

# Restaurants Patrons Motives & Reaction towards their Plate Leftovers

*Based on qualitative study with 120 respondents from Saudi Arabia. We found that religious beliefs are strongly related to Food waste behavior in Saudi Arabia. Living in a highly religious area related to lower tendency to abandon meal remains. Saudis are self-motivated to take their plate leftovers when eating in a restaurant. This eco-friendly behavior of Saudis has no relationship to environmental awareness. Unexpectedly, Saudis do not leave food remains because they believe all food is a gift from god, thus, food waste is forbidden because of religious custom. These findings revealed that religious custom have a positive impact on individuals' behavior towards food waste, even in the absence of the environmental awareness. These insights may benefit the goal number twelve of the UN's SDGs, which is Reasonable Consumption, especially in the religious communities. The findings of this study revealed that, most Saudis behave like green consumers without environmental knowledge, despite the absence of environmental awareness; Saudis were self-motivated to take their leftovers when eating in a restaurant. After analyzing responses' frequency, three core themes of patterns' was emerged. Based on those themes, we created three new categories of intrinsic motives of taking out plate leftovers as-to-go basis based on study participants prospective. The new categories of motives are illustrated below:*

- Religion-Related-Motive, which refers to any responses that carry in its content a religious motives that encourages a restaurant customer to take his/her plate leftovers when eating in a restaurant; we classified it as (RRM).*
- Secular-Related-Motive, which refers to any responses that carry in its content a secular motives that encourages a restaurant customer to take his/her plate leftovers when eating in a restaurant; we classified it as (SRM).*
- Environmental-Related-Motive, which refers to any responses that carry in its content an environmental motives that encourages a restaurant customer to take his/her plate leftovers when eating in a restaurant, we classified it as (ERM).*

**Keywords:** *Plate Leftovers, Self-Motivated, Intrinsic-Motives, Religion-Related-Motives, Secular-Related-Motives and Environmental-Related-Motives*

## Introduction

Food waste is a global problem that threatens the environment and disrupts efforts to achieve sustainability (O'Neill, 2019). In 2015, the United Nations has announced the intuitive of Sustainability Development Goals (SDGs). In purpose of guiding governments, businesses, and nations to cope with the escalating threats and challenges (Sachs, 2012), such as climate change (Budyko & Miller, 1974). This initiative made of 17 goals and 169 targets. One of which is combating food waste. One third of human food gets wasted,

resulting in 1.3 billion tons of garbage. Under Developing countries generate about 630 million tons of food leftovers, whereas developed nations handle 670 million tons of food remains (FAO, 2011). For instance, in 2014, the restaurants' sector In the United Sated handled 40 billion tons of leftovers (Makani, 2016).

Plate waste in restaurants industry (Massow & McAdams, 2015) is one of the biggest challenges that hinder the stakeholders in hospitality sector from achieving sustainability. Because of restaurants' sector waste (Jones & Comfort, 2016) tourist's meal remains in the restaurant industry harm several parties. Further, few grams of customer leftovers can cause a negative impact on the climate that exceeds the Butterfly Effect (Lorenz, 2000). To explain, the accumulated meal remains that generated by restaurant patrons worldwide can create human made mountains of leftovers. In 2019 tourism sector worldwide hosted 1.5 billion international tourists (UNWTO, 2020) On this occasion, if each tourist leaves a hundred grams of meal remains. This behavior will generate 150 million tons of food trash. The enormous numbers of tourists worldwide explain why hospitality sector is the dominant source of waste. Getting rid of this massive amount of wasted food involves billions of dollars and millions of working hours.

Assuming food trash disposal process cost a hundred dollars per ton, it will cost 11-digit bill (15 billion dollars). Leftover's disposal occupies a gigantic area of ground that used as landfills. And thousands of diesel-fueled machineries besides millions of workers, thus there is no wonder if food waste management cost 11-digits bill previous estimation based on 90 grams of food waste per plate instead of 100 grams. 1.5 billion dollars will drop from the aforementioned bill amount. As mentioned in above estimation, only 10 grams reductions in plate waste saved 1.5 billion dollar. Thus, taking out plate leftovers after eating in a restaurant is representing positive behavior towards both environment and economics. In short, if each customer in the restaurant industry carried out their plate leftovers in volunteer manner. This kind of behavior could be a revolution solution for combating food waste because it may lead to zero food waste, zero operational cost, and zero labored efforts. To best of my knowledge, no study has focused on internal triggers that motivates some customers to not abandon meal remain when eating in a restaurant. Therefore, the study aim was to gain an initial idea of why some restaurant customers in the Saudi Arabia context are self-motivated, to take out their plate leftovers.

## Literature Review

### *Food Waste*

Food waste generation can happen by accident or intention. If food got damaged during processing phase, before reaching the end consumer, called food losses. Food is vulnerable therefore, can be loss during storage, harvest,

packaging and. Food produced for human consumption thus, it should eat. Any remains of uneaten meal or any type of thrown food, under any circumstances, called food waste Food waste causes losses for economic and causes negative effects for environment (FAO, 2011). Food remains in most cases, especially in less developed provinces gets deposit into a food landfill. For this reason, food landfills are a weighty environmental concern. Further, food landfill is very attractive habitat for microbes, insects and pests. When food remains decomposes generates greenhouse gas. Any gas produces thermal emission to the climate called; greenhouse (Ramanathan, V.,1988) gas and the methane are one of them. Because of its thermal emission, the methane is a major contributor to global warming phenomenon. Besides global warming episode, food waste associated with another international issue such as Hunger, damage of biodiversity, water loss, and soil degradation (Tscharntke et al., 2012).

### *Plate Waste*

Plate leftovers refer to served food ‘remains’. Food remains of an uneaten meal by customer, also known as leftovers (Lorenz & Klink, 2018). Restaurant patrons are the dominant generator of restaurant-related waste in the restaurants industry (Tatano et al., 2017). A minor reduction in plate leftovers not only saves millions of dollars. But also reduces greenhouse gas emissions that emitted from landfills. Plate leftovers of a customer have no remarkable effect, but a sum of plates leftovers of billion customers can make serious disaster to both environment and economic. Further, the aforementioned calculation of food waste management bill is not fictitious, it represents a close example of an actual cost that spent annum on leftovers disposal. However, customers who are self-motivated to carry-out their plate leftover in volunteer manner. In somehow, they are offering a complimentary solution not only for the business owners in hospitality sector but also for other entities that are combating plate waste as well, such as hospitals and schools.

Identifying the intrinsic drivers of self-motivated customers who have a habit to take out their plate leftovers as-to-go basis is an important factor for developing tangible solution. The interpretations of restaurant customers who often leave no food leftovers may hold usable content. That can used as a nudging tool (Lehner & Heiskanen, 2016) for transforming unmotivated customers to become self-motivated, same as their peers. Yet the Intrinsic Motivations (Deci & Ryan,2010) that lead to positive reaction toward plate leftover are ambiguous. The vast majority of the work in this area has purposed solutions to combat plate waste (Wansink and Van, 2013) that depends on external factors for behavior change interventions (Ajzen & Fishbein, 2005). For instance reducing food options, changing buffet arrangement, adjusting plate size, offering gift card (Dolnicar & Grün, 2020).

## *Potential Solutions*

To date no study has looked at customer's "freewill" or "personal autonomy" (Buss & Westlund, 2002) as a potential solution for combating plate waste. Humans are social creatures by nature and imitate each other in everything. Therefore, revealing the internal motivations that make some of the restaurant customers self-motivated to carry their leftovers, could be exploited in creating an influential content when using Nudge-based behavior intervention (Torma & Thøgersen, 2018). Further intrinsic triggers that drive self-motivated patrons could be used as Nudge tool to influence unmotivated customers. In other meaning, in most cases human entities who belong to same culture share similar mindset. Therefore internal stimuli that drive patron X to react towards plate leftovers in a positive manner, if known it can be used to nudge patron Y to be positive too, especially if both are afflicted to same ethnic group. Through this exploratory study, we explored why some restaurant patrons are self-motivated to takeout plate leftovers as-to-go in the Saudi Arabia context. We would encourage researchers from other culture to examine the Minute Survey that presented in this study in their own language, for extracting the internal motivation that drives some patrons to carry out meal remains. Exposing internal drivers' that causes some of restaurant customer's not leaving food remains behind. It may help stakeholders in restaurant industry find an effective solution that can convert the behavior of those customers who are unmotivated to become self-motivated like their peers.

## **Methods**

### *Research Method*

In this exploratory study (Stebbins, 2001) I used qualitative techniques to analyze (Taylor et al., 2015) why some restaurant customers are self-motivated to take out their plate leftovers As-to-go in volunteer manner. This study was done in the Saudi Arabian Context. The data were collected through an online questionnaire in the form of an open-ended question, and data were analyzed using the Grounded Theory approach (Strauss & Corbin, 1997).

### *Target Population*

All study participants were selected from the Saudi Arabian context, which referred to The Kingdom of Saudi Arabia (Long, 1998). Muslim-Arab Country located in Middle East. The Citizens population of Saudi Arabia are about 20.8 million people (Statista, 2021), distributed over 13 administrative regions. Saudi citizens represent about 63 percent of the total population of Saudi Arabia. Saudi Arabia people also called Saudis are Native-Arabs (Akers, 2007). The cultural setting in Saudi Arabia is Islamic, traditional, and family oriented (Vassiliev A, 2013).

## 1 *Snowball Sampling*

2  
3 The population of this study was selected by using the non-Probability  
4 sampling (Schillewaert, et al., 1998) technique. Non-probability sampling  
5 approach is commonly used in qualitative and exploratory research. In these  
6 kinds of research, the aim is not to examine a hypothesis but to explore an  
7 initial idea about a certain phenomenon that occurs in a certain  
8 population (Ritchie & Elam, 2013). the aim of this study is to get an initial  
9 idea about the intrinsic motivation that pokes some restaurants customers  
10 to carry-out their meal remain voluntarily.

11 In purpose of reaching participants from Saudi Arabia, Snowball-Sampling  
12 technique (Goodman, 1961) was used in this study. Snowball sampling also  
13 known as chain-referral sampling, which is a type of non-probability sampling  
14 methods. This technique often used by researchers to reach samples that have  
15 particular characteristic. Snowball sampling technique works when initial  
16 participants from the target population nominate or invite their peers to  
17 participate in the study.

## 18 19 *Alternative Instrument to Collect Qualitative Data*

20  
21 I was intended to use in-depth interview technique (Boyce & Neale, 2006)  
22 because it is known as an appropriate tool for conducting qualitative research  
23 such as thematic Analysis method (Clarke & Victoria, 2006).However, I was  
24 unable to do so because the period in which I wrote this paper corresponded to  
25 the national lockdown period in Saudi Arabia due to Covid-19 pandemic.  
26 Despite the circumstances that the world is suffering from due to the  
27 Coronavirus outbreak, I didn't give up and I decided to move forward to end  
28 what we have started. As a result, I created an Open-ended question that  
29 inspired by Socratic Method of Questioning (Carey & Mullan, 2004).

## 30 31 *The Socratic Method*

32  
33 Socratic Method or The Socrates style of questioning refers to the ancient  
34 Greek philosopher "Socrates" his method is considered as one of best methods  
35 to extract sensitive information such as opinion, belief and perspective  
36 (Padesky, 1993).This approach it's heavily used by judges and lowers to get an  
37 explicit statement from witnesses or mockers during the trial to extract  
38 important information like alibies and motives. Due to the usage of Socratic's  
39 technique for extracting Sensitive information such as beliefs, opinions,  
40 perspectives and taste. I was able to extract meaningful words that fit the  
41 grounded theory method of analysis.

42 The first section of the online questionnaire contained a Multiple-Choice  
43 Question and an Open-Ended Socratic Question as follows.

44  
45 Q1) When you eat in a restaurant and there's food remains in your plate?  
46 (Multiple- Choice)

- I TAKE IT
- I LEAVE IT

Q2) Explain to us why did you choose the previous answer? (Socratic Style)

The second section of the online questionnaire contains demographic information; includes age group, gender, education level and nationalities all were (Multiple-Choice) except nationality was (Short answer).

What makes this online questionnaire unique is that it is an effective tool for extracting meaningful words in less than a minute. In other words, by using this questionnaire, researchers can extract valid statement that fit the qualitative analysis methods. Before I claimed this, I examined the same questionnaire content in three different versions by using three different languages; Arabic, Korean and English. Then I ran a pilot test to measure the effectiveness of the questionnaire. The results of the pilot tests were very satisfactory because they contain deep and meaningful responses that can be analyzed according to the Grounded theory method.

#### *Advantages of Open-ended Question*

The Method of opened-ended questions is a style of questioning that does not provide respondents with a predetermined set of response options, instead of enabling the respondents to provide responses in their own expression. Furthermore, Open-ended questions approach is usually used in exploratory studies and qualitative research methods (Geer, 1988). Exploratory studies that rely on open-ended questions help researchers to take a panoramic and comprehensive look at the phenomena being studied. Using open-ended question can successfully extract meaningful perspectives. That never revealed by different methods of surveying such as close-ended or multiple choices questions (Reja & Hlebec, 2003). Throughout open-ended question technique we were able to unveil insightful statements that never be revealed with the predetermined set of responses. In short, due to open-ended question approach, the study participants not only were able to express freely their sentiments, thoughts, perspectives and opinions but also, they were able to submit meaningful responses within a minute or less. The variety of qualitative data that was collected in this study would be impossible to get with a mandatory-choice or closed-question questionnaire.

#### *Advantages of the Minute Survey*

In recent years, many researchers have become increasingly relying on the internet-based survey as a research method because of its effectiveness in reducing cost, time and effort (Benfield & Szlemko, 2006). Similar to other research methods, online survey has some disadvantages, for example, Survey fraud which refers to unethical practices such as faking responses or

responding randomly. Further, several recent studies have confirmed that the larger number of questions on the internet-based survey leads to several disadvantages. For instance, escaping the survey before completing the answers or filling out the questionnaire blanks randomly. This type of behavior causes significant deficiency to the data quality and credibility (Galesic & Bosnjak, 2009). To avoid these kinds of flaws, we constructed for this study an electronic survey that contains of two questions (Multiple-choice & open-ended) that can filled in one minute or less. Several researchers have relied one the minute survey technique in various fields of research. For example, the minute survey has been used to assess patient's satisfaction (Alemi, Farrokh, et al., 2008), also it also used in popular study named "Measuring personality in one minute or less" to measure The Big Five Personality Traits (Rammstedt & John, 2007) and last it was used by the United Nation to get the opinions of the global community to address the future challenges "Take a one minute survey and voice for United Nations 75th Anniversary" (UN, 2020). In short, internet-based questionnaire is a helpful tool that permits researchers to extract meaningful responses in a glance. The questionnaire shown above is an effective way to elicit internal motivation, and its effectiveness could be tested in same languages or byond.

#### *Pilot-tests Results of the Minute Survey*

Before relaying on the minute survey as a data collection instrument, We ran several pilot tests to examine the questionnaire credibility in three different versions by using three different languages; Arabic, Korean and English. I only changed the language setting with no change in questionnaire contents nor structure. Arabic version N= 40 (F=36 & M=4) , Korean version N=41 (F=18 & M=23) and English version N=11 (F=8 & M=3)The pilot-tests participants' were diverse in nationality those who responded on Arabic version were from Saudi Arabia , Korean version were from South Korea and English version were from United States and United Kingdom. The results were very satisfactory because it was clear and understood to get the full point of the given statement.

Thus, it was valid for conducting qualitative analysis. In other words, it contained deep and meaningful responses that can be analyzed according to the thematic analysis method. The results emphasize that the questionnaire is not only valid and reliable instrument for extracting meaningful perspectives but also it was convenient and safe tool for both parties participants and author specially in Covid-19 era. To sum up, the minute survey was trustworthy in three languages. Therefore, it has the potential for success if it is tested in the same languages or even other languages.

**Table 1. Authentic Examples of Responses**

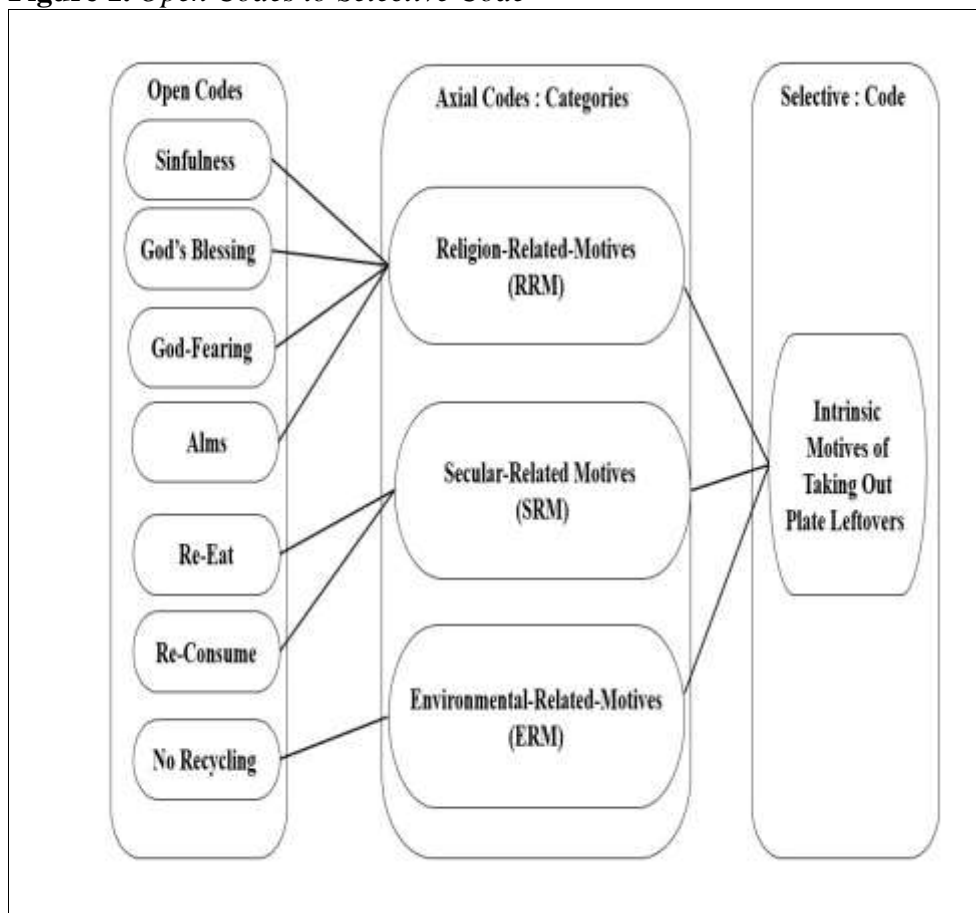
Arabic Version	Korean Version	English Version
Text In Arabic (as is) "اخذہ لان في المطاعم يرموه وهذا حرام هذه نعمه ربنا انا اخذه اتصدق فيه او ناكله في وقت ثاني"	Text in Korean (as is) "남은 음식을 버리는 것은 낭비(환경 파괴)라고 생각하기 때문에"	Text in English (as is) "I like to have the leftovers for another meal"
Translated in English I Take it because in restaurants they throw it away, and this act is sinful because Food is God's blessings. I take in purpose of almsgiving or eat it on other time	Translated In English Because we think that throwing away food leftover is a waste (destruction of the environment)	Not Applicable

### Data Analysis Method

Data was analyzed by using the Grounded Theory (Glaser & Strauss, 1967) approach. The data analyzed based on the answers of the participants who reported that they were taking the leftovers of their meal, all the answers that did not carry an understandable meaning removed besides the answers of the participants who reported that they leave their leftovers, as this study concerned with revealing the intrinsic motivations of self-motivated customers who carry-out their leftovers as-to-go when eating in a Restaurant. After applying the aforementioned conditions, I did the process of analysis in two phases of procedures based on the participants' responses that choose "I TAKE IT". In the first stage of analysis, I analyzed the respondents' answers to the open-ended question using methods of constant comparison, keywords-in-context, word count, classical content analysis, taxonomic analysis, and componential analysis (Onwuegbuzie & Leech, 2007). All of which are integral techniques of the Grounded theory method of analysis. All textual data were coded manually and common themes and new categories created. Because of the adoption of the open-ended Socratic question, the study participants conveyed clearly their intrinsic motives in their own words; strengthen the credibility and the validity of the exploration.

The Second step of analysis involved reconfirmation and reverification of the first procedure of analysis. All textual data including the new classification of the Intrinsic Motives were cross-checked by five Arabic-Native volunteers. All Textual data including new categories of the Intrinsic Motives were all verified in the second phase of analysis to ensure credibility and conformability of the analysis process.



**Figure 1.** *Open Codes to Selective Code*

In early stage before identifying open, axial codes, I read all textual data of the 120 respondents' case by case, for several times in purpose of Data Familiarization (Blanche & Kelly, 2006) through the intensive reading I extracted seven keywords (open codes in Figure1) that frequently appeared as a themes in each case of the 120 cases. The following section shows an example of open codes appearance in full-text.

1. Sinfulness "I take my leftovers because leaving food remains is sinful act" these kinds of statements were classified under RRM because the justification of taking-out leftovers carries with it a religious related keyword (Sinfulness).
2. God's Blessing "I take my leftovers to maintain the God's blessing" (refer to food) these kinds of statements were classified under RRM because the justification of taking-out leftovers carries with it a religious related keyword (God's Blessings).
3. God-Fearing "I take my leftovers because of God-Fearing" these kinds of statements were classified under RRM because the justification of taking-out leftovers carries with it a religious related keyword (God-Fearing)

4. Alms "I take my leftovers in purpose of almsgiving" these kinds of statements were classified under RRM because the justification of taking-out leftovers carries with it a religious related keyword (alms).
5. Re-Eat "I take my leftovers to re-eating it on dinner" these kinds of statements were classified under SRM because the justification of taking-out leftovers carries with it a secular related keyword (Re-Eat).
6. Re-Consume "I take my leftovers to freezing it and re-consume it on another day" these kinds of statements were classified under SRM because the justification of taking-out leftovers carries with it a secular related keyword (Re-Consume).
7. No Recycling "I take my leftovers because nobody recycles it into fertilizer" these kinds of statements were classified under ERM because the justification of taking-out leftovers carries with it an environmental related keyword (Recycling).

**Table 2.** *Open, Axial, Selective Codes Definitions'*

Word	Description	Source
Motive	A reason for doing something, especially one that is hidden or not obvious	Oxford Dictionary
Alms	Money ,food, or other donations given to the poor or needy; anything given as charity	Dictionary.com
God-fearing	Someone who is God-fearing is religious and tries to live in the way they believe God would wish them to	Cambridge dictionary
Sinfulness	Behavior that is against the rules of a religion	Cambridge Dictionary
God's Blessing	A favor or gift bestowed by God	Dictionary.com
Secular	Denoting attitudes, activities, or other things that have no religious or spiritual basis	Oxford dictionary
Religious	Pertaining to or connected with a monastic or religious order	Dictionary.com
Environmental	aims to improve or protect the natural environment	Oxford dictionary
Author's Definitions		
Religion-Related-Motives (RRM)	Refer to attitudes, activities, or other behaviours that have religious basis	
Secular-Related-Motives (SRM)	Refer to attitudes, activities, or other behaviours that have no religious basis	
Environmental-Related-Motives (ERM)	Refer to attitudes, activities, or other behaviours that have environmental basis	

## Findings

Based on textual data was collected from Saudi participants' N=120 (Male =71, Female=49). Results showed that there were seven semantic words appeared frequently in all cases. Through these themes of patterns, we created three major categories of intrinsic motives: Religious-Related-Motives (RRM), Secular-Related-Motives (SRM) and Environmental-Related-Motives (ERM). The following examples show how the seven semantic words appeared in full sentence.

1. Throwing food is a sinful act that forbidden by God (RRM)
2. Food remains are one of God's blessing thus I must maintain it (RRM)
3. Because of God-Fearing, I do not leave any leftovers behind (RRM)
4. I Take my leftovers in purpose of almsgiving (RRM)
5. I Take my meal remains to eat later on. (SRM)
6. I Take away leftovers for future consumption (SRM)
7. I Take away meal remains, because of the absence of recycling (ERM)

Examples 1~4 describe religion related motives in full-sentence these kinds of themes appeared frequently in [94] cases out of 120 cases which represents about (78%) of total responses. Saudis were self-motivated to carry-out their plate leftovers because of religion related motives. The religion influence was the main trigger that drives Saudi to react positively toward meal remains. Examples 5 and 6 describe secular related motives in full-sentence. these kinds of themes appeared frequently in [23] cases out 120, which represents about (20%) of total responses. Saudis were self-motivated to carry-out their plate leftovers because of secular related motives. The Self-Interest was the second influential factor that motivate Saudis to take their plate leftovers for personal advantage. Last example, describe environmental related motives in full-sentence this theme appeared rarely in [2] cases out 120 which represents less than (2%) of total responses. Environmental awareness was the internal motivation affecting two Saudis only. This type of motivation was very scarce among the responses. The results are not generalizable as they are limited to the Saudi culture, but the types of Intrinsic motives (RRM, SRM and ERM) that proposed in this study it might be subject to generalization in future research. Because RRM, SRM and ERM have limited the countless potential internal motivations of carrying-out meal remains as-to-go basis into three comprehensive categories. If a similar study applied in another culture, of course, the open codes and the percentage of internal motivating factors would differ in percentage, but the intrinsic motives types itself It will not exceed the borders of the three comprehensive categories that were established through this research. Human being consists of soul and body that strives for survival. RRM covers all kinds of internal drives that based on individuals' belief of God. And SRM covers all kinds of other internal motivations and needs that are not related to religion. Lastly, ERM which covers all kinds of intrinsic motivations that arise due to human's fear of losing home (The Earth).

**Figure 2. Themes Frequency and Categories Group**

Themes	Categories	Frequency	Percentage
<i>Religion-Related-Motives (RRM)</i>			
God's Blessing		(57)	47.5%
Almsgiving		(16)	13.33%
God-Fearing		(11)	9.16%
Sinfulness		(10)	8.33%
<i>Secular-Related-Motives (SRM)</i>			
Re-Eat		(13)	10.83%
Re-Consume		(11)	9.16%
<i>Environmental-Related-Motives (ERM)</i>			
No Recycling		(2)	1.66%
<b>Total</b>		<b>(120)</b>	<b>100%</b>

## Discussion

The aim of this research was to explore what are the intrinsic motives that make some customers in the restaurant context Take-out their meal remains as-to-go in volunteer manner. The study based on an online survey on the total number of 120 participants from Saudi Arabia (Males = 71, Females=49). An open-ended question was used to learn why some Saudi customers are self-motivated to take out their plate leftovers in the restaurant context. We analyzed data according to the grounded theory approach. The analysis revealed three comprehensive categories of Intrinsic Motives. Those motives explain why some restaurant patrons in the Saudi Arabia context are self-motivated to take out their plate leftovers voluntarily as-to-go basis. We illustrate the new three categories as follows.

(1) Religion Related Motives (RRM) which refer to the internal triggers that push a restaurant customer to carry-out its own meal remain because of *Religious Norms*, in other meaning, fear of God, for instance; “food is God’s Blessing therefore throwing it away is a sinful act”. This category was the most influential factor among respondents. RRM was dominant in response to frequent (78%) presentations of positive behavior stimuli towards plate leftovers.

(2) Secularity Related Motives (SRM) which refer to the internal triggers that push a restaurant customer to carry-out its own meal remains because of *Self-Interest*, for example, “I’m going to re-eat my lunch remains on dinner”. This category was the second influential factor among respondents. SRM was the second influential factor that appeared (20%) in total responses presentations of positive behavior stimuli towards plate leftovers.

(3) Environment Related Motives (ERM) which refer to the internal triggers that push a restaurant customer to carry-out its own meal remains because of environmental concerns, for instance “I carry my leftovers because of the absence of recycling”. This category was the third influential factor among respondents. ERM was most rare appearance in response to rare (2%) presentations of behavior stimuli towards plate leftovers.

Shortening the list of internal Triggers that drive self-motivated customer to not abandon meal remain into three core category. Study findings can help Behavioral Economic Specialists to create ideal nudging content. In other words, the intrinsic motivators of self-motivated patrons can exploit as an influencing material to nudge customers who are negatively behaving towards plate leftovers.

Identifying the mindset of the vast majority of target society is very important for raising the environmental awareness. Awareness messages with wrong content not only cause heavy losses in cost and time but also wouldn’t change behavior. Governments spend billions of dollars on Environmental awareness campaigns. Creating environmental awareness messages that have uninfluential trigger would lead to failure. Therefore, knowing the internal motives types of the vast majority of the target community is a must for creating an impactful message. The three intrinsic motives of self-motivated patrons that proposed in present study. It could help environment advocates to save time and money. If environment preservers create environmental-awareness-raising-message in purpose of reducing food waste in a religious society, the traditional environmental preservation messages such as “wasting food harms the environment” will not be effective. As preservation messages that have religious fingerprint such as “food is a gift from God do not waste it”. To clarify, if vast majority of target population choose Religion-Related-Motives (RRM) as a trigger. That pushes them to carry out plate leftovers; therefore environmental-awareness message that contains religious impression might be best fit for this society. Second example, if vast majority of target population choose Secular-Related-Motives (SRM) as a trigger. That pushes them to carry out plate leftovers. Therefore environmental-awareness message that contains Secular impression such as “Take your Leftovers for another meal” might be best fit for this society. Last example, if vast majority of target population choose Environmental-Related-Motives (ERM) as a trigger. That pushes them to carry out plate leftovers. Therefore, environmental-awareness message that contains explicit environmental impression might be best fit for this society.

In summary, the internal motivations that drive people to carry their leftovers when eating in a restaurant are countless. This study contributed to

1 restricting it into three main categories. Whatever the ulterior motives are, will  
 2 not exceed the scope of the aforementioned three categories that were  
 3 identified through this study. To sum up, Governments and environmental  
 4 organizations spend billions of dollars on environmental awareness campaigns.  
 5 The wrong message will not only cause financial losses. Determining the type  
 6 of internal motivations of the targeted community would make it easier for  
 7 decision makers and stakeholders in environmental awareness campaigns to  
 8 choose the most influential content. That may contribute to saving expenses  
 9 and efforts. Through this study, we are directing a proposal to all decision  
 10 makers in the hospitality sector around the world. To create a tourism nudge  
 11 unit and its main job is to influence tourists around the world to reduce waste  
 12 behaviors by posting an influential message in visible places. The categories of  
 13 internal motivations according to this study will strengthen the understanding  
 14 of the stakeholders in hospitality sector towards their customers and will help  
 15 them create environmental awareness messages with strong content, which will  
 16 lead to improving the behavior of individuals towards the environment while at  
 17 the same time saving the efforts and money spent on waste management.

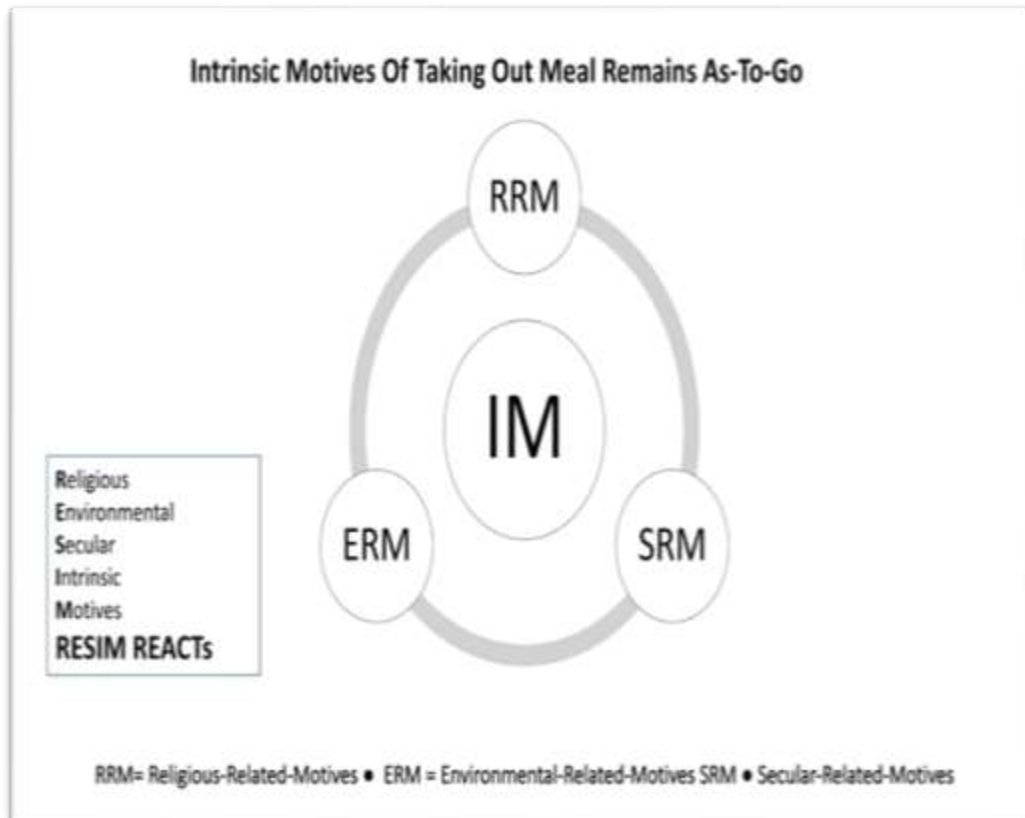
18 This paper contributed to summarizing the countless potential internal  
 19 motivators of restaurant customers who are self-motivated to take away their  
 20 food leftovers, into three types of intrinsic motivation: RRM, SRM and ERM.  
 21 However, Identifying the common intrinsic motives of a certain society  
 22 reinforces content makers to design the most effective and impactful  
 23 environmental-awareness messages, symbols and signs. If a traffic accident  
 24 occurs in a public street that does not contain safety signs and symbols. In this  
 25 case, the Minister of Transportation is susceptible to accountability, but if the  
 26 street in which the accident occurred was equipped with safety signs and  
 27 symbols, the minister would be not susceptible to accountability. The lesson  
 28 from this analogy is that it is the duty of decision-makers in hospitality industry  
 29 to establish a Tourism Nudge Unit for improving tourists' behavior toward  
 30 environment. Equipping Service Facilities with the right environmental  
 31 awareness signs, symbols and messages to improve customers' behavior  
 32 towards plate leftovers is a must for avoiding expenses, criticism and  
 33 accountability.

34 To clarify, if tourists facility site surrounded by religious community, the  
 35 environmental-awareness message that borrowed from a religious reference  
 36 would be most influential tool for improving behavior towards plate leftovers.  
 37 For hospitality facilities sited in a secular society area, the most impactful  
 38 environmental-awareness message would be those that carry a hint of self-  
 39 interest such as "Take it to eat another day.", lastly if tourism facilities located  
 40 in region that bounded by eco-friendly communities an explicit content of  
 41 environmental-awareness message would be enough for influencing behavior.  
 42 In conclusion, the classification of the intrinsic motives (RRM, SRM and  
 43 ERM) that proposed in this study is a small step for giant leap.

## Conclusions

Vast majority of global population affiliated with religious groups (Mathras & Mick, 2016). Most religious teachings forbid waste, such as Christianity, Islam, Judaism and Buddhism. Thus, exploitation of religious texts that forbid waste for combating waste might be the Magic Wand that can convert individual negative behavior toward waste to be positive, especially in religious societies.

**Figure 3. Study Conclusion**



*RESIM REACTs PLATE Diagram By Study Author Aljohani Abdulmohsen Mualla W, 2021*

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