extension to nature. According to the Quran, environmental conservation is a religious duty as well as social obligation. Allah says, **"And do good as Allah has been good to you. And do not seek to cause corruption in the earth. Allah does not love the corrupters" (Surat Al Qasas 28:77). He also says,** "And do no mischief on the earth after it has been set in order: that will be best for you, if ye have Faith" (Surat Al A'raf, 'the Heights', verse 85). Protection of the environment is essential to Islamic beliefs and mankind has the responsibility to ensure safe custody of the environment. Food wasters are sinners against people and nature.

6.2. Sinners in the Hands of an Angry God

Food waste hurts nature and people (Action Against Hunger 2023). It must be considered a grave sin. Humans may seek divine forgiveness for an action they see as a moral transgression that is sinful. Participants perceive plate waste as a sinful act, but seek forgiveness from a God they perceive as Merciful. Ironically, it is this notion of forgiveness that comforts the sinners in their perpetuation of plate waste. Allah is, however, "Forgiver of sins, Accepter of repentance, [but also]

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Severe in punishment" (Quran, 3: 178). Wasting food reflects an ironic situation in which the individual is less likely to engage in ethics-relevant cognition due to the focus on God's forgiveness while overlooking the notion of His punishment.

Studies have shown that religion can help people develop healthy habits, regulate their behaviors, and understand their emotions (Haluza-Delay 2014). In a society where religion is very important in people's life, leveraging religion to change behavior towards plate waste becomes a reasonable option. One way to leverage religion to benefit plate waste prevention is to embark on a prevention-promotion campaign framed in messages that echo God's punishment, so that sinners (i.e., food wasters) do not take God's mercy for granted. Indeed, God says, "And cooperate with one another in virtuous conduct and conscience, and do not cooperate with one another in sin and hostility. And fear Allah. Allah is severe in punishment" (Quran, 2, p: 37). God's anger is totally absent in all the interviews. Yet, Allah also says, "Eat of the good things We have provided for you, but do not be excessive therein, lest My wrath descends upon you. He upon whom My wrath descends has fallen (Quran, 81: 117). Similar Quranic verses and Hadiths should strongly and unequivocally reach the consumers' psyche through communications at home, in the school, and inside the mosque. Religious communities, consumer advocacy groups, and policymakers desiring to prevent plate waste can take actions against inhospitable karam and sinners' biased interpretation of sin.

Since the notion of God's Mercy is widespread but verily not effective in preventing plate waste, as plate waste is ubiquitous in the Arab Muslim society (UNEP, 2022), to spread environmental awareness for prevention, social marketing campaigns may be framed in proscriptive morality, where the message is condemnatory and strict rather than commendatory and not strict (Janoff-Bulman et al., 2024). The prescribed communication mood and tone for plate waste prevention, in this cultural and religious context, could stress God's anger and punishment: a communication that invites consumers to reflect on their interpretation of sin in relation to a just God -merciful and punitive. They should awaken to the fact that they are also "Sinners in the hands of an Angry God" (Jonathan Edwards, 1741). Edwards' sermon arises as an example. Edwards hoped to awaken sinners to the terrible fate that awaited them, emphasizing God's wrath upon them after death to a very real hell. His sermon was impactful, indeed (Marsden 2004). Social marketing awareness campaigns and sermons with a fear mode and tone (emotional appeal) depicting the relationship between plate waste, green karam, and God's anger (i.e., advertisements emphasizing the bad consequences of food waste on nature, people, and sinners, substantively and rhetorically with vivid imagery and metaphors from the Quran, culture, and nature), may be more persuasive than those built on hope and mercy in reshaping people's behaviors towards plate waste. These propositions may be tested in future research using quasi-experimental research (see Zhu et al., 2024). The present study may also be replicated in other religious contexts to benefit plate waste prevention through religion.

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