

Exploring Food Waste Behavior In Generation Z Muslims In Medan: Implications For Purchasing Behavior

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Abstract

Food waste receives enormous attention because it has an impact on environmental, social and economic aspects. Most of these problems stem from food shopping behavior. The purpose of this study is to determine the influence of generation Z motivation in the city of Medan in reducing leftover food on generation Z's shopping behavior and Islamic integration. The population in this study was the entire generation Z community in Medan and the sample used was 100 respondents. The data analysis method uses a simple linear regression test and an independent test of the t-Test sample. The results showed that generation Z having the motivation to prevent food wastage would contribute to well-planned food shopping behavior. In addition, the study also showed that generation Z women showed higher motivation in preventing food wastage as reported in several previous studies that reported similar results. In Islam, a simple attitude and feeling enough (qana'ah) to avoid redundant behavior is found in QS. Al-Isra 26-27.

Keywords: food wastage, food waste prevention, food shopping behavior

Introduction

Unused food that exists during the distribution and consumption process is called food waste (Krisjanti & Quita, 2020). Today, food waste has become a complex and global problem in all supply chains caused by many actors such as farmers, food processors, retailers, food outlets and consumers or households (Bajzeli B et al., 2014; Tilman D & Clark M, 2014; Young et al., 2018). Then, another figure said that food waste arises from mismatches in the behavior of consumers, retailers, manufacturers and includes a shortage of technological inputs (Filho & Kovaleva, 2015; Krisjanti & Quita, 2020).

Food waste is an interesting issue so it has been raised a lot in research and this topic has also become an academic and policy debate, this is because food waste will have an impact on environmental, social and economic aspects. (Lemy et al., 2020; Young et al., 2018)

Globally, food waste is recognized as a problem that allegedly advances the political agendas of both institutions and governments (Defra, 2011; Donovan & Pickin, 2013; Savelli, 2020) and included in key sustainability challenges (Filimonau et al., 2019; Wang et al., 2017). According to the Food and Agriculture organization, about one-third of food produced for human consumption is wasted worldwide, which amounts to 1.3 billion tons per year. (Filimonau et al., 2019; Gustavsson et al., 2011; Lemy et al., 2020; Savelli, 2020; Wang et al., 2017; Zhang et al., 2020). With a global population surpassing seven billion—en route to nine-billion-plus by 2050—everyone needs to use available resources more efficiently. That includes avoiding leftovers as much as possible. (Bobo & Chakraborty, 2015)

In Indonesia itself, without realizing it, the problem of food waste becomes very large. According to the Head of the UN Food Agency (FAO) Representative, Mark Smulders, Indonesia contributes around 13 million tons of food waste - food loss and food waste (Detik.com, 2016). Furthermore, as quoted from data from the Economist Intelligence Unit (EIU) in 2016, Indonesia is in the second position

of the largest producer of food waste in the world after Saudi Arabia. The following table shows that Indonesia is the second largest producer of food waste in the world. (Lemy et al., 2020)

**Table 1: The Largest Producer of Food Waste in the World
(per person per year)**

No.	Country	Weight (kg)
1.	Saudi Arabia	427
2.	Indonesia	300
3.	Amerika Serikat	277
4.	Uni Emirat Arab	196

Source: Economist Intelligence Unit (EIU), 2016

Reducing food loss and waste is one of the goals of the Sustainable Development Goals (SDGs) agenda (Ariani et al., 2021). But even though this problem is of concern to many government people around the world, the food waste problem is still unsolved (Bräutigam et al., 2014). Food waste is expensive, it affects us negatively environmentally, it must be a social consequence, and a considerable amount of food waste comes from our households. There are so many serious consequences of household food waste (Graham-Rowe et al., 2014). That is why it is still very important to solve this problem by building a complete understanding, especially from the perspective of the consumer or individual. (Krisjanti & Quita, 2020)

Previous studies have made it clear that the factor that causes food delivery is buying too much food (Porpino, 2016). For this reason, understand how efficient food shopping behavior can be used as a prevention of food waste problems. The condition of consumers not to buy more food than their needs allows consumers not to waste leftovers because the excess food supply will be reduced.

The concept used in this study is the Theory of Planning Behavior, the author wants to examine how the motivation to reduce food waste will contribute to food shopping behavior. As for some studies, it is revealed that food waste avoidance measures are an effort to reduce economic losses in households and reduce environmental problems (Hasanah et al., 2022; Prasetyo, 2022; Prasetyo & Djuwita, 2020). Due to the lack of previous research on motivation to reduce food waste and its contribution in developing food shopping behavior, researchers therefore wanted to see how the motivation to reduce food waste would contribute to shopping behavior.

Demographic characteristics may also have a considerable role in the cause of food waste. In this case it is a gender difference followed by a difference in consumer behavior in food waste (Koivupuro et al., n.d.; Krisjanti & Quita, 2020). Cohen et al (2013) reported that there was no difference in food waste by gender. However, according to Azizah et al. (2021) Men are more concerned about food waste because few leave food compared to women. This is also in line with what was said by (Anriany & Martianto, 2013; Ramadhita et al., 2021) that the average producer of food waste by gender, namely women, is more than men. Due to the many gaps in research results regarding gender roles in food waste, researchers also want to know whether based on gender, women and men will have different motivations to reduce food waste.

In Islam, wasting food is called redundant. In the Qur'an surah al-A'raf verse 31 speaks of the suggestion of consuming anything so as not to overdo it, both clothing, even more so in eating and

drinking. This advice is aimed at every human being, regardless of religion because it relates to the health of the body. (Istinah & Mintaraga, 2019; Lutviyani et al., 2022)

Other research has discussed the contribution of shopping behavior to food waste as done by (Ariani et al., 2021) which says that the factor of food wastage in Indonesia is based on its culture as one of them is the excessive provision of food for an event. Then, the research conducted by (Ruwayari, 2021) also states that the cause of food waste is buying and preparing to eat too much and excessively. However, no research has been conducted to find out how shopping behavior is built for the prevention of food waste and evaluate gender roles in food purchases and reveal how the Islamic perspective on the issue of food waste.

From the description above, researchers are interested in exploring the motivation of Generation Z to reduce leftover food in the city of Medan can it affect consumer shopping behavior? Then, researchers also want to know the role of gender in the perikaku of food purchases and see the integration of Islam towards the motivation to reduce food waste which results in generation Z shopping behavior in the city of Medan. This Generation Z was born in 1995-2010 and now this generation has brought a new worldview and different expectations as customers, employees and citizens (Gaidhani et al., 2019). The population of Generation Z in Medan is estimated at 514,968 people (Badan Pusat Statistik Republik Indonesia, 2020).

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Food Waste

Food waste is leftover food that is wasted because it cannot be consumed or neglected during the production, processing, and distribution process. Based on the time, food waste is categorized into 3 types, namely Pre-consumer waste, Post-consumer waste, and Packaging waste and operation supplies. Meanwhile, based on the level of possibility of food waste appearing, WRAP also categorizes it into 3 types, namely Probably avoidable waste, Avoidable food waste and Unavoidable food waste. (Siaputra et al., 2019)

Food waste behavior in Islam is called redundant or excessive. Based on the book of Mu'jam al-Mufahras, in the Qur'an there are two verses that mention the word redundant and its derivation. The verse is contained in QS Al-Isra (17) verses 26 and 27 :

No.	Word	Surah dan Verses
1	<i>Laa tubadzdzir</i> mentioned once	QS Al-Isra (17) verse 26 وَأَتِ ذَا الْقُرْبَىٰ حَقَّهُ وَالْمِسْكِينَ وَابْنَ السَّبِيلِ وَلَا تُبَذِّرْ تَبْذِيرًا
2	<i>Tabdziira</i> mentioned once	QS Al-Isra (17) verse 26 وَأَتِ ذَا الْقُرْبَىٰ حَقَّهُ وَالْمِسْكِينَ وَابْنَ السَّبِيلِ وَلَا تُبَذِّرْ تَبْذِيرًا
3	<i>Mubadzdziirina</i> mentioned once	QS Al-Isra (17) verse 27 إِنَّ الْمُبَذِّرِينَ كَانُوا إِخْوَانَ الشَّيْطَانِ طَوَّكَانَ السَّبِيلِ لِرَبِّهِمْ كُفُورًا

These two verses contain redundant words in order with different types of words. In the book of Mu'jam al-Mufahras, the word redundant is mentioned with three different words and is spread over two consecutive verses with meaning:

26. *And give his right to close relatives, as well as to the poor and the one on the way; and you shall not squander (your treasures) lavishly.*

27. *Verily the spenders are brothers of satan and the devil is very disobedient to his Lord.*

Redundant means spending the treasure on something that shouldn't be spent, which then makes the treasure wasted. Islam teaches its people to always be modest and feel enough (qana'ah) to avoid redundant behavior. The verse on redundancy contained in QS Al-Isra' (17) verses 26-27 mentions the command to give property rights to close relatives and others; redundant prohibition; and the redundant impact of brothers and demons. Redundant forms can be in terms of property, food, drink, as well as the use of something (electricity, water, and other needs). (Ali & Rusmana, 2021).

Purchasing Behavior and Theory of Planning Behavior

Consumer purchasing behavior is an action that is directly involved in the acquisition, consumption, and completion of products/services, including the processes that precede and follow the action. Consumer behavior is also included in the decision-making processes involved in the receipt, use and purchase, as well as the determination of goods, services and ideas. This consumer buying behavior can also be influenced by several important things including cultural, social, personal, and psychological. (Lukiarti & Widodo, 2022)

One of the frameworks that have been widely used in setting pro-environment behavior is the Theory of Planned Behavior (SDGs). TPB can explain food consumption behavior, one of which is food waste behavior. This theory explains that attitude, subjective norms, and Perceived Behavioral Control (PBC) are able to predict intentions as a reflection of food waste behavior itself. This theory is then supported by the findings of subsequent studies in the context of pro-environment behavior (Prasetyo, 2022; Young et al., 2018). In this study, the concept of planning behavior theory will explain how attitudes influence behavioral decisions. In this theory it is explained that intention can be predicted by attitude, then checked with motivation as its measuring tool.

Research methods

This study is an exploratory study to test the contribution of motivation to reducing food throwing behavior through shopping behavior. The population in this study is a generation Z community in the city of Medan as many as 514,968 people. Then, it was sampled into 100 respondents who contributed to this study with a simple random sampling technique using the Slovin formula.

$$n = \frac{N}{1+Ne^2} = \frac{514.968}{1+514.968 (0,1)^2} = 100$$

The questionnaire consists of 15 close-ended items representing 2 variables used to collect primary data. The motivation to reduce food waste is the first variable, which consists of 7 items that are modified from Neff et al (2015). This variable was developed to measure the reason respondents threw away food. The second variable is Shopping Behavior, adapted from the same study, consisting of 8 items to measure consumer behavior especially before and during which they went shopping.

This study used a simple linear regression test and to check whether men and women would have different motivations to reduce food waste, using an independent sample t-Test.

Results and Discussion

Table 2. Characteristics of Respondents

Variable	Sum		Total	
	N	%	N	%
Gender				
Man	27	27	100	100
Woman	73	73		
Age				
12-17 Years	45	45	100	100
18-22 Years	46	46		
23-27 Years	9	9		
Employment Status				
JUNIOR	33	33	100	100
SMA	13	13		
Student	37	37		
Already Working	15	15		
Not Working	2	2		

The characteristics of respondents in this study were classified by gender, age, and employment status as shown in table 2. Characteristics based on gender were more female respondents, namely 73 respondents (73%). Based on age, the most respondents were in the age range of 18-22 years, which was 46 respondents (46%). The most characteristics reviewed based on employment status were as students, with 37 respondents (97.5%).

Table 3. Motivational Tools to Reduce Food Waste

Motivation to Reduce Food Waste	Mean
Saving money	4,05
Setting an example for others	4,08
Manage households efficiently	3,13
Thinking of the hunger of others	4,06
Feelings of guilt	4,37
Making a difference through action	3,78
Concern about energy and water issues	4,13

Descriptive analysis used on each motivational item to reduce food waste is carried out to find an idea of which motivation is the most dominant to reduce food waste the highest motivation, namely on the item of feeling guilty when throwing away food, then followed by items concerned with energy and water issues, setting an example for others, thinking about the hunger of others, saving money, making a difference through actions, and finally managing the household efficiently.

Table 4. Regression Analysis Results

	Beta Coefficient	T	Sig.
Motivation	0,453	3,519	0,001
Adj R²	0,112		
F	0,001		

The results of the regression analysis in Table 4 show that the motivation to reduce food waste contributes to shopping behavior. In the Adj R2 result of 0.112, it can be interpreted that 11.2% of generation Z's shopping behavior can be explained by the motivation to reduce food waste, while the remaining 88.8% to reduce food waste is explained by other variables besides motivation that are not explained in this study. Regression analysis also showed that the motivation to reduce food waste showed a positive beta coefficient of 0.453 meaning that the motivation to reduce food waste had a positive effect on shopping behavior. The higher the motivation of generation Z to reduce food waste, the better their shopping behavior will be.

Table 5. Results of Independent Sample t-Tests

	Gender	Mean	T	Sig. (2-tailed)
Motivation	Perempuan	28.26	0,824	0,412
	Laki-Laki	27.36		

The results of the independent sample t-Test showed that men and women showed different motivations to reduce food waste. Women have a higher motivation in reducing food waste compared to men.

Discussion

Among the reported motivations for reducing food waste, feelings of guilt rank at the top, concern for the environment (energy and water) ranks second, then followed by setting an example to others.

In this study, feelings of guilt so that it becomes a motivation to reduce food waste are the most dominant for possible reasons, namely due to cultural factors of people who should not waste food in vain and may also be influenced by social norms and values that have been taught to them since childhood. Generation Z's understanding of the need to protect the environment is also relatively high because they are motivated to reduce food waste that thinks about energy and water content. Reducing food waste is important to the environment such as throwing leftover food in the trash. Food is a separate waste so it can be stated that the greater the food waste, the greater the environmental impact.

Generation Z in Medan is also motivated to manage food shopping behavior because they are motivated by high social concern for awareness in order to reduce food waste. High social concern can be seen in some issues such as poverty, hunger. On the other hand, generation Z also intends to make a change to society by showing a positive example of itself.

In terms of business, in general reducing food loss and waste has financial benefits not only for individuals and households but also businesses as well. It makes economic sense on a small scale, by lowering household food bills and even on a large scale will reduce the disposal of costs for restaurants and their processors.

Finally, reducing food waste is socially important when salvaged food is diverted to emergencies food providers work to eliminate hunger in our communities. Furthermore, we believe that through the results of this study it is proven that the motivation to prevent food wastage varies from a gender perspective. For a country that still upholds and adheres to patriarchal understanding, women are often faced with several household responsibilities, including financial and food management. Therefore, the results of the study strongly support this condition which shows that women have a higher amotivation than men in trying to reduce and prevent food wastage.

Islamic Integration

Hierarchically, human needs include necessity, pleasure and luxury. Islam does not encourage its adherents to meet the infinite needs of consumption. Even Islam advocates that human beings can be in the middle (moderate) and simple. Among the important norms related to prohibitions for consumers is the prohibition of exaggeration, extravagance and redundancy (Engharitano, 2022). The culture that has developed also supports this theory or prohibition against wasting food, as one respondent of this study said:

"We also listened to what our parents had told, that I should not waste food which belongs to redundant behavior, where the person who behaves is his friend"

Tabdzir (redundant) has the same meaning as israf, which is exaggeration. However, when studied in more detail tabdzir is the result of israf behavior (Ridwan & Irsad, 2019). When it comes to eating and drinking, squandered and wasted food brings a very harmful impact.

The impact caused by food waste cannot be taken lightly. The damage on the earth is often caused by various actions and excessive human nature. Man as a caliph on earth should be able to maintain and be responsible for the surrounding environment both towards fellow humans and other living beings. Therefore, it is necessary to take action to prevent and overcome the pile of food waste. Precautions can be taken by reducing the disposal of food waste and not overdoing it in hoarding and buying food (Lutviyani et al., 2022). This precaution can also be done by giving alms if there is leftover food during the consumption process, as one of the respondents of the study said:

"Leftover food is indeed unavoidable. In everyday life, the occurrence of the behavior of leaving food that will form food waste will inevitably be experienced by everyone. For this reason, what a person can do when experiencing leftover food in his consumption is to distribute the leftover food to people in need so that there will be no food waste that will be increasingly reverent"

Islam teaches its people to always be modest and feel enough (qana'ah) to avoid redundant behavior. The verse on redundancy contained in QS Al-Isra' (17) verses 26-27 mentions the command to give property rights to close relatives and others; redundant prohibition; and the redundant impact of brothers and demons. Redundant forms can be in terms of property, food, drink, as well as the use of something (electricity, water, and other needs). (Ali & Rusmana, 2021)

Conclusions and Suggestions

Generation Z having the motivation to prevent food wastage will contribute to well-planned food shopping behavior. Feeling guilty is generation Z's biggest motivation for not wasting food. In addition, the study also showed that women showed higher motivation in preventing food wastage as reported in several previous studies that reported similar results. Then, Islam teaches its people to always be simple and feel enough (qana'ah) to avoid redundant behavior in accordance with Q.S Al-Isra verses 26-27.

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