DRIVERS OF CONSUMER FOOD WASTE IN SELECTED HOTELS AND RESTAURANTS IN KAMPALA, UGANDA

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A DISSERTATION SUBMITTED TO THE DIRECTORATE OF RESEARCH AND GRADUATE TRAINING IN PARTIAL FULFILMENT OF T REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF ARTS IN DEVELOPMENT STUDIES OF KYAMBOGO UNIVERSITY

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DECLARATION

I, Daphine Akankwatsa, solemnly affirm that this dissertation, titled *'Drivers of Consumer Food Waste in Selected Hotels and Restaurants in Kampala, Uganda*,' is an authentic and original work, conceived and executed by me. This dissertation has not yet been previously presented to any academic institution for consideration of any award or degree. I prepared it as a part of the requirements for the Master of Arts in Development Studies degree of Kyambogo University.

Signed..... Date.....

APPROVAL

We the undersigned affirm that this dissertation titled: "*Drivers of consumer food waste in selected hotels and restaurants in Kampala, Uganda*" has been done under our guidance. We hereby recommend that it should be submitted for examination.

Signed……..…… Date……..……..…..

Dr. Mugizi Wilson

Signed……..…… Date……..……..

Dr. Asiimwe Florence

DEDICATION

I dedicate this dissertation to my beloved parents, whose unwavering support and encouragement have been a constant source of inspiration throughout my academic journey. To my dear husband, Duncan, and our wonderful children, Dahlia, Dylan, and Donor, your love and sacrifices have empowered me to pursue my dreams. Thank you for being my foundation and my greatest strength. Finally, to my fellow researchers and scholars, whose groundbreaking work has paved the way for my own. May this dissertation contribute to the ongoing pursuit of knowledge and understanding.

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ABSTRACT

Food waste presents a significant challenge with economic, environmental, and social implications, particularly in the hospitality industry. This study investigated the drivers of food waste by consumers in selected hotels and restaurants in Kampala, Uganda. The research is grounded in the Theory of Planned Behavior (TPB), which explores how attitudes, subjective norms, and perceived behavioral control influenced consumer behaviors. A quantitative research design was employed using the correlational reseach design. Data were collected on a sample of 402 respondents in Kampala across five divisions of Kampala. Descriptive data was anaslyed using frequencies, percentages and means. Inferenatial data were analysed using correlation and regression analyses. Descriptive analysis revealed moderate food waste levels, moderate level of food waste attitudes towards food, and perceived behavioral control. However, subjective norms were low. Regression results indicated that while both attitude on food and perceived control had positive and significant influence on food waste, subjective norms had a positive but insignificant influence on food waste. It was concluded that consumer-serving attitudes cause food waste in hotels and restaurants; Consumer-serving perceived control is a determinant of food waste, and consumer-serving subjective norms minimally contribute to food waste. Therefore, it was recommended that hotels and restaurants should implement educational programs aimed at controlled consumer-serving attitudes, hotels and restaurants managers should enhance consumers' perceived control over food-related activities, and hotels and restaurants managers should leveraging on the minimal power of social norms and peer influence is crucial to promote sustainable food waste practices. These findings provide valuable insights for policymakers and hotel management to implement effective strategies to mitigate food waste, thereby promoting sustainability and resource efficiency in urban areas.

CHAPTER ONE: INTRODUCTION

1.0 Introduction

The escalating issue of food waste has far-reaching consequences, impacting the economy, society, and the environment. The hospitality industry, comprising hotels, restaurants, cafes, and other eateries, is a significant contributor to this problem due to its rapid expansion, resulting in a substantial surge in food waste generation (Pilone et al., 2023). Aside from its adverse economic and social impacts, food waste exerts excessive strain on limited natural resources and the environment (Chirsanova & Calcatiniuc, 2021). However, quantifying and reducing food waste in these places has been challenging due to the lack of precise data and targeted waste reduction strategies (Labib et al., 2023). This study aimed to identify and examine the key factors leading to consumer food waste in a selection of hotels and restaurants in Kampala, Uganda, with the overarching objective of developing tailored strategies to address and minimize this problem.

1.1 Background

This segment of the study adopted a multifaceted approach, incorporating four perspectives. Namely;- Historical context, Theoretical underpinnings, Conceptual frameworks and Contextual factors.

1.1.1 Historical Perspective.

Today, food waste is becoming a big challenge. The UN Food and Agriculture Organization reveals that roughly one-third of global food output is squandered, with losses occurring at various points along the food supply chain, spanning from agricultural production to consumer consumption. This widespread wastage has far-reaching consequences, posing significant social, economic, and environmental challenges (Chirsanova & Calcatiniuc, 2021). Approximately 4-10% of food purchased by

restaurants is wasted due to factors uncontrolled self-service ending up in trash (Ramsey, 2024). Food waste has a deep-seated history, with its origins tracing back to the late 19th and early 20th centuries in the United States, during the period of industrialization, highlighting its persistence as a longstanding challenge. As agricultural and manufacturing processes increasingly industrialized, food became more widely available, affordable, and commercialized, leading to a culture of excessive consumption and waste among consumers across various sectors (Chen, 2018). Manuel et al. (2022) report that food waste dominates American landfills, accounting for a significant 40% of the country's total food production, which translates to around 12 million tons of food being lost or wasted each year, as noted by the Commission for Environmental Cooperation (CEC, 2017).

The issue of food waste has severe global repercussions, impacting economies, the environment, and societies worldwide. Alarmingly, a staggering one-third of global food output, totaling around 1.3 billion tons annually, with significant portions occurring in the hospitality and educational sectors (FAO, 2019). Reducing food waste in hotels and restaurants is crucial for promoting sustainability and resource efficiency, especially in urban areas facing rapid growth and resource constraints (FAO, 2019). In 2015, In the European Union (EU) approximately 119.1 million people, constituting a quarter of the population, were deemed at risk of poverty or social exclusion, while 42.5 million individuals could not afford a nutritious meal at least once every two days (Chirsanova, 2021). Concurrently, the region experiences an annual waste of approximately 88 million tons of food, incurring associated costs estimated at EUR 143 billion. Hotels and restaurants contribute notably to food waste due to the nature of their services with a variety of food offerings (Chirsanova & Calcatiniuc, 2021). Research shows that food waste levels are consistent across European countries with varying income levels,

including high, upper-middle, and lower-middle-income nations (UNEP, 2021). Notably, individual consumers can play a crucial role in addressing the food waste problem by adopting aware and responsible behaviors (Karnai et al., 2021).

In sub-Saharan Africa, food losses are valued at more than US$4 billion annually, amounting to approximately 37% of total production, or 120-170 kg per capita. This quantity could adequately nourish at least 48 million individuals. In South Africa, the financial impact of post-consumer food waste is substantial, with estimated annual costs of around US$2.7 billion (Mmereki et al., 2023). As environmental concerns about food waste intensify, the hospitality industry has introduced numerous initiatives to minimize waste and promote sustainability. For example, research from Egypt explores how the practices of all the eating places-inclusive of hotels contribute to food waste and how behavioural changes among guests and staff can help reduce waste (Labib et al., 2023).

East Africa, including Kenya, faces significant food waste challenges. In Kenya alone, inefficient consumption practices lead to an estimated annual loss of Ksh 72 billion (approximately $0.48 billion). As highlighted in the 2021 Food Waste Index Report by the United Nations Environment Programme (UNEP) and WRAP, food waste remains a pressing issue in the region, each Kenyan discards an average of 99 kilograms of food per year, leading to a total annual waste of 5.2 million tons of food across the country (UNEP 2021). In Kenya, The carbon footprint resulting from food waste in hotels in Nairobi is significant, with an estimated 20-30% of all food being discarded, amounting to roughly 20,000 tons annually. The disposal of food waste in landfills contributes to greenhouse gas emissions through methane release (Mmereki et al., 2023), while catering industry institutions generate substantial food waste daily. Often still fit for human consumption,

this excess food frequently becomes waste. Additionally, many consumers place food orders but leave leftovers on their plates after their meals (Ngugi 2019).

In Uganda, urban biological waste is dominated by food waste, primarily from the hospitality and market sectors, including perishable items like fruits, vegetables, and tubers, making up 65-79% of total solid waste. Nevertheless, the absence of detailed data on food waste types and quantities hinders efforts to add value to this waste, particularly in transforming it into nutritious livestock feed. Understanding which food wastes contribute key nutrients like protein to feed and how they can be sourced (Ssepuuya et al., 2023). Kampala City's average annual food waste generation per household is 59 kilograms per person, resulting in a massive 178,367,203 kilograms of food waste per year for the city as a whole (Food Waste Baseline Survey Report 2021).

Concerning drivers of food waste, Chen (2018) indicates that Plate waste significantly contributes to overall food waste, driven by factors such as over-serving, cultural beliefs and values of consumers, and the type of service provided. Kubanza & Simatele (2020) indicate that in South Africa, cultural practices around celebrations often lead to substantial food preparation, which increases the risk of food waste when guest attendance fluctuates. They further indicate that in many African contexts, the prestige associated with excess is a significant driver of waste in hospitality settings. Research by Cook et al. (2023) reveals that several operational factors significantly contribute to food waste generation in hospitality establishments, including serving style and timing, dish options, and inaccuracy in predicting customer numbers. Meanwhile, in Uganda, Namono (2023) highlights the importance of understanding consumer attitudes towards food and waste in driving food waste within hotels, restaurants, and other food

service providers. The literature suggests that cultural, and socio-economic factors and attitudes towards food are key drivers of food waste.

1.1.2 Theoretical Perspective.

This study was grounded in theory of Planned Behavior (TPB), introduced by Ajzen (1991), suggests that individual actions are shaped by social influences and norms, which are influenced by personal attitudes, perceived social expectations, and beliefs about control over behavior. This framework implies that promoting practices like knowledge sharing and recognition can encourage collective efforts to reduce waste (Chawla et al., 2022). In this context, attitudes represent a person's positive or negative views on a behavior, formed through beliefs about its consequences and the value placed on those outcomes. Subjective norms refer to the perceived social pressure to adopt or avoid a behavior. When it comes to food waste, consumers' attitudes towards wasting food, social norms surrounding food waste, and their perceived ability to reduce food waste can significantly impact their behavior (Schanes et al., 2018). This theory provided the foundation for understanding the drivers of food waste.

1.1.3 Conceptual Perspective.

The dependent variable in this study is food waste, which is defined as the disposal or Loss of edible food products that could have been consumed by people but are discarded for various reasons (Lipinski et al., 2020). The independent variable, on the other hand, comprises the drivers of food waste. Building on definitions provided by Gustavsson et al. (2019) and Parfitt et al. (2021), these drivers are categorized into three core factors: attitude towards food, perceived behavioral control, and subjective norms.

The pivotal drivers of food waste in this study comprised an individual's deeply ingrained attitude towards food, their perceived agency in controlling their behavior, and

the potent societal norms that shape their actions. Notably, attitude towards food represented a person's intense evaluation of food and food waste, incorporating their fervent beliefs about the devastating consequences of food squander, including the egregious environmental, economic, and ethical repercussions (Schanes et al., 2018). It can be operationalized by assessing personal beliefs and values about food waste through surveys and interviews that measure the level of concern and perceived importance of minimizing waste. Perceived behavioural control reflects an individual's perception of their ability to reduce food waste, which is influenced by their confidence in managing food properly, overcoming barriers, and accessing resources that reduce waste (Blackford, 2021). This can be operationalized by evaluating factors such as knowledge of food storage techniques, access to waste management facilities, and experiences with food waste prevention. Subjective norms involve the perceived social pressures to conform to behaviours that reduce food waste, shaped by the expectations and behaviours of significant others, including family, friends, and societal standards (Stancu et al., 2018). These were operationalized by measuring perceived social influences and expectations regarding food waste behaviours through questionnaires that assessed the influence of social networks and cultural norms on food waste practices.

1.1.4 Contextual Perspective.

The backdrop for this investigation was food waste by consumers in selected hotels and restaurants in Kampala Capital City Divisions. The Divisions are Kampala Central, Kawempe, Makindye, Lubaga, and Nakawa. In each of these divisions, there are several Hotels, restaurants, Cafes, and many other eating-places. Kampala's rapid urban growth has led to significant food waste challenges in the city's restaurants, hotels, and other food service providers. Key factors driving this issue include inefficient food handling practices, excessive serving portions, and consumer behaviors resulting in high levels of

plate waste, ultimately leading to substantial amounts of food waste in these settings. Restaurants and hotels often struggle with portion control and accurately predicting customer demand, resulting in surplus food that is discarded or left on the plate (Ssepuuya et al., 2023). In Kampala Hotels and restaurants, consumers often leave substantial amounts of food uneaten, especially in the places that offer buffet services where guests tend to over-serve themselves (KCCA, 2019). The inadequate infrastructure for food waste disposal exacerbates the problem, as many Hotels and restaurants lack access to efficient recycling or composting facilities, leading to improper disposal methods such as dumping in landfills or unauthorized sites (Ssepuuya et al., 2023). This not only contributes to environmental pollution but also poses public health risks due to the attraction of pests and the release of harmful emissions from decomposing food waste. However, a literature search revealed a lack of empirical studies on food waste in Kampala and Uganda at Large. This attracted the need for the study to investigate food waste in Hotels, and restaurants, in the divisions in Kampala investigating how drivers of consumer food waste influence food waste in Kampala.

1.2 Statement of the problem

Food waste has far-reaching consequences, affecting the economy, environment, and society as a whole. From an economic perspective, food waste results in substantial losses, with nearly a third of all food purchased in the hospitality sector being discarded, translating to an estimated 23% loss of the food's value (Papargyropoulou et al., 2019). Environmentally, food waste decomposition in landfills contributes to greenhouse gas emissions, exacerbating climate change. Furthermore, the lack of resource optimization such as water and energy in food production leads to unnecessary environmental degradation, highlighting the need for sustainable practices (Kattiyapornpong et al., 2023). Socially, food waste highlights issues of inequality and food insecurity, as substantial

amounts of edible food are discarded while many people lack sufficient food. To address these challenges, strategies such as improved menu planning, raising consumer awareness about the consequences of food waste, and adopting sustainable practices within the hospitality sector are being implemented (Kattiyapornpong et al., 2023).

Efforts to Forge a food waste-free hospitality sector dedicated efforts to implementing targeted waste reduction strategies, such as employee training, better menu planning, accurate demand forecasting, and the use of proper equipment (Salsabila, Priatini, & Hindayani, 2023). The European Union has set a bold objective to slash food waste by half by 2030, a key pillar of its comprehensive Farm to Fork Strategy unveiled in 2020, underscoring its unwavering commitment to mitigating the environmental, economic, and social impacts of food waste. However, even though progress in addressing food waste, a notable knowledge gap persists in understanding the distinct local factors contributing to food waste in Kampala, highlighting the need for empirical research to address this critical issue. Previous studies, such as those by Filimonau and Coteau (2019), have provided a critical review of hospitality food waste management, emphasizing the importance of core competencies, training needs, investment costs, and potential savings for managers in the sector. Similarly, Diaz Salsabila et al. (2023) discussed the necessity of consistently implementing mitigation strategies and establishing relevant policies in hospitality settings. Furthermore, the lack of detailed local data and analysis impedes the development of effective mitigation strategies tailored to the specific needs and cultural practices of Kampala's hospitality establishments. This study was undertaken to tackle the issue of food waste in Kampala's hospitality sector, specifically in hotels and restaurants, to contribute to food security efforts.

1.3 Purpose of the study

The purpose of the study was to investigate drivers of consumer food waste in selected hotels and restaurants in Kampala, Uganda.

1.4 Objectives of the study

This investigation launched an exploration;

i To examine the influence of consumer-serving attitudes on food waste in hotels and restaurants in Kampala.

ii To assess the influence of consumers serving perceived control on food waste in hotels and restaurants in Kampala.

iii To examine the influence of consumers serving subjective norms on food waste in hotels and restaurants in Kampala.

1.5 Hypotheses

i Consumers' serving attitudes have no significant influence on food waste in hotels and restaurants.

ii Consumers' serving perceived control has no significant influence on food waste in hotels and restaurants

iii Consumers serving subjective norms have no significance influence on food waste in hotels and restaurants.

1.6 Significance of the study.

The present research will significantly contribute to different stakeholders:

i. To policymakers, the study will offer quantitative findings on the specific drivers of food waste in Kampala's hospitality sector. This information can inform policymakers about the local factors contributing to food waste, enabling them to design targeted policies and regulations to mitigate food waste. For example,

policymakers can develop guidelines for portion sizes, food storage practices, and waste management procedures tailored to the local context. The study can also highlight the need for educational campaigns and incentives to promote waste reduction practices.

ii. To hotels, they might Profit from this research by uncovering valuable knowledge on factors leading to food waste within their establishments. This understanding can help hotel management implement more effective waste reduction strategies, such as improving inventory management, optimising menu planning, and training staff on best practices for food handling and waste reduction. Hotels can improve their financial sustainability and reduce waste by adopting food waste reduction practices, and enhance their reputation as environmentally responsible businesses.

iii. To consumers in hotels, the study's findings might help to educate them about the impact of their food choices and behaviours on waste generation. Increased awareness might lead to more responsible consumption practices, such as taking smaller portions and reducing plate waste.

iv. To the theory and body of knowledge, this study contributes to food waste theory by exploring context-specific drivers in urbanizing settings, providing nuanced insights into the interplay of factors influencing food waste in Kampala's hospitality sector. This most likely informs future research and theoretical models on food waste, particularly in developing countries, and provide a basis for comparative studies across different regions and contexts.

1.7 Scope of the study

The study's scope is defined by three parameters: geographical area, content coverage, and time period, as presented below.

1.7.1 Geographical Scope.

The research was conducted within the territorial boundaries of Kampala District, specifically focusing on the five divisions of Uganda's capital city, namely; Kampala Central, Kawempe, Makindye, Lubaga, and Nakawa. The study was conducted in hotels and restaurants offering buffet-style self-service to consumers. Kampala was selected as a study area because the city produces significant amounts of food waste from establishment sector, underscoring the necessity of understanding and improving attitudes and practices toward food waste management in hospitality establishments.

1.7.2 Content scope.

The research focused on the theme of food waste, examining it as a single, standalone concept. Additionally, the study investigated the factors influencing food waste, specifically exploring the roles of; attitudes at personal beliefs and opinions about food waste, subjective norms at social pressures and expectations surrounding food waste, and perceived behavioural control at individuals' perceived ability to control their food waste behaviour. Food attitudes cover rewarding self with food, craving for food and food pleasure. Perceived control is in terms of obsessive behaviour and self-regulation. Subjective norms are in terms of approval and customs.

1.7.3 Time scope and reason.

The research was excuted for 6 months, between March 2024 to August 2024. This period allowed for the capture of seasonal variations in food waste patterns, comprehensive data collection, and detailed data analysis to provide well-rounded and actionable insights.

1.8 Conceptual Framework

The Conceptual flamework described the association between the variables. It shows that consumer behavior toward food influences Food waste

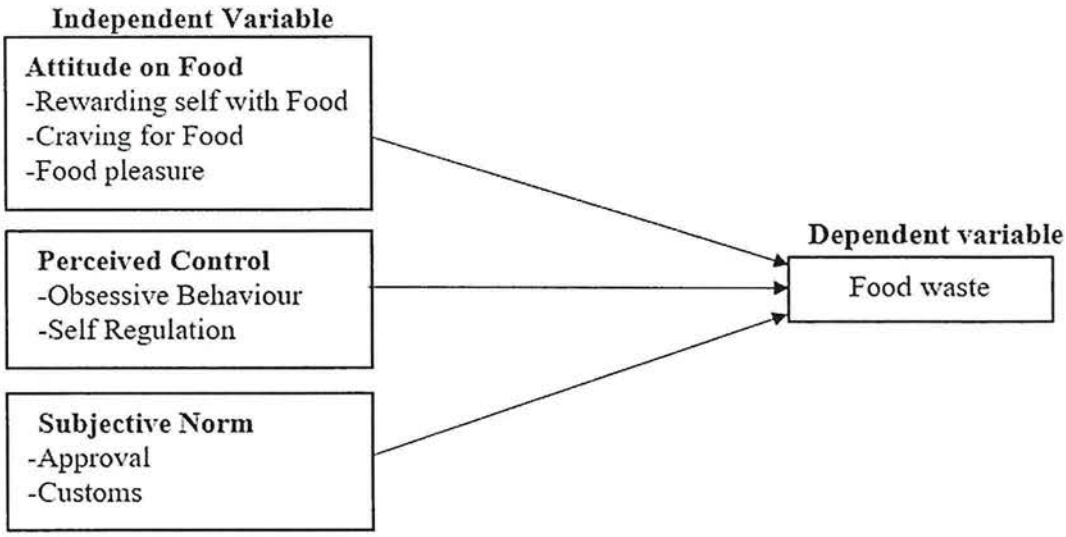


Figure 1.1:Conceptual Frame Work Relating Consumer behaviours towards Food Waste

Source: Developed on the ideas adopted from Schnettler et. al., (2017), Woong & Seongjin (2022), Ai-Swidi (2014); Izumi et al.,(2016).

Figure 1.1 unveils the conceptual framework, exposing food attitudes, perceived control, and subjective norms as the powerhouse drivers of food waste. The framework shows that food attitudes include rewarding self with food, craving for food and food pleasure. Perceived control is in terms of obsessive behaviour and self-regulation. Subjective norms are in terms of approval and customs.

1.9 Operational Definitions

Attitudes: Attitude towards food refers to an individual's favorable or unfavorable opinion or assessment of food and food waste, encompassing their perceptions and beliefs regarding the impacts or consequences of food waste.

Food Waste: Refers to the disposal of edible food that is safe for Human Consumption or disposal or Loss of edible food products that could have been consumed by people but are discarded for various reasons.

Perceived behavioural control: Perceived behavioural control reflected an individual's perception of their ability to reduce food waste, which is influenced by individuals' confidence in managing food properly, overcoming barriers, and accessing resources that reduce waste.

Subjective norms: Subjective norms involved the perceived social pressures to conform to behaviours that reduce food waste, shaped by the expectations and behaviours of significant others including family, friends, and societal standards.

CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

The literature review section provides a comprehensive analysis of existing research on food waste and its consumer-driven factors, encompassing a theoretical framework, conceptual foundations, and a critical examination of relevant studies in the field.

2.1 Theoretical Review of Food Waste

The Theory of Planned Behaviour (TPB), introduced by Ajzen (1991), served as the theoretical foundation for this study. TPB posits that an individual's behavioral intentions are the primary predictor of their actions, influenced by three key factors; attitude, a consumer's evaluation of food waste, shaped by beliefs about its environmental, economic, and moral consequences (Schanes et al., 2018), subjective norms: social influences that shape behaviour, perceived behavioural control: an individual's perceived ability to control their food waste behaviour . Subjective norms involve perceived social pressures from family, friends, and society influencing food waste behaviours (Lorenz et al., 2017). Perceived behavioural control relates to a consumer's perception of the ease or difficulty of reducing food waste, ultimately shaping their intention to perform or avoid food waste behaviours. This is based on past experiences and anticipated obstacles (Ajzen, 2020). Higher perceived control over reducing food waste enhances the intention to avoid waste.

Attitudes towards food waste, subjective norms, and perceived behavioural control significantly predict consumers' intentions to reduce food waste. Particularly, consumers who perceived higher social pressure to avoid food waste and who had a positive attitude towards reducing waste were more likely to engage in waste reduction behaviours. The research also highlighted the role of emotional factors and habits in influencing food waste behaviours (Russell et al., 2017). According to Girish Nair (2021),

attitude and perceived behavioral control (PBC) are crucial factors that significantly predict consumers' intentions to avoid food waste and subsequently influence their fixed food waste behavior. Moreover, PBC is a direct determinant of food waste behavior. The Theory of Planned Behavior provides a framework for understanding how these three factors - attitude, subjective norms, and PBC - interplay to shape consumers' intentions and behaviors related to food waste, offering insights into the psychological drivers of food waste management.

According to Ajzen (1991), an individual's attitude towards a behavior represents their overall positive or negative assessment of performing that behavior. However, a study by Mawar and Adiat (2024) revealed that consumers' attitudes towards reducing food waste in hotels and restaurants did not significantly impact their intentions to do so. This suggests that even if consumers hold positive views on reducing food waste, their attitudes alone may not be enough to drive their intentions to take action. This indicates that while consumers may have positive attitudes toward reducing food waste; these attitudes alone are insufficient to drive behavioural change (Maar & Adiati 2024). In food waste, if the consumers have positive attitudes believing that minimizing waste saves resources and reduces environmental impact, they are more likely to engage in behaviours that align with these beliefs. White et al. (2019), Research shows that pro-environmental attitudes significantly predict a higher intention to engage in sustainable practices. Thus, enhancing consumer attitudes toward food waste reduction could be a strategic focus for Hotels, restaurants, and other eating-places aiming to promote sustainable consumption patterns.

The theory of planned behaviour also analysed the factor of subjective norms and relates it to the perceived social pressure to perform or not perform a particular behaviour.

This factor is particularly influential in communal dining settings, which include restaurants, and Hotels where eating behaviours can be visibly observed by peers (Ajzen, 1991) Subjective norms significantly impact behaviour intentions and actual food waste behaviour. Studies Conducted by Mawar and Adiati (2024) indicate that consumers are influenced by the perceived expectations of others, such as family and friends, which encourages them to avoid wasting food. Ajzen, (1991), also highlighted how social influences and the perceived expectations of significant others can affect an individual's behavioural intentions. Subjective norms are seen as a function of normative beliefs about whether important different individuals or groups approve or disapprove of performing the behaviour.

Fishbein and Ajzen (2010) further elaborated on the role of subjective norms in the context of the TPB. They describe how subjective norms are composed of both injunctive norms (beliefs about what should be done) and descriptive norms (beliefs about what is typically done). Rivis and Sheeran (2003) conducted a meta-analysis to examine the impact of subjective norms on various behaviours and the conclusion was that subjective norms have a moderate influence on intentions, and this effect is more pronounced in socially visible behaviours. The literature on subjective norms supports its importance in predicting various behaviours, emphasizing the need to consider social influences in behaviour change interventions. Ajzen (1991) perceived behavioural control if not controlled well could hinder consumers' ability to manage leftovers effectively, often due to the absence of accessible options such as convenient takeaway containers or composting facilities hence food waste. When consumers feel empowered to manage their food waste, they are more likely to do so, reflecting the direct impact of perceived behavioural control on behaviour (Ajzen, 1991). This factor is the strong predictor of both intention and behaviour regarding food waste. Higher Perceived Behavioural Control,

indicating consumers' confidence in their ability to reduce waste, correlates with lower food waste levels. This was supported by findings that interventions aimed at enhancing consumers' control over food portions and storage significantly reduce waste (Ajzen, 2020).

The concept of perceived behavioural control is based on agency beliefs, which refer to the individual's perception of factors that can either facilitate or obstruct their ability to perform a behaviour. In other words, agency beliefs encompass the personal and external factors that can either empower or hinder an individual's control over their actions. These beliefs encompass considerations such as possessing necessary skills, availability of time, financial resources, and cooperation from others. Each control belief contributes to perceived behavioural control by interacting with the perceived effectiveness of these factors in facilitating or hindering behaviour performance (Ajzen, 2020). Therefore, this study examined how drivers of food waste influence the individuals' food waste of planned behaviours in hotels and restaurants.

2.2 Conceptual review of Food Waste

Food waste denotes any food that is discarded or uneaten, encompassing both edible and inedible parts, at various stages of the food supply chain. This waste can occur during production, post-harvest, processing, retail, and consumption (Gustavsson et al., 2019). Food waste unleashes a devastating triple blow to the environment, economy, and society. With environmentally, it contributes to greenhouse gas emissions and resource wastage. Economically, it represents a loss of money for consumers and businesses. Socially, it highlights the inefficiencies in the food system, particularly when juxtaposed with global food insecurity (FAO, 2019). Socially, food waste is a stark contrast to global food insecurity. Parfitt et al. (2021) argue that reducing food waste can play a crucial role in

addressing hunger and ensuring more equitable food distribution. They emphasize that food waste reduction efforts should be coupled with policies aimed at improving food access for vulnerable populations. The world is grappling with a profound problem of food waste, which has far-reaching consequences for the environment, economy, and society. Alarmingly, the Food and Agriculture Organization (FAO) reports that roughly one-third of the world's total food production, equivalent to around 1.3 billion tons per year, is either lost or discarded (FAO, 2011).

In developed countries, most food waste happens at the consumer and retail levels, often due to excessive portion sizes, improper storage, and high aesthetic standards for food appearance, and demanded by consumers (Thyberg et al., 2015). In contrast, in developing nations, food waste predominantly occurs during production and post-harvest stages due to inadequate infrastructure, inefficient supply chains, and lack of proper storage facilities (Nigam & Sharma, 2017). These discrepancies highlight the need for targeted interventions that address specific stages of the food supply chain to reduce overall waste effectively.

The consequences of food waste extend beyond mere disposal, as it also squanders precious resources like water and land. For example, the production of wasted food consumes approximately 250 cubic kilometers of water each year and occupies around 1.4 billion hectares of land, equivalent to nearly 30% of global agricultural land (Lipinski et al., 2013). These staggering numbers highlight the inefficiencies in our food systems and the pressing need for comprehensive solutions to address food waste. To tackle this issue, it is essential to implement effective measures such as optimizing supply chain management, raising consumer awareness and education, and enacting policies that encourage food waste reduction across all stages, from production to consumption (Kibler

et al., 2018). While research has primarily concentrated on management strategies for waste reduction, a more holistic approach is necessary to combat food waste. However, there is a growing recognition of the need to investigate more consumer behaviours directly, as they play a significant role in food waste within hospitality settings (Mena, et al., 2014).

2.3 Review of Related Literature

2.3.1 Consumer Serving Attitude and Food Waste.

Several studies have examined the influence of consumer-serving attitudes on food waste, focusing on how attitudes toward portion sizes, meal planning, and consumption behaviours affect food waste outcomes. Aschemann-Witzel et al. (2015) argued that larger portion sizes often lead to increased plate waste, as consumers are unable to finish their meals. This over-serving is often driven by consumer preferences for value and the misconception that larger portions represent better value (Lorenz et al., 2017). In hotels and restaurants, the practice of serving large portions as a standard can lead to excessive waste, especially when consumers are not inclined to take leftovers home (Filimonau et al., 2020). Proper meal planning and ordering behaviour can mitigate food waste by aligning the quantity of food ordered with actual consumption needs. Stancu et al. (2020) observed that consumers who plan their meals and order mindfully tend to waste less food.

Consumers serving attitudes on Food waste needs also consumer awareness, which is a critical factor in shaping attitudes toward food waste. Studies indicate that increased awareness of the environmental and economic impacts of food waste leads to more positive attitudes towards reducing waste (Niemiec et al., 2016). For instance, Anton-Peset, et al, (2021) found that educational interventions significantly improved the knowledge and attitudes of primary school students towards food waste, resulting in a

notable reduction in waste during school meals. Similarly, Derqui et al. (2016) emphasized that multi-stakeholder collaboration and visibility of food waste can enhance awareness and drive initiatives to minimize waste in the food service industry. This awareness often stems from educational campaigns and information dissemination that highlight the consequences of food waste. For instance, campaigns that illustrate the environmental footprint of discarded food can motivate consumers to adopt more sustainable practices, such as meal planning and proper food storage techniques.

Also, a range of psychosocial factors influences attitudes towards food waste. These include personal norms, perceived behavioural control, and social influence. Personal norms, or the internalized standards of behaviour, are significant predictors of food waste reduction behaviours. Research shows that individuals who feel morally obligated to reduce waste are more likely to engage in such behaviours (Niemiec et al., 2016). The perception of control over one's ability to reduce food waste, such as through effective shopping and cooking practices, is crucial. Social influence, including the behaviours and attitudes of peers and family members, also plays a pivotal role in shaping individual attitudes towards food waste. Despite the progress in understanding consumer-serving attitudes towards food waste, several gaps remain. There is a need for more studies to assess the long-term effectiveness of interventions aimed at reducing food waste. Therefore, this study examined the influence of consumer-serving attitudes towards food waste and addressed the gaps, which helped develop more targeted, and effective strategies for reducing food waste in hotels, and restaurants.

2.3.2 Consumer-serving perceived control on Food waste.

Different scholars assessed the Influence of Consumers' Perceived Control on Food Waste. For example, Haugaard (2016) examined the determinants of food waste

behaviour among Danish consumers, highlighting that perceived behavioural control, alongside routines related to shopping and the reuse of leftovers, are pivotal in reducing food waste. Their study findings show that Perceived Behavioural Control (PBC) is influenced by consumers' confidence in managing food-related activities, which in turn affects their food waste behaviours. Visschers et al. (2016) argued that interventions aimed at increasing consumers' PBC, such as improving planning and shopping routines, significantly contribute to reducing self-reported food waste in Swiss households. These studies collectively underscore the importance of perceived control in managing food waste effectively.

Research conducted by Aschemann-Witzel et al. (2015) examined the root causes of consumer-related food waste in households and supply chains, combining a comprehensive review with expert insights. The study's findings highlighted the crucial role of three consumer factors in shaping food waste behaviors: motivational drivers, food management skills, and perceived control over food waste. Their study emphasized the need for interventions that enhance consumers' capabilities to handle food provisioning and storage efficiently. Lin (2021) explored how perceived government control influences Chinese households' intentions to reduce food waste, revealing that although government policies have an impact, individuals' sense of personal control over their food waste actions remains a vital factor in determining their intentions to reduce waste. These findings highlight the multifaceted nature of perceived control, involving both personal and external influences. Despite these insights, gaps remain in understanding the long-term effectiveness of interventions aimed at increasing PBC. Therefore, this study focused on assessing the influence of consumers serving perceived control on food waste and explored cultural variations in perceived control over food waste.

2.3.3 Consumers serving subjective norms on Food waste.

Different scholars have examined the influence of consumers serving subjective norms on food waste. For example, Chawla et al. (2022) argued that employees in the hospitality industry are significantly influenced by subjective norms when it comes to food waste management. Their study found that employees who perceive strong normative expectations from peers and management are more likely to adopt waste-reducing practices (Chawla et al., 2022). The hospitality sector, encompassing hotels, restaurants, and other eating places, is significantly influenced by these social pressures, which can either promote or deter sustainable practices (Jang & Kim 2023).

Research by Wansink and Ittersum (2007) suggests that raising consumer awareness about food waste's environmental impact and launching social campaigns can change societal norms, leading to more responsible food consumption and waste management behaviors. Similarly, Kallbekken and Saelen (2013) found that simple interventions like smaller plate sizes and social cues in hotel restaurants effectively reduced food waste by tapping into subjective norms. These studies demonstrate the power of subtle social influences in promoting eco-friendly behaviors. However, gaps remain in the existing literature. Subjective norms significantly influence food waste behaviors in the hospitality industry. By harnessing social expectations and normative pressures, hotels and restaurants can encourage employees and consumers to adopt sustainable practices. Understanding cultural differences can help create targeted interventions for various regions and demographics. This study investigates how consumer subjective norms impact food waste in hotels and restaurants in Kampala.

CHAPTER THREE: METHODOLOGY

3.0 Introduction

The section presents a comprehensive overview of the research methodology employed in the study, aiming to provide a clear and detailed explanation of the research design, participant selection and sample size, data collection procedures, variable measurement, data quality assurance, data management, and analysis techniques, as well as the ethical considerations that guided the research process.

3.1 Research Design

The study adopted a cross-sectional research design. It utilized a quantitative, cross-sectional approach to collect and analyze numerical data, providing insights into the phenomena of food waste in hotels and restaurants (Creswell & Creswell, 2020). The cross-sectional design enabled data collection at a single point in time, capturing a snapshot of the underlying factors driving food waste. This approach allowed the research to make statistical inferences about these factors, identify key predictors, and quantify the magnitude of their impact, as highlighted by Bell et al. (2018). By employing a quantitative approach, the study facilitated a systematic investigation and precise measurement of variables, which are essential for developing effective interventions and policies (Smith, 2018). The reliance on numerical data further supported a clear and concise presentation of findings, making them easy to interpret and compare (Queiros et al., 2017). The combination of quantitative methods and cross-sectional design ensured that conclusions were based on empirical evidence, enhancing the reliability and validity of the results.

3.2 Study Population

The research focused on a specific segment of the hospitality industry in Kampala, targeting a selection of hotels and restaurants across various categories that offered buffet services. This buffet service was where a variety of dishes are displayed on a serving line or table, allowing cunsumers to serve themselves. In some cases, attendants may assist with serving certain items. Buffets offer multiple food options, usually including appetizers, main courses, desserts, and beverages, giving guests the freedom to choose their preferred dishes and portions. The number of hotels and restaurants were as presented in Table 3.1

Table 3. 1: Shows the Number of Hotels and restaurants in each Division

Divisions	Hotels	Restaurants
Lubaga	6	10
Central Divison	4	14
Kawempe	0	5
Nakawa	0	2
Makindye	1	4
Total	11	35

3.3 Sample Size

The number of participants was 300 consumers who dine out in various hospitality establishments to balance the statistical requirements and practical feasibility. This sample was considered sufficient because it was above 50, which is the minimum level recommended for a quantitative study (Hair Jr et al., 2021). The sample size produced results that can be generalized.

3.4 Sampling Techniques

The study employed convenience sampling to select the sample, a method where participants are chosen based on their ease of access and availability. This approach was used because it allows for increased generalizability of the results, as a larger sample size

enhances the statistical power and representativeness of the convenience sample, thereby strengthening the findings, as noted by Mweshi & Sakyi (2020). This method was also selected because it was difficult to study hotel consumers by probability sampling because their regularity in the hotels cannot be ascertained.

3.5 Data collection Instrumentation

Data was collected through a self-administered survey tool, divided into three sections: A, B, and C. Section A gathered information on respondents' background characteristics, while Section B focused on food waste, the dependent variable. Section C explored the drivers of food waste, the independent variables. The questions for sections B and C were adapted from existing validated scales to ensure reliability and relevance to the study context. The measures were scales of agreement of the Likert scale with five anchors (1 = strongly disagree, 2 = disagree, 3 = Not sure, 4 = agree, and 5 = strongly agree).

3.6 Procedure of data collection

A phased approach was followed for gathering the data. Therefore, after the proposal was approved by the supervisors and successfully defended at the faculty, the corrections were addressed and submitted to the Directorate of Research and Graduate Training, Kyambogo University, and obtained a letter for data collection to help the researcher access the consumers in different Hotels, and restaurants. Data was gathered from hospitality establishments. For the consumers who could not interpret the questions because of low English Proficiency, the questions were translated for them.

3.7 Data Quality Control

The study carried out data quality control involving testing of validity and reliability. The results follow.

3.7.1 Validity.

To ensure content validity, the researcher carefully aligned the questionnaire items with the study's conceptual framework, verifying that the independent and dependent variables accurately reflected the underlying constructs. The validation process, guided by Sangoseni, Hellman, and Hill (2013), assessed the clarity, comprehensiveness, and relevance of the questions to guarantee they effectively measured the intended study variables, thereby establishing the instrument's validity. To obtain the Content Validity index, the researcher employed a content-related technique to assess the degree to which the question items accurately reflect the topics discussed the questionnaire was administered to two judges the Calculation yielded a CVI presented in Table 3.2.

Table 3.2:Content Validity Indices

Items	Number of Items	Content Validity Index
Food Waste	8	0.94
Rewarding self with food	6	0.75
Craving for food	5	0.70
Food pleasure	5	0.70
Obsessive behaviour	6	0.75
Self-regulation	7	0.79
Approval	7	0.79
Customs	7	0.79

The Content Validity (CV) index results presented in the Table exceeded the minimum threshold of 0.70, as recommended by Roebianto (2023), indicating that the questionnaire demonstrated satisfactory validity. This assurance of validity enabled the collection of reliable and accurate data, confirming that the instrument effectively measured the intended constructs.

3.7.2 Reliability.

Reliability refers to the efficacy of an instrument to produce data that is consistent at different times (Tavakol, & Dennick, 2011). The Cronbach's Alpha (α) method in SPSS was employed to assess the reliability of the items within each construct, with a reliability coefficient of $\alpha = 0.70$ or above indicating adequate internal consistency (Rehman et al., 2014). This quality control measure ensured the instrument's reliability. The results are presented in Table 3.3, showing that the items in each construct met the reliability threshold

Table 3. 3:Reliability Results

Items	Number of Items	Cronbach's Alphas
Food Waste	8	0.768
Rewarding self with Food	6	0.694
Craving for Food	5	0.735
Food Pleasure	5	0.760
Obsessive behaviour	6	0.762
Self-Regulation	7	0.737
Approval	7	0.787
Customs	7	0.709

3.8 Data Management

Data management involved data processing and analysis. Data processing involved coding and entry. After data entry, the data was summarised using frequency tables to reveal errors for editing by treating missing data and removing outliers. The data was subjected to a range of statistical analyses, including descriptive statistics, correlation analysis, and regression modeling, to examine the relationships between variables, with the aid of SPSS software.

3.9 Ethical Considerations

The study adhered to and respected essential research ethics and principles to protect participants, including informed consent and ascent, confidentiality, anonymity, balancing risks and benefits, and the right to withdraw at any time (Creswell & Creswell, 2018). Informed consent was ensured by obtaining the consent of the Consumers above 18 years, while for the minors the researcher requested permission from the guardian to let them participate in the study. In the collection of data, efforts were taken to ensure that the identities of the consumers remained anonymous. Efforts were also made to ensure that the information obtained from the Consumers remained confidential. This was ensured by reporting all findings in aggregate without tagging them to the respondents. Risks and benefits were balanced by ensuring that Consumers at the eating-places were not coerced to participate in the study, and once the results were complied, they would be disseminated in open-access journals ensuring that the findings are freely accessible to the public and industry stakeholders. This would allow hospitality establishments to use the research insights as benchmarks, enabling them to compare their practices with industry standards and adopt strategies to reduce food waste effectively.

CHAPTER FOUR: DATA PRESENTATION, ANALYSIS, AND INTERPRETATION

4.0 Introduction

This chapter presents a rigorous and insightful analysis of the study's findings, uncovering the key drivers of food waste among consumers in a diverse range of hotels and restaurants across Kampala's five divisions. The chapter is systematically organized to align with the study's objectives, featuring a combination of descriptive statistics, which provide a comprehensive overview of the data, and inferential statistics, including correlation and regression analysis, to identify significant relationships and predictors of food waste with clarity and precision.

4.1 Response Rate

The study collected data from 300 consumers who dined in different Hotels and restaurants in the five divisions of Kampala Capital City Authority. While the study had planned to collect data from 300 consumers, finally data was collected from 402 consumers. The increase in the sample was considered important because as the sample size increases so does the statistical power of the convenience sample (Mweshi & Sakyi, 2020). The response rate was considered good because it would provide data necessary for generalizable results.

4.2 Background Characteristics

This demographic profile offers insights into the composition of the respondent group, providing context for understanding their responses and perspectives. The outcomes are shown in Table 4.1

Table 4.1: Background characteristics of the respondents

Variable	Category	Frequency	Percent
Gender	Female	162	40.3
	Male	240	59.7
	Total	402	100.0
Marital status	Married	148	36.8
	Single	254	63.2
	Total	402	100.0
Age	Under 20	9	2.2
	20 – 29	166	41.3
	30 – 39	157	39.1
	40 – 49	52	12.9
	50 – 59	15	3.7
	60 and above	3	0.7
	Total	402	100.0
Education Level	Tertiary	226	56.2
	Secondary	123	30.6
	Others	47	11.7
	Primary Level	06	1.5
	Total	402	100.0
Divisions	Central Division	123	30.6
	Kawempe	58	14.4
	Lubaga	111	27.6
	Makindye	49	12.2
	Nakawa	61	15.2
	Total	402	100.0

The data in Table 4.1 on gender represents male respondents constituted a larger share (59.7%) than female respondents (40.3%).This revealed that male consumers/customers in the Hotels and restaurants participated in the study more than female customers. Nonetheless, the responses were representative of both categories of consumers who frequently dine out in the Hotels and restaurants in Kampala. The data on marital status shows that 37% were married, and 63% were Single, the study effectively captured representative views from both marital groups on the drivers of consumer food waste.

The age distribution of respondents revealed a diverse range of age categories, with the majority (41.3%) falling within the 20-29 age group, followed by 30-39 (39.1%), 40-49

(12.9%), 50-59 (3.7%), and a small percentage over 60 (0.7%). Additionally, 2.2% of respondents were under 20 years old. This age diversity enabled the collection of varied perspectives on food waste drivers among consumers in hotels and restaurants, providing a comprehensive understanding of the issue across different age groups.

The results on education represent a higher proportion of respondents (56.2%) attained tertiary education; this includes colleges, universities, and other higher education institutions. The second largest group of the respondents (30.6%) completed secondary education Level, 11.7% attained other categories of education, including various forms of non-formal or alternative education, and the smallest group of the respondents (1.5%) consists of individuals whose level of education is at the primary level. The findings showed that the respondents represented a range of educational backgrounds, suggesting that they varying levels of knowledge and expertise. This diversity in educational levels was presumed to enable them to provide informed and insightful responses to the study's questions, thereby enriching the data collected on the research problem.

4.3 Results on Food Waste

The questionnaire (see Appendex A) shows that the dependent variable (DV), which is The phenomenon of food waste was investigated through eight survey items, and the results are summarized in Table 4.2. This table provides a detailed snapshot of the data, employing descriptive statistics such as frequency counts, percentage distributions, and mean values, to offer a thorough understanding of the responses to each item.

Table 4.2:Descriptive Results for Food Waste

Food waste	F/%	SD	D	NS	A	SA	Mean
I leave food on the plate I do not like.	F	34	60	15	251	42	3.51
	%	8.5	14.9	3.7	62.4	10.4	
I leave food on the plate that looks unpalatable.	F	30	64	40	218	50	3.48
	%	7.5	15.9	10	54.2	12.4	
I hardly request that my left overs be packed for me	F	62	161	29	135	15	2.70
	%	15.4	40	7.2	33.6	3.7	
Sometimes I buy more food than I need.	F	95	132	18	145	12	2.62
	%	23.6	32.8	4.5	36.1	3.0	
Even when am not hungry I buy food and end up leaving it on the plate.	F	92	156	22	125	7	2.50
	%	22.9	38.8	5.5	31.1	1.7	
I do not eat when am hungry, I eat because it is eating time sometimes I leave food on the plate	F	85	118	20	163	16	2.77
	%	21.1	29.4	5.0	40.5	4.0	
I will not remove surplus food from my plate before touching the food	F	49	160	46	139	8	2.74
	%	12.2	39.8	11.4	34.6	2.0	
I pass surplus food to others before touching my food	F	44	175	34	120	29	2.79
	%	10.9	43.5	8.5	29.9	7.2	

Key: SD (Strongly Disagree), D (Diasgree), NS (Not Sure), A (Agree), SA (Strongly Agree)

The results in Table 4.2 The results showed that a significant majority (72.8%) of respondents admitted to leaving food on their plate when they didn't like it, while 23.4% disagreed and 3.7% were undecided. The mean score of 3.51 further confirmed that, on average, respondents tended to agree that they left food uneaten when it didn't meet their taste preferences. This suggests a common behaviour of leaving disliked food on the plate. As to whether the consumers leave food on the plate that looks unpalatable cumulatively a larger percentage (66.6) agreed with 23.4% disagreeing and 10% were not sure. The mean = 3.48 close to three which corresponded with not sure, which indicates that the respondents moderately left food on the plate that looked unpalatable.

When asked if consumers rarely request take-out containers for leftovers, 55.4% of respondents disagreed, while 37.3% agreed and 7.2% were not sure. The mean score of 2.70 indicated a neutral stance, suggesting that respondents were not sure about this behavior. Regarding whether consumers sometimes purchase more food than needed, 56.4% disagreed, 39.1% agreed, and 4.5% were not sure. The mean score of 2.62, close to the neutral point, indicated uncertainty. This implies that consumers occasionally buy excess food. When asked if consumers buy food even when not hungry, leading to leftovers, 61.7% disagreed, 32.8% agreed, and 5.5% were not sure. The mean score of 2.50, near the neutral point, suggested uncertainty. This indicated that consumers sometimes purchase food impulsively, even when not hungry, resulting in uneaten food.

The results showed that most respondents (50.5%) rejected the idea that they eat simply because it's time to eat, even if they're not hungry, and often leave food behind. Nevertheless, the mean response (2.77) hovered around neutral, implying that some respondents occasionally exhibit this behavior. Furthermore, a majority of respondents (52%) disagreed with the statement that they don't remove excess food from their plates before eating, with the average response (2.74) indicating a moderate level of agreement. These findings indicate that consumers sometimes eat due to habit or routine, rather than hunger, and may not always clear their plates before starting to eat. To the question inquiring whether the consumers pass surplus food to others before touching their food, cumulatively the majority percentage of (54.4%) of the respondents disagreed with 37.1% agreeing and 8.5% not sure. The mean= 2.79 was average hence suggested that consumers sometimes would pass surplus food to others before touching their food. To gain a comprehensive understanding of consumers' perceptions of their food waste, an overall Food Waste Index was calculated by averaging the responses to eight items related to food waste. The results, presented in Table 4.3, provide a statistical summary of the

consumers' self-assessed food waste habits, offering insights into their attitudes and behaviors regarding food waste.

Table 4.3: Summary Statistics for Food Waste

	Descriptives		Statistic	Std. Error
Food Waste	Mean		2.89	0.04
	95% Confidence Interval for Mean	Lower Bound	2.82	
		Upper Bound	2.96	
	5% Trimmed Mean		2.91	
	Median		3.00	
	Variance		0.54	
	Std. Deviation		0.73	
	Minimum		1.38	
	Maximum		4.50	
	Range		3.13	
	Interquartile Range		1.13	
	Skewness		-0.456	0.12
	Kurtosis		-0.691	0.24

The data in Table 4.3 reveal a mean was 2.89 and a median was 3.00, suggesting a normal distribution despite a slight negative skew (-0.47). With both mean and median close to 3, which represents an average rating on the scale used, the findings imply that consumers' food waste in food establishments was average, indicating a moderate level of responsibility for food waste. The low standard deviation (0.734) further supports this, showing minimal variation in responses, and the normal curve presented in Figure 4.1 visually confirms these results.

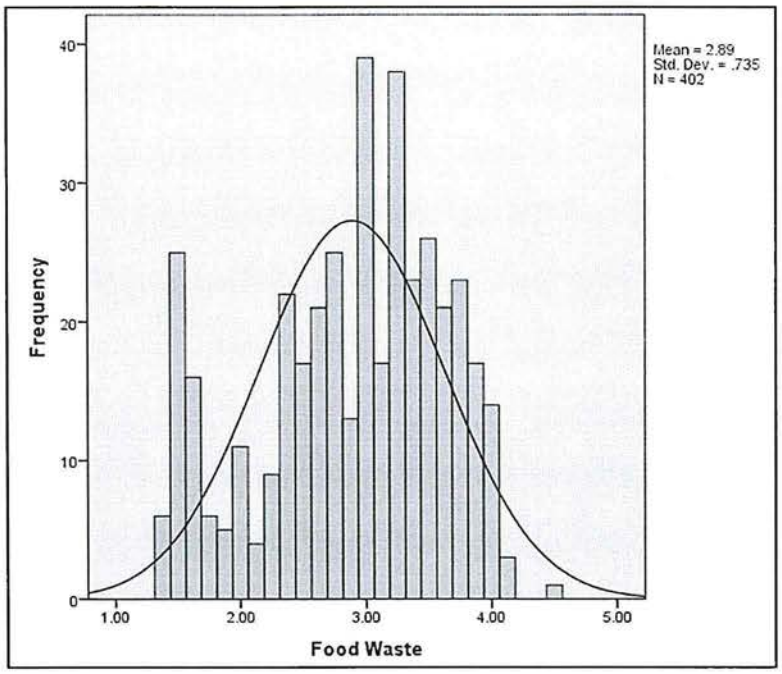


Figure 4.1: Histogram of Food Waste

The normal curve presented in Figure 4.1 reveals that the responses regarding food waste from consumers who dined in restaurants and hotels in Kampala followed a typical bell-shaped pattern. This indicates that the data collected on food waste was suitable for advanced statistical analysis, including linear correlation and regression, which can provide reliable and meaningful insights into the relationships and trends within the data.

4.3.1 Consumers Food waste based on Marital Status.

To establish whether there were significant difference in food waste levels based on marital status, a t-test analysis was carried out and the results are shown below in Table 4.4

Table 4.4:Consumer's t-Test Results for Marital Status and Food Waste

	Marital Status	N	Mean	Std.	t	p
Food	Single	254	2.83	0.76		
Waste	Married	148	3.00	0.68	6.847	0.019

The results in the Table 4.4 suggest that the mean scores for the married consumers (mean= 3.00) were slightly higher than those who were single consumers (Mean=2.83). The observed t-value = 6.847 indicated a difference with a level of significance at P=0.019 ($p < 0.05$). This meant that the variations in food waste according to marital status are statistically significant. Therefore the results suggested that marital status has an impact on food waste behavior, with Married individuals reporting higher food waste levels compared to single individuals. Although the difference in the mean values was small, the significant P-value confirms that the variation is meaningful.

4.3.2 Consumers Food waste variation according to gender.

To find out whether there were variations in food waste according to gender, consumers t-Test was carried out and the results presented in the Table 4.5

Table 4.5:Consumer's t -Test Results for Gender and Food Waste

Gender 1	N	Mean	Std.	T	p
Male	240	2.84	0.74	0.812	0.090
Female	162	2.97	0.73		

The results in Table 4.5 revealed that on average, the food waste reported by females (Mean = 2.97) was higher than that of males (Mean = 2.84). The consumers t ($t = 0.812$) was small with a level of significance ($p = 0.090$) greter than $p = 0.05$ ($p<0.05$). Therefore the results indicated, while females reported higher food waste levels on average, the difference is not meaningful enough to conclude that gender has a significant impact on food waste behavior.

4.3.3 Consumers food waste variation according education level.

To find out whether there was food waste according to Education level, ANOVA was carried out and the results presented in the Table 4.6

Table 4.6: Consumer's t -Test Results for Education Level and Food Waste

	N	Mean	Std	F	p
Tertiary	226	3.05	0.67	10.513	0.000
Primary Level	6	3.23	0.61		
Secondary	123	2.64	0.78		
Others	47	2.71	0.72		
Total	**402**	**2.89**	**0.73**		

The results in Table 4.6 revealed that food waste varied across consumers with different education levels. On average, those with primary education reported the highest food waste (mean = 3.23), followed by consumers with tertiary education (Mean = 3.05), other education levels (mean = 2.71) and secondary education level reported the lowest food waste (Mean = 2.64). The F-statistic (F = 10.513) is large with a level of significance (p = 0.000) which is less than 0.05($p<0.05$). This indicated that the difference in food waste based on education level are statistically significant. Therefore Education levels significantly influences food waste behavior, with individuals who have primary and tertiary education reported higher food waste compared to those with secondary education or other formas of Education.

4.3.4 Consumers food waste variation according to divisions of Kampala.

To establish whether there was food waste according to the divisions, ANOVA was carried out and the results shown in the table 4.7

Table 4.7:Consumer's t -Test Results for Division and Food Waste

	N	Mean	Std.	F	p
Nakawa	61	2.40	0.86	16.725	0.000
Makindye	49	2.88	0.76		
Lubaga	111	3.05	0.61		
Kawempe	58	2.57	0.77		
Central Division	123	3.14	0.56		
Total	**402**	**2.89**	**0.73**		

The results in Table 4.7 revealed that food waste varied significantly across the divisions of Kampala District. On average, consumers in the Central Division reported the highest food waste (mean = 3.14), followed by those in Lubaga (mean = 3.05), Makindye (mean = 2.88), Kawempe (mean = 2.57), and Nakawa reported the Lowest food waste (Mean = 2.40). The F- statistic (F = 16.725) is large and the level of significance (p = 0.000) is less than 0.05 ($p < 0.05$). This suggested that the differences in food waste between the divisions are statistically significant. Therefore , the results on food waste behavior varied across the different divisions of Kampala. Consumers in the Central disvison and Lubaga waste more food on average, while those in Nakawa reprted the lowest food waste. These significant variations highlight the influence of geographical location within the city on food waste behavior.

4.4 Consumer Serving Attitude Towards Food

Attitude on food was studied using three constructs i.e. rewarding with food with six question items, Food pleasure with five question items, and craving for food with five question items. The objective on this sought to examine the influence of consumer-serving attitudes towords food in hotels and restaurants in Kampala. The descriptive results on consumer serving attitude towords food follow.

4.4.1 Rewarding with Food.

This construct was studied using six question items designed to capture different dimensions. The analysis of these items provides a comprehensive understanding of how individuals use food as a form of self-reward, revealing patterns in food choices and emotional triggers. The table below provides a snapshot of the data using descriptive statistics, including frequency counts, percentage distributions, and mean values. These metrics furnish a foundational understanding of the data's properties and shed light on the response characteristics.

Table 4. 8 :Descriptive Results for Rewarding with Food

Rewarding yourself with Food	F/%	SD	D	NS	A	SA	Mean
Whenever I am in a buffet, I try to indulge myself with several tasty foods.	F	11	44	15	239	93	3.89
	%	2.7	10.9	3.7	59.5	23.1	
Whenever I am in a buffet, I try to put a variety of foods on my plate.	F	32	106	17	158	89	3.41
	%	8	26.4	4.2	39.3	22.1	
Wherever I am in a buffet, I make sure that my money is fully utilized by serving myself equal portions.	F	54	148	26	165	9	2.82
	%	13.4	36.8	6.5	41.0	2.25	
Whenever I make an achievement, I go to a good Hotel or Restaurant and indulge myself in food.	F	63	145	21	160	13	2.79
	%	15.7	36.1	5.2	39.8	3.2	
A large amount of food gives me comfort when I am feeling low.	F	66	197	25	112	2	2.47
	%	16.4	49	6.2	27.9	0.5	
I rarely avoid serving myself large amounts of food.	F	62	174	26	130	10	2.63
	%	15.4	43.3	6.5	32.3	2.5	

According to the results in Table 4.8, on the question of when asked if consumers tend to try various tasty foods when dining at a buffet, an overwhelming majority (82.6%) of respondents agreed, while 13.6% disagreed and 3.7% were not sure. With a mean score of 3.89, closely aligned with the "agree" response (4), the findings suggested that

consumers generally indulge in multiple tasty foods when presented with a buffet option. - When asked if consumers load up on a variety of foods at a buffet, 61.4% agreed, 34.4% disagreed, and 4.2% were not sure. The mean score of 3.41, close to the neutral point (3), suggested that consumers sometimes try to put a variety of foods on their plates.The results on question item inquiring, whether consumers, wherever they were in a buffet, made sure that their money was fully utilized by serving themselves equal portions, 50.2% disagreed, 43.2% agreed, and 6.5% were not sure. The mean score of 2.82, near the neutral point (3), indicated uncertainty. This suggests that consumers are sometimes mindful of utilizing their money's worth by serving themselves equal portions, but not always..

When asked if they celebrated achievements by indulging in food at a good hotel or restaurant, most respondents (51.8%) disagreed, while 43% agreed, and 5.2% were undecided. The mean response (2.79) indicated uncertainty. This suggests that respondents only occasionally treat themselves to food when achieving something. Regarding comfort eating, a significant majority (65.4%) disagreed that a large amount of food provides comfort when feeling low, while 28.4% agreed, and 6.2% were unsure. The mean response (2.47) aligned with disagreement, indicating that comfort eating is not a common practice among respondents. And when asked if they avoid serving large portions of food, most respondents (58.7%) disagreed, while 34.8% agreed, and 6.5% were unsure. The mean response (2.63) suggested uncertainty. This implies that respondents sometimes, but not always, avoid serving large amounts of food. To gain a comprehensive understanding of consumers' self-rewarding habits with food, an overall Food Reward Index was calculated by averaging the responses to six items related to using food as a reward. The results, presented in Table 4.9, provide a statistical summary

of the consumers' attitudes and behaviors regarding rewarding themselves with food, offering insights into their self-indulgent tendencies.

Table 4.9: Summary Statistics for Rewarding with Food

	Descriptives		Statistic	Std. Error
Rewarding Self with Food	Mean		3.00	0.04
	95% Confidence Interval for Mean	Lower Bound	2.93	
		Upper Bound	3.07	
	5% Trimmed Mean		3.02	
	Median		3.00	
	Variance		0.53	
	Std. Deviation		0.73	
	Minimum		1.00	
	Maximum		4.33	
	Range		3.33	
	Interquartile Range		1.33	
	Skewness		-0.29	0.12
	Kurtosis		-0.99	0.24

Table 4.9 shows that the mean and median replies were both 3.00, indicating normalcy, despite a little negative skew (skew = -0.29). This normal distribution of responses implied that rewarding with food was considered average, as a score of three on the scale used corresponded to not sure, representing an average or fair assessment. The responses showed a high degree of consistency, as evidenced by a low standard deviation of 0.70, indicating that the data points were closely clustered around the mean. Furthermore, the curve in Figure 4.2 visually supports the assumption of normality, revealing a bell-shaped distribution .

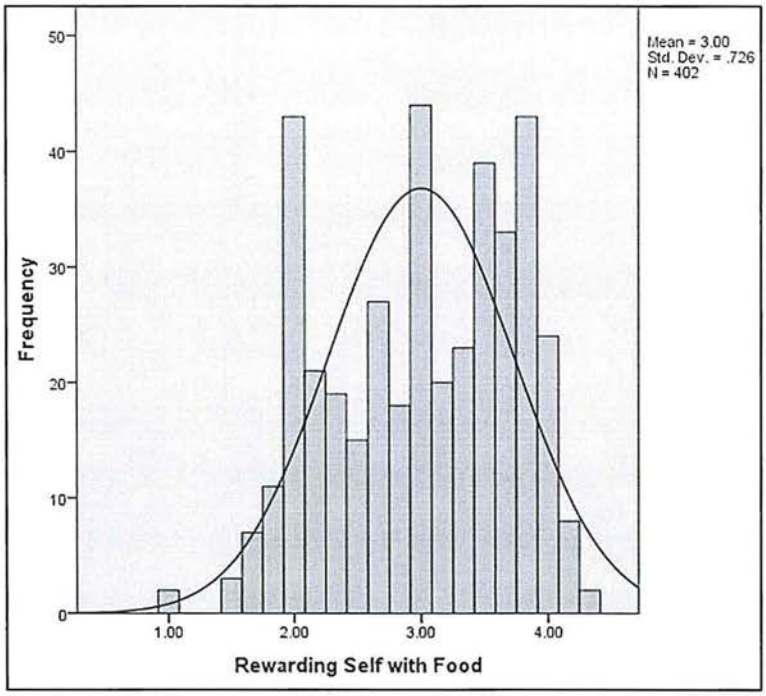


Figure 4.2: Histogram for Rewarding Self with Food

The normal distribution curve in Figure 4.2 demonstrates that the responses related to Rewarding with Food exhibit a typical Gaussian pattern, characterized by symmetry around the mean and minimal deviations. This distribution allows for confident analysis and interpretation of the results, unencumbered by significant skewness or outliers

4.4.2 Craving for Food.

This Construct was studied with five question items. The table below provides a summary of the data through descriptive statistics, including:Frequency counts, Percentage distributions , Mean values. These statistics offer a snapshot of the data, highlighting key trends and characteristics of the responses.

Table 4. 10:Craving for Food

Craving for Food	F/%	SD	D	NS	A	SA	Mean
I have a craving for certain foods, which makes me sometimes serve myself what I cannot finish.	F	59	196	29	105	13	2.54
	%	14.7	48.8	7.2	26.1	3.2	
I find it strange when people serve themselves little food even when it is very delicious.	F	81	174	21	118	8	
	%	20.1	43.3	5.2	29.4	2.0	2.50
My craving for fatty and sweet foods makes me serve myself what I can't finish.	F	80	194	27	97	4	2.38
	%	19.9	48.3	6.7	24.1	1.0	
Because I crave for certain foods sometimes the amounts provided in Hotels and restaurants, I find them less sufficient.	F	67	180	33	76	46	2.64
	%	16.7	44.8	8.2	18.9	11.4	
I only go to Hotels where the foods I like are served in large amounts.	F	54	169	28	134	17	2.73
	%	13.4	42.0	7	33.3	4.2	

The results in Table 4.10 above on the first row, regarding the question item inquiring When asked if consumers' cravings for specific foods lead them to serve more than they can finish, the majority (63.5%) disagreed, while 29.3% agreed, and 7.2% were not sure. With a mean score of 2.54, near the neutral point (3) on the 5-point Likert scale, the results suggest that respondents were uncertain about this behavior. Therefore, the results indicated that the respondents believed that sometimes consumers served more than they could finish due to cravings for certain foods. The survey findings revealed that most respondents (63.4%) did not find it peculiar when individuals served themselves limited amounts of food, even if it was highly palatable, while 31.4% thought it was unusual, and 5.2% were uncertain. The mean response (2.50) hovered around neutrality, indicating a

lack of strong opinion. Thus, the results suggest that consumers are moderately surprised when others serve themselves small portions of food, even if it's very appealing.

Regarding the influence of cravings for fatty and sweet foods on serving sizes, the majority (68.2%) of respondents denied that it led them to serve more than they could finish, while 25.1% agreed and 6.7% were undecided. The mean score of 2.38, aligning with "disagreed,"(2) suggested that consumers generally did not serve excessive food due to cravings. When asked if cravings for certain foods led to finding hotel and restaurant portions insufficient, 61.5% disagreed, 30.3% agreed, and 8.2% were unsure. The mean score of 2.64, close to "not sure," implies that consumers were moderately uncertain about this. Regarding the preference for hotels serving large amounts of favored foods, 55.4% disagreed, 37.5% agreed, and 7% were unsure. The mean score of 2.73, corresponding to not sure,(3), indicated uncertainty among respondents. Overall, the results suggest that consumers moderately preferred hotels serving large amounts of their preferred foods.

Therefore, the above data indicated a general tendency towards indulgence in food variety at buffets and a moderate influence of food appearance and taste on serving sizes. The mean scores revealed the central tendency and the variability in these attitudes, showing that while some behaviors were widely shared, others exhibited considerable individual differences. To gain a comprehensive understanding of consumers' self-rated cravings for food, an overall Food Craving Index was calculated by averaging the responses to five items related to food cravings. The statistical summary of these results is presented in Table 4.11, providing an overview of the consumers' attitudes and behaviors regarding their cravings for food .

Table 4. 11:Summary statistics of Craving for food

Descriptives			Statistic	Std. Error
Craving for Food	Mean		2.56	0.04
	95% Confidence Interval for Mean	Lower Bound	2.48	
		Upper Bound	2.64	
	5% Trimmed Mean		2.54	
	Median		2.40	
	Variance		0.662	
	Std. Deviation		0.81	
	Minimum		1.00	
	Maximum		4.80	
	Range		3.80	
	Interquartile Range		1.40	
	Skewness		0.226	0.122
	Kurtosis		-1.075	0.243

The data in Table 4.11 reveals that the mean (2.65) and median (2.40) values are closely aligned, indicating a relatively symmetrical distribution. The slight positive skew (0.23) suggests that the responses are normally distributed. The mean value, approximating 3, indicates that consumers' cravings for food were assessed as average. The standard deviation (0.81) is relatively low, indicating minimal variation in the responses. Furthermore, the flat curve in Figure 4.3 confirms the low dispersion.

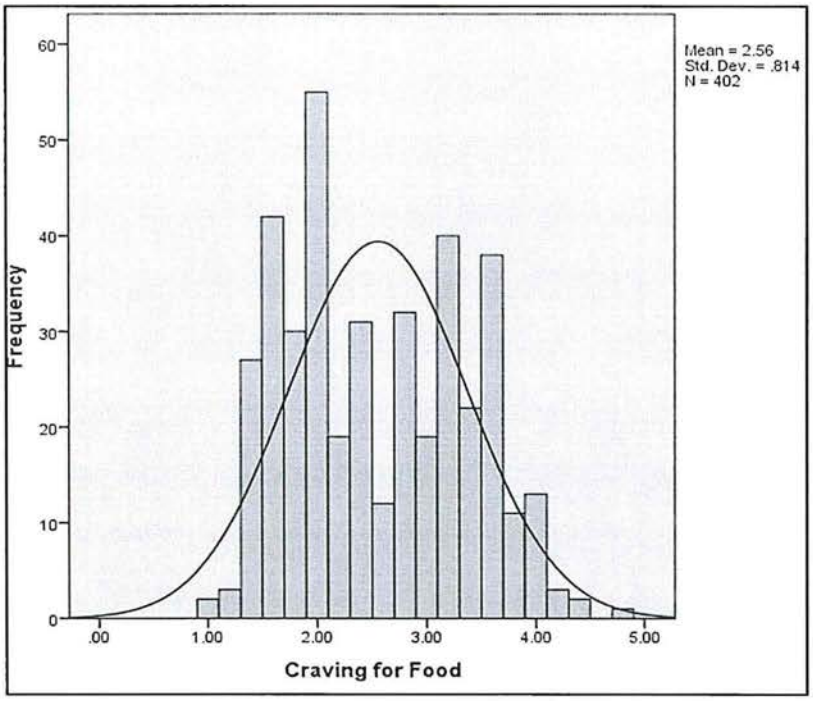


Figure 4.3:Histogram for craving for Food

The normal distribution of responses related to food cravings, as depicted in Figure 4.3, indicated that the data follows a typical bell-shaped curve. This suggested that the data meets the assumptions for parametric statistical analysis, allowing for the application of linear correlation and regression techniques to explore relationships between variables.

4.4.3 Food Pleasure.

This Construct was studied with five question items. The table below provides a summary of the data through descriptive statistics, including:Frequency counts, Percentage distributions , Mean values. These statistics offer a snapshot of the data, highlighting key trends and characteristics of the responses.

Table 4. 12:Descriptive Results for Food Pleasure

Food Pleasure	F/%	SD	D	NS	A	SA	Mean
Good appearance of the food makes me serve myself large amounts of food.	F	52	124	21	194	11	2.97
	%	12.9	30.8	5.2	48.3	2.7	
I find pleasure in leaving some food on my plate.	F	86	233	22	60	1	2.15
	%	21.4	58	5.5	14.9	0.2	
Heavy plate of food is a source of pleasure for me.	F	74	186	22	118	2	2.47
	%	18.4	46.3	5.5	29.4	0.5	
On specific days such as weekends, I find pleasure in indulging myself at eating-places.	F	63	129	20	170	20	2.89
	%	15.7	32.1	5	42.3	5.0	
Whenever the food is not tasty, I hardly finish it even when I am hungry.	F	51	115	24	196	16	3.03
	%	12.7	28.6	6	48.8	4%	

The table 4.12 reveals that when asked if the appealing presentation of food led consumers to serve themselves generous portions, a majority (51%) agreed, while 43.7% disagreed, and 5.2% were undecided. The mean response (2.97) indicated a neutral stance, suggesting that respondents believed the attractive appearance of food had a moderate impact on serving size. In contrast, when asked if consumers enjoyed leaving food uneaten on their plates, an overwhelming majority (79.4%) disagreed, while 15.1% agreed, and 5.5% were unsure. The mean response (2.15) aligned with disagreement, indicating that consumers generally do not derive pleasure from leaving food uneaten.

When asked if a large serving of food was a source of enjoyment, the majority of respondents (64.7%) expressed disagreement, while 29.9% agreed, and 5.5% were undecided. The mean response of 2.47, which aligns with the "disagreed" category, further reinforces this. This suggested that a heavy plate of food did not significantly contribute to consumers' pleasure.

Additionally, on the question of whether consumers found pleasure in indulging themselves at eating-places on specific days, such as weekends, the results cumulatively found that (47.8%) of individuals who disagreed were almost equal to those who agreed (47.3%). The mean was 2.89, close to three, which corresponded to Not sure. Therefore, the respondents indicated that consumers moderately found pleasure in indulging themselves at eating-places on weekends. On the question inquiring whether consumers hardly finished their food when it was not tasty, even when they were hungry, the results cumulatively showed that the majority percentage (52.8%) of respondents agreed, while 41.3% disagreed, and 6% were not sure. The mean = 3.03 suggested that consumers moderately agreed that they hardly finished food when it was not tasty, even if they were hungry. To gain a comprehensive understanding of consumers' overall assessment of food pleasure, a composite Food Pleasure Index was calculated by averaging the responses to five related items. The statistical summary of these results is presented in Table 4.13, providing an overview of the consumers' attitudes and perceptions regarding the pleasure they derive from food.

Table 4. 13:Summary statistics for Food pleasure

	Descriptives		Statistic	Std. Error
Food Pleasure	Mean		2.70	0.04
	95% Confidence Interval for Mean	Lower Bound	2.62	
		Upper Bound	2.78	
	5% Trimmed Mean		2.71	
	Median		2.80	
	Variance		0.667	
	Std. Deviation		0.82	
	Minimum		1.00	
	Maximum		4.20	
	Range		3.20	
	Interquartile Range		1.40	
	Skewness		-0.131	0.122
	Kurtosis		-1.101	0.243

Table 4.13 presents data that shows a high degree of symmetry in the distribution, with the mean (2.70) and median (2.80) values closely aligned. Although there is a slight negative skew (-0.13), the responses can be considered normally distributed. The mean and median values, both approximately 3, suggest that food pleasure was generally perceived as average, as 3 represents a neutral response on the scale. The low standard deviation (0.82) indicates minimal variability in responses, further supporting the reliability of the findings. The visual representation in Figure 4.4 confirms the normal distribution, reinforcing the accuracy of the results.

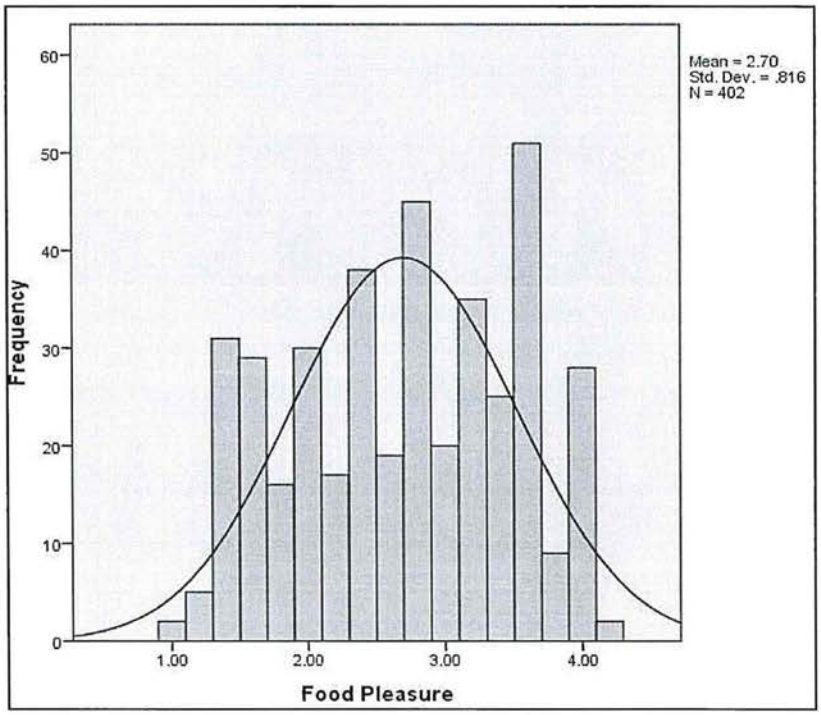


Figure 4.4:Histogram for Food Pleasure

The normal distribution of responses related to food pleasure, as depicted in Figure 4.4, indicated that the data follows a typical bell-shaped curve. This suggested that the data meets the assumptions for parametric statistical analysis, allowing for the application of linear correlation and regression techniques to explore relationships between variables.

To get a holistic view of the attitude toward food, the scores from the three constructs were aggregated into a single measure (Rewarding with food, Craving for Food, and Food pleasure). This combined measure provided insight into the general sentiment towards food among the respondents. The resulting histogram for this combined construct is presented below:

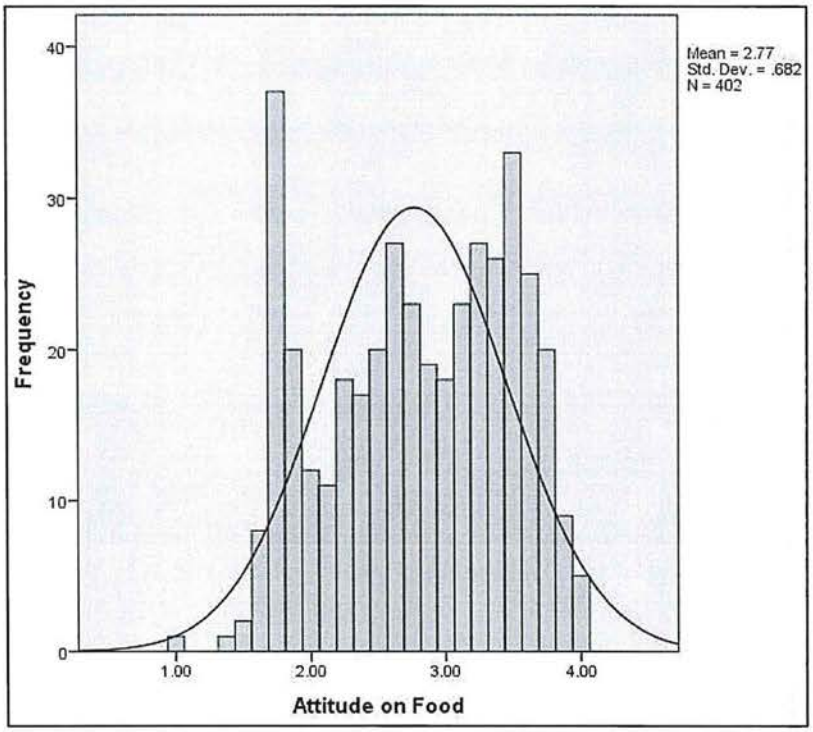


Figure 4. 5: Histogram for Consumers serving attitude towords Food

The data in Figure 4.5 exhibits a normal distribution of responses concerning the attitude towards food. This distribution is suitable for inclusion in regression models and correlation matrices shown in the table below.

4.4.4 Correlation analysis of consumer serving attitude towards Food and Food waste.

To establish whether consumer serving attitudes had a relationship with food waste in hotels and restaurants, the correlation analysis findings are presented in Figure 4.14

Table 4.14: Correlation of Consumer serving Attitude towards food and Food Waste

	Food Waste	Rewarding Self with Food	Craving for Food	Food Pleasure
Food Waste	1			
Rewarding Self with Food	0.559** 0.000	1		
Craving for Food	0.426** 0.000	0.592** 0.000	1	
Food Pleasure	0.614** 0.000	0.723** 0.000	0.610** 0.000	1

**. Correlation is significant at the 0.05 level (2-tailed).

Table 4.14 shows that certain food attitude aspects - specifically, using food as a reward ($r = 0.559$, $p < 0.001$), food cravings ($r = 0.426$, $p < 0.001$), and food pleasure ($r = 0.849$, $p < 0.001$) - have a significant and positive correlation with food waste. To further investigate whether these food attitudes (rewarding oneself with food, craving food, and experiencing food pleasure) can predict food waste, a regression analysis was conducted, and the findings are presented in Table 11.

4.4.5 Linear regression Model on Consumer-serving attitude towards food and Food waste.

At the confirmatory level, to ascertain whether consumers serving attitude toward food predicted food waste, the dependent variable namely, Food waste was regressed on Attitude towards Food as one of the factors independent variables. The findings are presented in Table 4.15.

Table 4.15:Regression of consumer serving attitude towards food and food waste

Food Attitudes	**Standardized Coefficients** Beta (β)	**Significance** p
Rewarding Self with Food	0.233	0.000
Craving for Food	0.025	0.622
Food Pleasure	0.431	0.000
$R^2 = 0.405$		
R^2 Adjusted = 0.401		
F = 90.466		

a. Dependent Variable: Food Waste

The results presented in Table 4.15 reveal that the combined factors of using food as a reward, craving food, and experiencing food pleasure collectively explain 40.5% of the variance in overall food attitude (adjusted $R^2 = 0.401$). This implies that 59.5% of the variance is attributed to factors not included in this model. However, the significant predictors, specifically rewarding oneself with food and experiencing food pleasure, contribute 40.1% (0.401) to the variance. The regression model is statistically significant ($F = 90.466$, $p < 0.05$), indicating a strong relationship. Notably, using food as a reward ($\beta = 0.233$, $p < 0.001$) has a significant impact on food attitude. This positive beta coefficient suggested that an increase in rewarding oneself with food is associated with a more positive overall attitude towards food.

Unlike food cravings, which have no significant impact on food attitude ($\beta = 0.025$, $p = 0.622$), food pleasure has a substantial influence ($\beta = 0.431$, $p = 0.000$). The high positive beta coefficient indicates that experiencing pleasure from food is a strong predictor of a positive overall attitude towards food. In other words, the frequency and intensity of food cravings do not significantly shape food attitude, whereas deriving pleasure from food plays a crucial role in fostering a positive attitude.

4.5 Consumer serving perceived control

Consumer serving perceived control was studied using two constructs i.e. Obsessive behavior with six question items and self-regulation with seven question items. This research explored the relationship between consumers' sense of control over their food decisions and the amount of food waste generated in hotels and restaurants in Kampala, with the goal of understanding how perceived control influences food waste production in these settings

4.5.1 Obsessive behavior.

This Construct was studied with six question items andthe The table below provides a summary of the data through descriptive statistics, including:Frequency counts, Percentage distributions , Mean values. These statistics offer a snapshot of the data, highlighting key trends and characteristics of the responses.

Table 4.16:Descriptive Results for Obsessive Behavior

Obsessive behavior	F/%	SD	D	NS	A	SA	Mean
Whenever I am serving myself, I rarely have thoughts, ideas, and impulses on foods I have to avoid.	F	56	176	39	121	10	2.63
	%	13.9	43.8	9.7	30.1	2.5	
I hardly avoid some foods served on Buffet.	F	55	169	28	127	23	2.74
	%	13.7	42	7	31.6	5.7	
I hardly miss any food included in the buffet.	F	55	204	35	103	5	2.50
	%	13.7	50.7	8.7	25.6	1.2	
I lack the effort to resist serving myself large amounts of food.	F	79	180	34	103	6	2.45
	%	19.7	44.8	8.5	25.6	1.5	
I have a high drive to serve myself a variety of foods even when I am not likely to finish them.	F	103	162	29	100	8	2.37
	%	25.6	40.3	7.2	24.9	2	
I get ambitious about missing certain foods on a buffet.	F	73	148	35	126	20	2.68
	%	18.2	36.8	8.7	31.3	5	

The results in Table 4.16, regarding whether consumers, whenever they served themselves, rarely had thoughts, ideas, and impulses about foods they had to avoid, the findings revealed that the majority of respondents (57.7%) disagreed, while 32.6% agreed, and 9.7% were undecided. The mean response (2.63) was close to the midpoint (3) of the five-point Likert scale, indicating a neutral or uncertain attitude. Therefore, the results indicated that respondents moderately believed that they rarely had thoughts, ideas, and impulses about foods to avoid when serving themselves. The findings also explored whether consumers tend to miss out on certain foods in a buffet. The cumulative results showed that the majority (64.4%) of respondents disagreed, while 26.8% agreed, and 8.7% were undecided. The mean response (2.50) was close to the neutral point (3) on the five-point Likert scale, indicating a general uncertainty among respondents. However, the results suggested that respondents moderately leaned towards disagreeing, implying that they believed consumers did miss out on some foods in the buffet, rather than hardly missing any.

The results also examined whether consumers lacked the self-control to resist serving themselves large amounts of food. Cumulatively, the majority of respondents (64.5%) disagreed with this statement, while 27.1% agreed, and 8.5% were undecided. The mean response (2.45) was close to the "disagreed" endpoint (2) on the five-point Likert scale, indicating that respondents generally did not believe that consumers lacked effort in resisting large food portions. This suggested that consumers did not significantly lack the effort to resist serving themselves large amounts of food. Regarding the question of whether consumers feel a strong urge to serve themselves a variety of foods even when they won't finish them, the cumulative results showed that the majority (65.9%) of respondents disagreed, while 26.9% agreed, and 7.2% were undecided. The mean response (2.37) was close to the "disagreed" endpoint (2) on the five-point Likert scale,

indicating that consumers generally do not have a strong drive to serve themselves a variety of foods when they won't finish them. On the other hand, when asked if consumers feel ambitious about trying certain foods on a buffet, the cumulative results showed that the majority (55%) of respondents disagreed, while 36.3% agreed, and 8.7% were undecided. The mean response (2.68) was close to the neutral point (3) on the scale, indicating a moderate level of ambition. To gain a comprehensive understanding of consumers' attitudes toward obsessive behavior, an average index was calculated for the 6 items measuring obsessive behavior. The summary statistics are presented in Table 4.17.

Table 4. 17:Summary statistics for Obsessive behavior

	Descriptives		Statistic	Std. Error
Obsessive behavior	Mean		2.56	0.04
	95% Confidence Interval for Mean	Lower Bound	2.49	
		Upper Bound	2.64	
	5% Trimmed Mean		2.55	
	Median		2.50	
	Variance		0.60	
	Std. Deviation		0.78	
	Minimum		1.00	
	Maximum		4.67	
	Range		3.67	
	Interquartile Range		1.33	
	Skewness		0.17	0.12
	Kurtosis		-0.90	0.24

As shown in Table 4.17, the results indicate a mean score was 2.56, which is closely aligned with the median score of 2.50, indicating a normal distribution of responses related to obsessive behaviors. The low standard deviation of 0.78 suggests a high degree of consistency in the responses, with minimal variability. The slightly positive skewness of 0.176 indicates a minor tendency towards higher scores, but the overall distribution remains normal. Collectively, these statistics suggest a balanced and moderate distribution of obsessive behavior among respondents, with most scores clustering around

the mean. The curve in Figure 4.6 visually confirms this normal distribution, further supporting the findings.

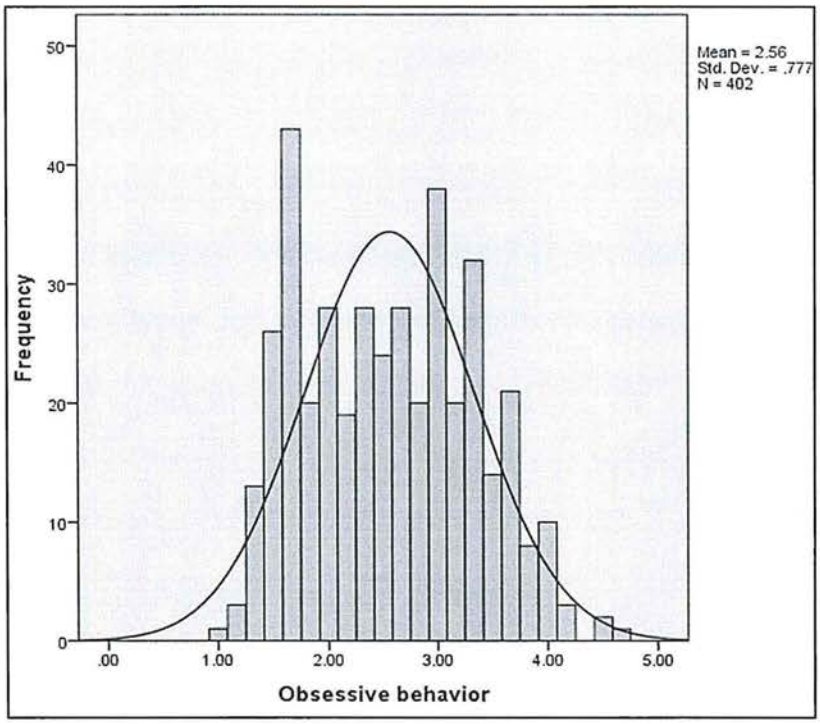


Figure 4. 6: Histogram for obsessive behavior

The histogram indicated that the respondents generally exhibit moderate levels of obsessive behavior, with a normal distribution. The slight positive skew and moderate variability suggest that while most individuals fall near the average, some exhibit higher levels of obsessive behavior. The overall pattern indicates a balanced distribution.

4.5.2 Self-Regulation.

This Construct was studied with 7 question items and the table below provides a summary of the data through descriptive statistics, including Frequency counts, Percentage distributions, and Mean values. These statistics offer a snapshot of the data, highlighting key trends and characteristics of the responses.

Table 4.18:Descriptive results for Self-Regulation towords food

Self-Regulation	F/%	SD	D	NS	A	SA	Mean
I lack the ability to monitor what I serve myself at a buffet.	F	82	161	30	122	7	2.53
	%	20.4	40	7.5	30.3	1.7	
Sometimes I serve myself some foods, which I find I do not want in the course of eating.	F	85	178	22	111	6	2.44
	%	21.1	44.3	5.5	27.6	1.5	
When serving myself I hardly think about my weight.	F	77	150	22	141	12	2.65
	%	19.2	37.3	5.5	35.1	3	
I rarely think about the consequences of serving myself large amounts of food.	F	23	86	24	196	73	3.52
	%	5.7	21.4	6	48.8	18.2	
When serving myself food I hardly think about whether I will be able to finish it.	F	41	132	31	181	17	3.00
	%	10.2	32.8	7.7	45	4.2	
When eating I sometimes get distracted and leave food on the plate.	F	57	152	31	151	11	2.77
	%	14.2	37.8	7.7%	37.6	2.7	
I am weak at resisting tempting foods and consequently serve myself large amounts of food.	F	57	146	18	145	36	2.89
	%	114.2	36.3	4.5	36.1	9.0	

The findings in Table 4.18 examined whether consumers lacked the ability to monitor their food servings at a buffet. The cumulative results showed that the majority (60.4%) of respondents disagreed with this statement, while 32% agreed, and 7.5% were undecided. The mean response (2.53) was close to the neutral point (3) on the scale, indicating a general uncertainty among respondents. This suggested that respondents moderately indicated that consumers struggled to monitor what they served themselves at a buffet. On whether consumers sometimes served some foods that they found they did not want in the course of eating the cumulative results revealed that an overwhelming

majority (65.4%) of respondents disagreed, while 29.1% agreed, and 5.5% were undecided. The mean response (2.44) was close to the "disagreed" endpoint (2) on the scale, indicating a strong tendency towards disagreement. This suggested that consumers' decisions to serve themselves foods they did not want during eating were not well considered.

When serving themselves, consumers hardly thought about weight, with 56.5% disagreeing and 38.1% agreeing. The mean (2.65) indicated a moderate level of consideration for weight. This suggested that respondents moderately indicated that consumers, when serving themselves, hardly thought about weight, implying that weight considerations were present in consumers' minds. Consumers rarely thought about the consequences of serving themselves large amounts of food, with 67% agreeing and 27.1% disagreeing. The mean (3.52) suggested a strong tendency towards agreement. When serving food, consumers hardly thought about whether they would be able to finish it, with 49.2% agreeing and 43% disagreeing. The mean (3.00) indicated a neutral or moderate response. This suggested that consumers, when serving food, hardly thought about whether they would be able to finish it, and this was considered moderate.

When asked if they ever got distracted while eating and left food on their plate, a slight majority (52%) of respondents denied it, while 40.3% admitted to it, and 7.7% were unsure. The mean response (2.77) leaned towards uncertainty, indicating a moderate tendency to get distracted during meals. Regarding the question of whether consumers are weak at resisting tempting foods and end up serving themselves large portions, the results showed a slim majority (50.5%) disagreeing, while 45.1% agreed, and 4.5% were unsure. The mean response (2.89) again hovered around uncertainty, suggesting that respondents moderately believed consumers can resist tempting foods and don't typically

serve themselves excessive amounts. A composite self-regulation index was calculated by averaging seven survey items that evaluated consumers' self-regulation abilities. The overall self-regulation scores, which provide insight into consumers' capacity for self-control, are presented in Table 4.19.

Table 4.19:Summary Statistics Self-Regulation towards food

	Descriptives		Statistic	Std. Error
Self Regulation	Mean		2.83	0.04
	95% Confidence Interval for Mean	Lower Bound	2.76	
		Upper Bound	2.90	
	5% Trimmed Mean		2.84	
	Median		2.86	
	Variance		0.55	
	Std. Deviation		0.74	
	Minimum		1.14	
	Maximum		4.29	
	Range		3.14	
	Interquartile Range		1.29	
	Skewness		-0.11	0.122
	Kurtosis		-1.07	0.243

The results in Table 4.19 showed that the mean score (Mean = 2.83) is close to the median score (Median = 2.86), indicating normality in the responses for self-regulation. The low standard deviation (Std. Deviation = 0.74) reflects a low dispersion of responses. The slight negative skewness (Skewness = -0.109) suggests a small tendency towards lower scores, but the distribution remains normal. The distribution curve presented in Figure 4.7 visually supports the assumption of normality.

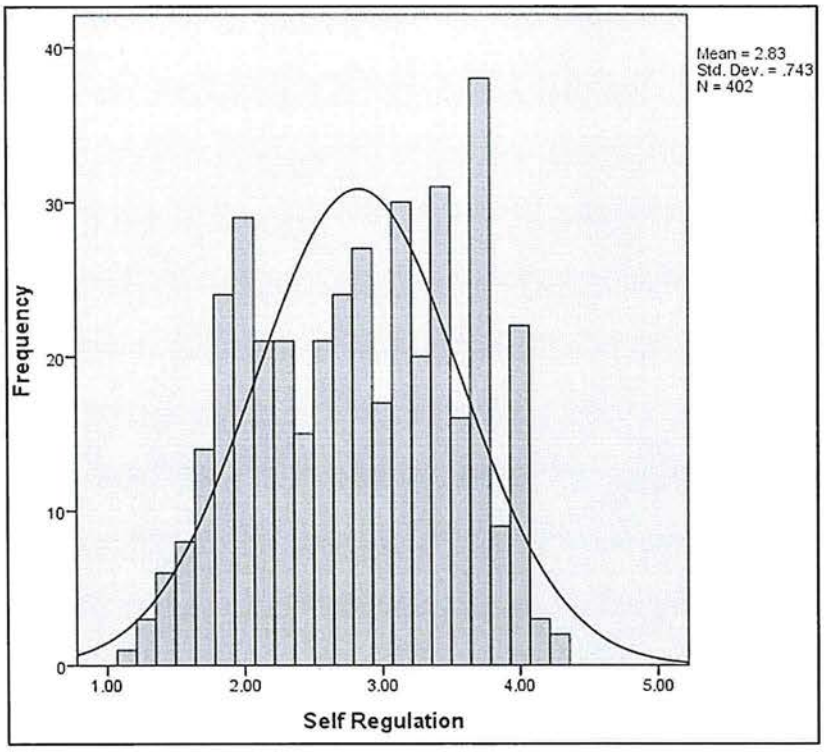


Figure 4.7:Histogram for Self-Regulation towords food

The Figure 4.7 indicated that the respondents generally exhibit moderate levels of self-regulation, with a normal. The slight negative skew and moderate variability suggest that while most individuals fall near the average, some exhibit lower levels of self-regulation. The overall pattern indicated a normal distribution.

From the above two constructs (Obsessive behavior and Self-regulation), the scores are aggregated into a single measure to get a holistic view of the perceived Control. This combined measure provides insights into the general sentiment towards food among the respondents. The resulting histogram for these combined constructs is presented below in Figure 4.8

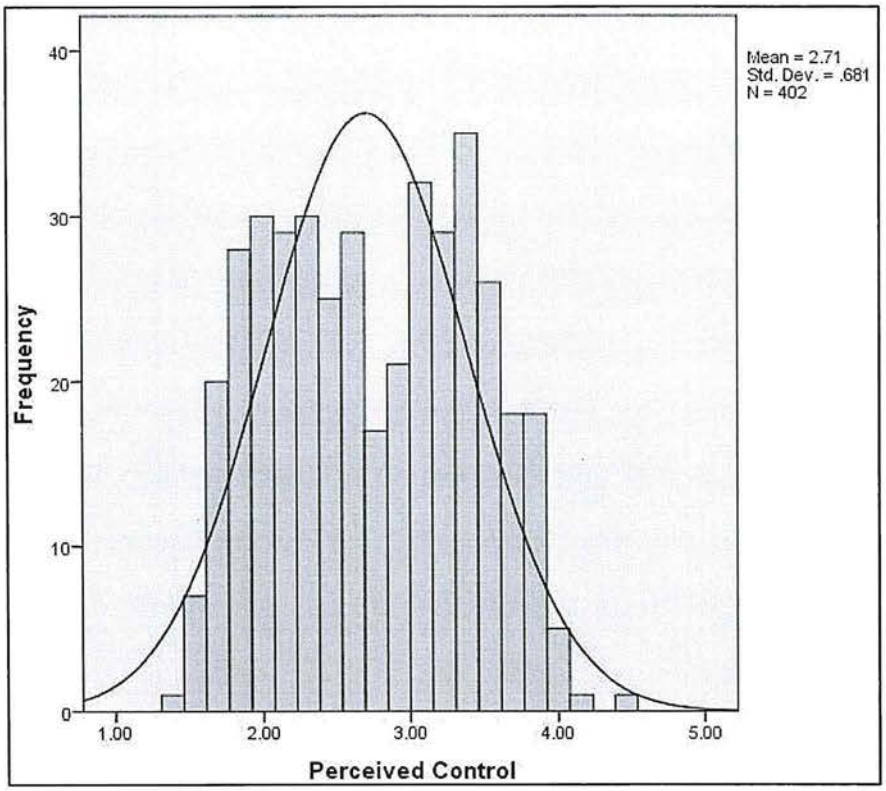


Figure 4. 8:Histogram for consumer serving perceived control

The graph above, suggested a moderate level of perceived control among the sample, with a slight tendency for lower perceived control in some respondents. Overall, the data suggested that respondents generally exhibit moderate control over their food choices and portions, both in terms of obsessive behavior and self-regulation. The mean scores and standard deviations were within expected ranges, indicating a normal distribution of responses. This reflected diverse perceived controls towards food serving and consumption behaviors. The normal distribution is shown in the regression models and correlation matrices shown in the table below

4.5.3 Correlation Analysis of Consumer serving perceived Control and Food waste.

To establish whether consumers serving perceived control had a relationship with food waste in Hotels and restaurants, a correlation analysis was conducted to examine the relationships between variables. The results of this analysis are presented in Table 4.20, which displays the correlation coefficients and significance levels for each variable pair.

Table 4.20:Correlation of consumer serving Perceived Control and Food Waste

		Food Waste	Obsessive behavior	Self-Regulation
Food Waste	Pearson Correlation	1		
	Sig. (2-tailed)			
Obsessive	Pearson Correlation	0.468**	1	
behavior	Sig. (2-tailed)	0.000		
Self-Regulation	Pearson Correlation	0.608**	0.611**	1
	Sig. (2-tailed)	0.000	0.000	

**. Correlation is significant at the 0.01 level (2-tailed).

The results in the Table 4.20 revealed that perceived control aspects, namely obsessive behavior ($r = 0.468$, $p = 0.000 < 0.05$) and self-regulation ($r = 0.608$, $p = 0.000 < 0.05$) had significant positive relationships between food waste and the other variables measured. Then obsessive behavior and self-regulation ($r = 0.611$, $p = 0.000 < 0.05$), a statistically significant positive correlation was observed, indicating a positive linear relationship.

4.5.4 Linear regression Model on Consumer serving perceived control and Food waste.

To confirm whether consumers' perceived control influences food waste, a regression analysis was conducted where food waste (the dependent variable) was predicted by perceived control (an independent variable). The findings of this analysis are presented in Table 4.21

Table 4.21:Regression of Food Waste on Consumer srving perceived control

Model	Standardized Coefficients Beta (β)	Sig.
Obsessive behavior	0.154	0.002
Self-Regulation	0.513	0.000
$R^2 = 0.384$		
R^2 Adjusted = 0.381		
F = 124.520		

a. Dependent Variable: Food Waste

The study findings presented in Table 4.21 indicated the combined constructs of Obsessive Behavior and Self-Regulation explained 38.4% of the variation in the overall perceived control (adjusted $R^2 = 0.381$). This means that 61.6% of the variation was accounted for by other factors not considered in this model. However, the significant constructs, namely obsessive behaviour and self-regulation contributed to 38.1% (0.381). The regression model was significant ($F = 124.520$, $p = 0.000 < 0.05$). The results indicated that Obsessive Behavior ($\beta = 0.154$, $p = 0.002$) significantly influenced perceived control. This positive beta coefficient suggests that an increase in obsessive behavior is associated with an increase in perceived control.

Furthermore, self-regulation ($\beta = 0.513$, $p = 0.000$) was also found to significantly influence Food Waste, with a relatively high positive beta coefficient. This indicates that higher levels of self-regulation are associated with higher levels of perceived control. Therefore, The null hypothesis is rejected in favor of the alternative hypothesis

4.6 Consumers serving subjective norms

Subjective norms were studied using two constructs i.e. approval with seven question items and customs with seven question items. This study aimed to investigate the impact

of consumers' perceived social norms on food waste generation in hotels and restaurants in Kampala.

4.6.1 Approval.

This construct was studied using seven question items and the table below shows its descriptive results.

Table 4.22: Descriptive Results for Approval towards food

Approval	F/%	SD	D	N	A	SA	Mean
When in a hotel I serve myself a variety of foods for approval showing that I do not lack.	F	67	224	34	72	5	2.31
	%	16.7	55.7	8.5	17.9	1.2	
Serving myself large amounts of food indicates financial capability when I am with colleagues.	F	116	194	24	64	4	2.12
	%	28.9	48.3	6	15.9	1	
I go to eating-places that have been praised by colleagues for serving large amounts of food.	F	80	148	37	121	16	2.61
	%	19.9	36.8	9.2	30.1	4	
Whenever am with colleagues I do not regulate the variety and amounts of food I serve because it gives me recognition.	F	92	215	25	69	1	2.18
	%	22.9	53.5	6.2	17.2	0.2	
I do not mind leaving food on the plate because I can afford it and my Friends approve it.	F	98	205	18	79	2	2.21
	%	24.4	51.0	4.5	19.7	0.5	
I enjoy it when colleagues see me leave large amounts of food on my plate.	F	111	230	11	45	5	2.01
	%	27.6	57.2	2.7	11.2	1.2	
Leaving food on my plate when am with my friends gives me satisfaction.	F	122	217	18	40	5	1.98
	%	30.3	54	4.5	10	1.2	

The results in Table 4.21, on the question inquiring whether consumers, when in a hotel, served themselves a variety of foods for approval to show that they did not lack, showed that cumulatively the majority percentage (72.4%) of respondents disagreed, while 19.1% agreed, and 8.5% were not sure. The low mean of 2.31, close to two, which corresponded with disagreed, implied that consumers indicated that when in a hotel, they did not serve

themselves a variety of foods for approval to show that they did not lack. On the other hand, regarding the question of whether consumers serving themselves large amounts of food indicated financial capability when they were with colleagues, the results cumulatively showed that the majority percentage (77.2%) of respondents disagreed, while 16.9% agreed, and 6% were not sure. The low mean of 2.12, close to two, which corresponded with disagreed, suggested that showing financial capability through food portions was not a common behavior among consumers.

A significant majority (56.7%) of consumers rejected the idea of frequenting restaurants praised by colleagues for serving large quantities of food, while 34.1% embraced this notion, and 9.2% remained ambivalent. The mean response of 2.61, hovering around the neutral mark on the 5-point Likert scale, reveals a prevailing sense of uncertainty among. This suggested that large portions were moderately a primary factor in choosing eating-places for consumers. For whether consumers, whenever they were with colleagues, did not regulate the variety and amounts of food they served because it gave them recognition, the results cumulatively showed that the majority percentage (76.4%) of respondents disagreed, while 17.4% agreed, and 6.2% were not sure. The low mean of 2.18, close to two, corresponded with disagree, implying that consumers did not seek recognition through serving themselves a variety of foods. On whether consumers did not mind leaving food on the plate because they could afford it and their friends approved it, the results cumulatively showed that the majority percentage (75.4%) of respondents disagreed, while 20.2% agreed, and 4.5% were not sure. The low mean of 2.21, close to two, corresponded with disagreed. Therefore, the results indicated that respondents generally disagreed with the notion of not minding leaving food on the plate due to affordability and approval, suggesting that affordability and friends' approval did not justify leaving food on the plate.

When asked if consumers enjoyed leaving large amounts of food on their plate when colleagues were present, an overwhelming majority (84.8%) disagreed, while 12.4% agreed, and 2.7% were unsure. The mean score (2.01) corresponded with disagreement, indicating that this behavior was uncommon among consumers dining out in hotels and restaurants.

Similarly, when asked if leaving food on their plate when dining with friends gave consumers satisfaction, a majority (84.3%) disagreed, while 11.2% agreed, and 4.5% were unsure. The low mean score (1.98) corresponded with disagreement, suggesting that this behavior was not typical among consumers who dined out in restaurants and hotels.

To examine the overall level of how Consumers rated Approval, an average index of approval was computed for seven items measuring Consumers' approval. The results on the same were presented in Table 4.23.

Table 4.23:Summary Statistics for Approval towards food

	Descriptives		**Statistic**	**Std. Error**
Approval	Mean		2.20	0.034
	95% Confidence Interval for Mean	Lower Bound	2.14	
		Upper Bound	2.27	
	5% Trimmed Mean		2.18	
	Median		2.00	
	Variance		0.46	
	Std. Deviation		0.68	
	Minimum		1.00	
	Maximum		4.00	
	Range		3.00	
	Interquartile Range		1.00	
	Skewness		0.66	0.12
	Kurtosis		-0.37	0.24

The results presented in Table 4.23 indicate that the mean value (2.20) was very close to the median value (2.00). This indicates that the distribution of responses was poor around the central tendency, despite the positive skew (skew = 0.66). The mean being slightly

above two implies that respondents disagreed with approval-related behaviors in food settings. The low standard deviation = 0.68 implies low dispersion in the responses. Overall, the results suggested a general disagreement with approval-related behaviors in food settings, with low variability in responses and a distribution that is relatively normal despite the slight positive skew. The distribution curve depicted in Figure 4.9 visually supports the assumption of normality, exhibiting a bell-shaped curve with a clear peak and symmetrical tails.

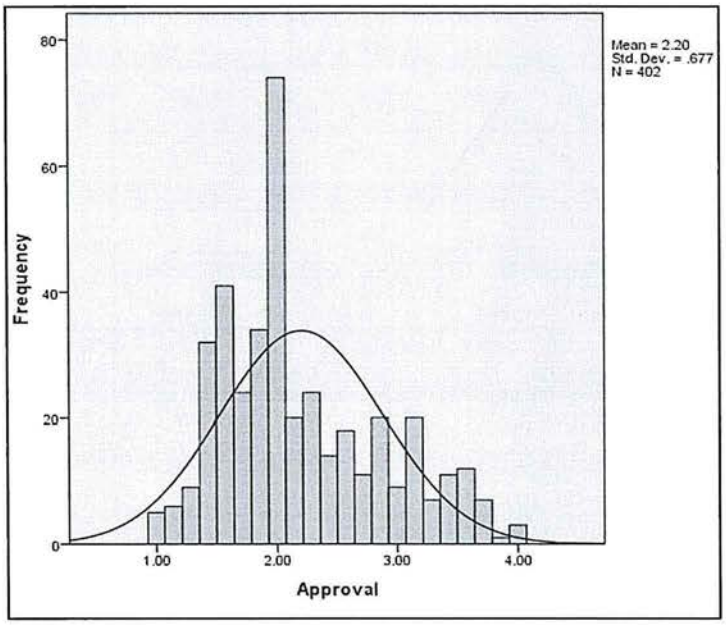


Figure 4.9:Histogram for Approval on food

Figure 4.9 reveals a normal distribution of responses related to Approvals, indicating that the data follows a typical bell-curve pattern. This suggests that the data is suitable for analysis using linear correlation and regression techniques, which can provide reliable and meaningful results.

4.6.2 Food Customs.

This construct was studied using seven question items and the table below shows its descriptive results.

Table 4. 24:Descriptive and frequency results for food Customs

Customs	F/%	SD	D	NS	A	SA	Mean
Happiness is achieved through being served large amounts of food.	F	77	153	51	116	5	2.55
	%	19.2	38.1	12.7	28.9	1.2	
Serving small amounts of food is an indication that there is a lack of food.	F	74	211	54	59	4	2.27
	%	18.4	52.5	13.4	14.7	1.0	
It is good manners to leave food on the plate.	F	138	201	35	19	9	1.91
	%	34.3	50	8.7	4.7	2.2	
Leaving food on the plate indicates that one is satisfied.	F	40	164	88	99	11	2.69
	%	10	40.8	21.9	24.6	2.7	
Serving Little food is like showing off.	F	98	191	59	51	3	2.18
	%	24.4	47.5	14.7	12.7	0.7	
A wealth person should have a variety of foods in sufficient amounts during a meal.	F	58	174	86	82	2	2.49
	%	14.4	43.3	21.4	20.4	0.5	
Serving oneself large amounts of food brings satisfaction in daily life.	F	83	131	61	124	3	2.58
	%	20.6	32.6	15.2	30.8	0.7	

Table 4.24 presents findings on consumers' attitudes towards food portions and happiness. A majority (57.3%) disagreed that large portions brought them happiness, while 30.1% agreed, and 12.7% were unsure. The mean response (2.55) indicated a moderate association between large portions and happiness. Regarding small portions, a significant majority (70.9%) disagreed that they indicated a lack of food, while 15.7% agreed, and 13.4% were unsure. The low mean (2.27) suggested that small portions were not perceived as a sign of scarcity. Concerning table manners, an overwhelming majority (84.3%) disagreed that leaving food on the plate was polite, while 6.9% agreed, and 8.7%

were unsure. The low mean (1.91) confirmed that leaving food on the plate was not considered good manners.

The survey found that consumers are divided on whether leaving food on the plate indicates satisfaction, with 50.8% disagreeing, 27.3% agreeing, and 21.9% unsure. The mean response (2.69) suggests a neutral stance, indicating that leaving food on the plate is only moderately seen as a sign of satisfaction. In contrast, a clear majority (71.9%) rejected the idea that serving small portions is a way to show off, while 13.4% agreed, and 14.7% were unsure. The low mean (2.18) confirms that serving small amounts of food is not perceived as an attempt to impress others

The survey found that most respondents (57.7%) did not believe that having a variety of foods in abundance during a meal was a sign of wealth, while 20.9% thought it was, and 21.4% were unsure. The mean response (2.49) supported this view, indicating that a diverse and plentiful meal was not seen as a status symbol. Regarding the relationship between serving oneself large portions and daily satisfaction, the results were mixed. A slight majority (53.2%) disagreed that large portions brought satisfaction, while 31.5% agreed, and 15.2% were unsure. The mean response (2.58) suggested a moderate link between the two, indicating that while some people derive satisfaction from large portions, others do not.

To assess the overall perception of customs towords food practices, a composite index was calculated by averaging the responses to the seven related items. The findings are presented in Table 4.25, providing an overview of the respondents' ratings of customs practices.

Table 4. 25:Summary Statistics for food Customs

	Descriptives		Statistic	Std. Error
Customs	Mean		2.39	0.03
	95% Confidence Interval for Mean	Lower Bound	2.32	
		Upper Bound	2.44	
	5% Trimmed Mean		2.38	
	Median		2.43	
	Variance		0.38	
	Std. Deviation		0.62	
	Minimum		1.00	
	Maximum		4.00	
	Range		3.00	
	Interquartile Range		0.86	
	Skewness		-0.02	0.12
	Kurtosis		-0.74	0.24

Table 4.25 presents results indicating a slight deviation, with the mean (2.38) being close to the median (2.43). Although the data exhibits a slight negative skewness (skewness = -0.18), the responses still follow a normal distribution. The low standard deviation (0.62) suggests a high degree of consistency and minimal variability in the responses. Furthermore, the distribution curve in Figure 4.10 visually confirms the normality of the data, supporting the use of parametric statistical methods for analysis. Overall, the results indicate a reliable and consistent pattern in the responses.

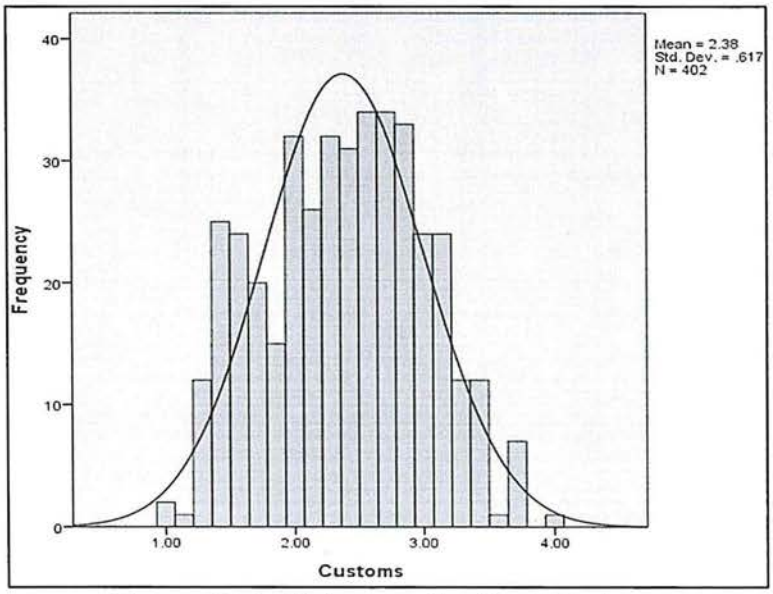


Figure 4.10:Histogram for food Customs

Figure 4.10 reveals a normal distribution of responses related to customer practices, indicating that the data follows a typical bell-curve pattern. This suggests that the data is suitable for analysis using linear correlation and regression models, which can provide reliable and meaningful results.

From the above two constructs (Approval and Customs), the scores are aggregated into a single measure to get a holistic view of the subjective norms. This combined measure provides insights into the general sentiment towards food among the respondents. The resulting histogram for this combined construct is presented below in Figure 4.11

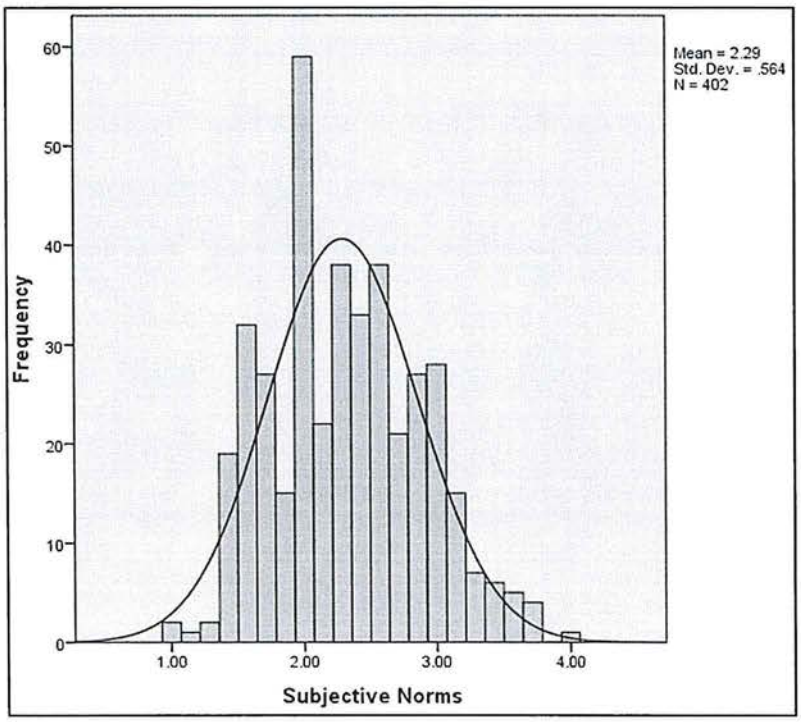


Figure 4.11:Histogram for Consumers serving Subjective Norms

Figure 4.11 reveals a distribution that closely approximates a normal curve, with responses congregating between 2.0 and 3.0, implying a robust central tendency and a high level of homogeneity in the data, as evidenced by the symmetrical spread of responses around the mean.

4.6.3 Correlation Analysis Results of consumers serving subjective Norm and Food waste.

A correlation analysis was conducted to investigate the potential link between consumers' subjective norms and food waste in hotels and restaurants in Kampala, with the findings presented in Table 4.26.

Table 4.26: Correlation of consumers serving subjective norms and Food Waste

		Food Waste	Approval	Customs
Food Waste	Pearson Correlation	1		
	Sig. (2-tailed)			
Approval	Pearson Correlation	0.444**	1	
	Sig. (2-tailed)	0.000		
Customs	Pearson Correlation	0.508**	0.517**	1
	Sig. (2-tailed)	0.000	0.000	

**. Correlation is significant at the 0.01 level (2-tailed).

The results presented in Table 4.26 show a statistically significant positive correlation between food waste and both approval behaviors ($r = 0.444$, $p < 0.000$) and customs ($r = 0.508$, $p < 0.000$). Furthermore, there is a significant positive relationship between approval behaviors and customs ($r = 0.517$, $p < 0.000$). These findings are significant at the 0.05 level, supporting the research hypotheses that subjective norms related to customs and approval behaviors are associated with food waste.

4.6.4 Linear Regression Model of Food Waste on Subjective Norms.

At the confirmatory level, to ascertain whether Consumers serving subjective norms predicted Food waste, the dependent variable, Food waste was regressed on subjective norms as one of the factors of independent variables. The findings are displayed in Table 4.27

Table 4.27: Regression of Food waste on consumers serving Subjective Norms

Model	Standardized Coefficients Beta (β)	Sig.
Approval	0.248	0.000
Customs	0.379	0.000
$R^2 = 0.303$		
R^2 Adjusted = 0.299		
F= 86.702		

a. Dependent Variable: Food Waste

The results in Table 4.27 indicate that the combined effects of approval and customs explain approximately 30.3% of the variation in overall subjective norms (adjusted R^2 = 0.299), leaving 69.7% of the variance attributable to other factors not included in the model. However, both approval behaviors and customs significantly contribute to 29.9% of the variation. The overall regression model is statistically significant (F = 86.702, p = 0.000), with approval behaviors (β = 0.248, p = 0.000) having a positive and significant impact on subjective norms. These findings provide strong evidence to reject the null hypothesis, confirming that consumers' subjective norms significantly influence food waste in hotels and restaurants.

4.7 Drivers of Food Waste by consumers in selected Hotels and Restaurants.

This is a combination of three objectives, which are the attitude on food, Perceived control, and subjective norms.

Table 4. 28:Correlation of Drivers of Food Waste

		Attitude on Food	Perceived Control	Subjective Norms
Attitude on Food	Pearson Correlation	1		
	Sig. (2-tailed)			
Perceived	Pearson Correlation	.673**	1	
Control	Sig. (2-tailed)	.000		
Subjective	Pearson Correlation	.732**	.650**	1
Norms	Sig. (2-tailed)	.000	.000	

**. Correlation is significant at the 0.01 level (2-tailed).

The results in table 4.28 indicated that all three drivers of the food variable, namely Attitude on Food, Perceived Control, and Subjective Norms are positively and significantly correlated with each other. The strongest correlation is between Subjective Norms and Attitude on Food (r = 0.732), followed by "Perceived Control" and "Attitude on Food" (r = 0.673). These findings suggest that consumers' attitudes toward food, their perceived control over food choices, and the influence of societal norms are interconnected and collectively play a significant role in driving food waste behaviors. Here are some paraphrased versions. A regression analysis was performed to examine the relationships between variables and determine the most influential factors contributing to food waste. The results of this analysis are summarized in Table 4.25, which highlights the key predictors of food waste and their relative significance

4.7.1 Linear Regression model of Drivers of Food waste.

To confirm the significance of the identified drivers of food waste, a regression analysis was performed. The results, displayed in Table 4.29, provide evidence that these drivers are indeed significant predictors of food waste, supporting the initial findings.

Table 4. 29: Linear Regression Model of Drivers of Food waste

Drivers of Food Waste	**Standardized Coefficients** Beta(β)	**Sig.**
Attitude on Food	0.322	0.000
Perceived Control	0.322	0.000
Subjective Norms	0.100	0.084
R^2 Adjusted = 0.441		
F = 106.502, p = 0.000		

a. Dependent Variable: Food Waste

The study findings in Table 4.29 show that, both attitude on food (β = 0.322, p = 0.000) and perceived Control (β = 0.322, p = 0.000) have positive and significant influence on food waste. However, subjective norms (β = 0.100, p = 0.084) have a positive but

insignificant influence on food waste. The model explained 44.5% (R^2 Adjusted 0.441) = of the variance in the food waste. The overall model was statistically significant (F = 106.502, p = 0.000), confirming the importance of attitude on food and perceived control in influencing food waste. The respective betas (βs) showed that attitude to food and perceived control had equal contributions to food waste. The results suggested that while hypotheses one and two (H1 and H2 were supported, hypothesis three (H3) was rejected.

CHAPTER FIVE: DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter presents a detailed examination of the study's results, offering conclusions and recommendations on the primary factors contributing to food waste in hotels and restaurants in Kampala, Uganda. Additionally, the chapter discusses the study's limitations and suggests potential areas for future research, providing a thorough and comprehensive conclusion to the study.

5.1 Discussions of the Findings

This section offers a summary of the findings, organized around the study's primary objectives. By following this structure, the summary provides a clear and comprehensive exploration of the results, ensuring that each key aspect is thoroughly examined and interpreted. The investigation's results are examined logically and methodically, providing a clear and comprehensive exploration of the findings.

5.1.1 Objective One: To examine the influence of consumer-serving attitudes on food waste in hotels and restaurants in Kampala.

The study's initial objective explored the relationship between consumer-serving attitudes and food waste in Kampala's hospitality industry. The hypothesis predicted a positive correlation between these attitudes and food waste, which was confirmed by the regression analysis. This finding aligns with existing research, such as Aschemann-Witzel et al. (2015), who found that consumer attitudes significantly contribute to food waste. Moreover, larger portion sizes often result in increased plate waste, as consumers prioritize perceived value and struggle to finish their meals (Lorenz et al., 2017). Likewise, in hotels and restaurants, the practice of serving large portions can result in excessive

waste, particularly when consumers are not inclined to take leftovers home (Filimonau et al., 2020).

Consistent with the above, Attitudes towards food waste are also influenced by psychosocial factors such as personal norms, perceived behavioural control, and social influence. Personal norms, or internalized standards of behaviour, predict food waste reduction behaviours, with individuals who feel morally obligated to reduce waste more likely to engage in such behaviours (Niemiec et al., 2016). The perception of control over one's ability to reduce food waste and the influence of peers and family members also play crucial roles.

Therefore, the study's findings indicate that consumer-serving attitudes significantly influence food waste in hotels and restaurants in Kampala. Rewarding Self with Food and Food Pleasure are significant predictors of a positive Attitude on Food, which in turn influences food waste behaviors. However, Craving for Food does not significantly impact overall attitudes towards food. These insights highlight the importance of targeting consumer attitudes and behaviors in efforts to reduce food waste. Strategies to enhance consumer awareness, promote mindful eating practices, and address social and psychological factors can be effective in mitigating food waste in the hospitality industry.

5.1.2 Objective Two: To assess the influence of consumers serving perceived control on food waste in hotels and restaurants in Kampala.

The second objective of the study aimed to assess how consumer-serving perceived control influences food waste in hotels and restaurants in Kampala. This involved testing the hypothesis that consumers' serving perceived control has a positive significant influence on food waste (H2). Regression results showed that the hypothesis (H1) was

accepted, indicating a significant influence of consumer-serving perceived control on food waste. This finding agreed with the findings of the previous scholars. For example, Haugaard (2016) found that perceived behavioral control (PBC), including routines related to shopping and leftovers management, is crucial in reducing food waste among Danish consumers. Confidence in managing food-related activities influences food waste behaviors. Likewise, Visschers et al. (2016) argued that interventions to increase PBC, like improving planning and shopping routines, significantly reduce food waste in Swiss households. Also Aschemann-Witzel et al. (2015) emphasized that consumer motivation, management skills, and PBC are significant in influencing food waste behaviors, recommending interventions to enhance consumers' capabitielis in food provisioning and storage.

In agreement with the above, Lin (2021) discussed that while government policies are influential, individual perceived control remains critical in shaping household food waste reduction intentions in China, highlighting the complex nature of perceived control involving both personal and external influences. Therefore, the study confirms that consumer-serving perceived control significantly influences food waste in hotels and restaurants in Kampala, with obsessive behavior and self-regulation playing pivotal roles.

5.1.3 Objective Three: To examine the influence of consumers serving subjective norms on food waste in hotels and restaurants in Kampala.

The study's third objective explored the relationship between consumers' serving subjective norms and food waste in Kampala's hotels and restaurants. The corresponding hypothesis (H3) predicted a positive significant impact of these norms on food waste. However, the regression analysis results contradicted this hypothesis, indicating that consumers' serving subjective norms have no significant influence on food waste in these

establishments. This finding diverges from the results of previous studies, suggesting a discrepancy between the current study's outcomes and existing research on the topic. For example, Chawla et al. (2022) found that employees in the hospitality industry are significantly influenced by subjective norms, with strong normative expectations from peers and management leading to more waste-reducing practices. Also, Jang and Kim (2023) emphasized that hotels and social pressures that can promote or deter sustainable practices influence restaurants.

Disagreeing with the findings of the study, Wansink and Ittersum (2007) highlighted that educating consumers about the environmental impact of food waste and social campaigns can shift subjective norms, leading to food that is more responsible consumption and waste management behaviors. Furthermore, Kallbekken and Saelen (2013) demonstrated that simple nudges, such as reducing plate sizes and providing social cues in hotel restaurants, effectively reduced food waste by leveraging subjective norms. These interventions show the potential of social influences in promoting pro-environmental behaviors. However, the study's findings contradict the results of previous research in this area. This suggests that, in the context of hotels and restaurants in Kampala, the relationship between consumers' serving subjective norms and food waste may be different from what has been observed in other studies, meaning subjective norms were not the most significant factor influencing food waste.

5.2 Conclusion

Based on the discussions above, the following conclusions can be drawn regarding the factors that contribute to food waste by consumers in hotels and restaurants:

1. Consumer-serving attitudes cause food waste in hotels and restaurants. This is because of consumers need to reward themselves with food and because of food

pleasure they derive from food. With rewarding with food, this is when consumers tend to indulge themselves with several tasty foods when at a buffet and often put a variety of foods on their plates, which leads to increased food wastage, as consumers are unable to finish the large portions they serve themselves. With food pleasure, this is when consumers derive enjoyment and satisfaction from consuming food, leading them to serve larger portions than necessary or else select variety of dishes simply for the pleasure of testing.

2. Consumer-serving perceived control is a determinant of food waste. This is when consumers feel certain of their ability to control their food intake or lack the effort to resist serving large amounts of food, which influence food waste behaviours. With obsessive behaviour, this is when consumers often showed a lack of self-regulation while eating and left food on the plate, which further contributed, to food waste. With self-regulation, when consumers sometimes struggled to monitor what they served themselves at a buffet. This lack of self-regulation, combined with their inability to resist tempting foods, leads to serving sizes that exceed their consumption capacity, thereby increasing food waste.

3. consumer-serving subjective norms minimally contribute to food waste. This is because consumers' behaviors in hotels and restaurants are not significantly driven by the need for approval or customs related to food consumption. With approval, this is when consumers did not typically serve themselves large amounts of food to demonstrate financial capability or for the approval of others. This suggested that approval-seeking behaviors do not significantly influence food waste in this context. With customs, this is when consumers serving small amounts of food was not perceived as an indication of a lack of food, and not completing their meals,

leading to food being left behind was not seen as polite behavior. So, customs and norms related to food portion sizes and leaving food on the plate does not significantly contribute to food among consumers.

5.3 Recommendation

Based on the conclusions made above, the following recommendations are proposed to address the drivers of food waste in hotels and restaurants.

1. Hotels and restaurants managers should implement educational programs aimed at controlled consumer-serving attitudes. These programs should focus on encouraging mindful eating practices, such as ordering appropriate portion sizes and appreciating the value of reducing waste. Additionally, marketing strategies can be adjusted to emphasize quality over quantity, thereby reshaping consumer perceptions of value. By fostering a more informed and conscientious consumer base, the hospitality sector can significantly decrease food waste generation. These initiatives can be further supported by visual aids and prompts that guide consumers in making better food choices, ultimately leading to more sustainable dining experiences.

2. Hotels and restaurants managers should enhance consumers' perceived control over food-related activities. Hotels and restaurants should introduce training sessions and workshops that teach consumers practical skills for portion control, meal planning, and self-regulation. These sessions can cover topics such as estimating appropriate portion sizes, understanding the impacts of food waste, and making informed food choices. Additionally, staff should be trained to offer guidance and support to customers, helping them to feel more confident and in control of their food-related decisions, which can significantly reduce food waste.

3. Hotels and restaurants managers leveraging on the minimal power of social norms and peer influence to promote sustainable food waste practices. Encouraging customers to focus on responsible consumption rather than serving large portions for social approval can achieve this. Establishments can use subtle messaging, such as signage and staff communication, to reinforce the idea that taking only what you need is a positive and responsible choice, helping to reduce overall food waste.

5.4 Limitations of the Study

The study makes a significant contribution as far as Drivers of Food Waste by consumers is concerned. However, the study was conducted in hotels and restaurants specifically in Kampala, Uganda. While this provides valuable insights into food waste behaviors in this region, the findings may not be generalizable to other geographic areas or cultural contexts. Differences in consumer behavior, attitudes, and norms in other cities or countries could lead to different results. Therefore, the limited geographic scope restricts the broader applicability of the study's conclusions.

5.5 Suggestions for Further Research

Owing the limitation of the study, Future research should extend beyond Kampala to include a more diverse range of geographic locations and cultural contexts. By comparing food waste behaviors across different regions and countries, researchers can identify universal drivers and culturally specific factors influencing food waste. This broader scope can enhance the generalizability of findings and provide more comprehensive insights into effective waste reduction strategies globally. Future researchers could explore the role of digital tools and platforms in influencing consumer food waste behaviors.

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APPENDICES

Appendix A: Survey Questionnaire on Drivers of Food Waste by Consumers in Selected Hotels and Restaurants in Kampala, Uganda

Background Characteristics of the Respondents

1. Marital status: Single ☐ Married ☐

2. Age: Under 20 ☐ 20 – 29 ☐ 30 – 39 ☐ 40 – 49 ☐ 50 – 59 ☐ 60 & above ☐

3. The highest level of formal education:

Primary Level ☐ "O" Level ☐ "A" Level ☐ Tertiary ☐

Others (Specify).....

Section B: Food Waste in Hospitality Establishment

Correct response based on the following scale:

One= Strongly Disagree; 2 = Disagree; 3 = Not Sure; 4 = Agree; 5= Strongly Agree.

Food Waste		**Level of Agreement**				
Food Waste by Consumers		**1**	**2**	**3**	**4**	**5**
I leave food on the plate I do not like.						
I leave food on the plate that looks unpalatable.						
I hardly request that my left overs be packed for me.						
Sometimes I buy more food than I need.						
Even when am not hungry I buy food and end up leaving it on the plate.						
I do not eat when am hungry, I eat because it is eating time sometimes I leave food on the plate.						
I will not remove surplus food from my plate before touching the food.						
I pass surplus food to others before touching my food.						
SECTION C. DRIVERS OF FOOD WASTE **Food Attitudes**		**Level of Agreement**				
RW	**Rewarding yourself with Food**	**1**	**2**	**3**	**4**	**5**
RW1	Whenever I am in a buffet, I try to indulge myself with several tasty foods.					
RW2	Whenever I am in a buffet, I try to put a variety of foods on my plate.					

RW3	Wherever I am in a buffet, I make sure that my money is fully utilized by serving myself equal portions.					
RW4	Whenever I make an achievement, I go to a good Hotel or Restaurant and indulge myself in food.					
RW5	A large amount of food gives me comfort when I am feeling low.					
RW6	I rarely avoid serving myself large amounts of food.					
FP	**Food Pleasure**	**1**	**2**	**3**	**4**	**5**
FP1	Good appearance of the food makes me serve myself large amounts of food.					
FP2	I find pleasure in leaving some food on my plate.					
FP3	Heavy plate of food is a source of pleasure for me.					
FP4	On specific days such as weekends, I find pleasure in indulging myself at eating-places.					
FP5	Whenever the food is not tasty, I hardly finish it even when I am hungry.					
CF	**Craving for Food**	**1**	**2**	**3**	**4**	**5**
CF1	I have a craving for certain foods, which makes me sometimes serve myself what I cannot finish.					
CF2	I find it strange when people serve themselves little food even when it is very delicious.					
CF3	My craving for fatty and sweet foods makes me serve myself what I can't finish.					
CF4	Because I crave for certain foods sometimes the amounts provided in Hotels and restaurants, I find them less sufficient.					
CF5	I only go to Hotels where the foods I like are served in large amounts.					
	Subjective Norms	**Level of Agreement.**				
A	**Approval**	**1**	**2**	**3**	**4**	5
A1	When in a hotel I serve myself a variety of foods for approval showing that I do not lack.					
A2	Serving myself large amounts of food indicates financial capability when I am with colleagues.					

A3	I go to eating-places that have been praised by colleagues for serving large amounts of food.					
A4	Whenever am with colleagues I do not regulate the variety and amounts of food I serve because it gives me recognition.					
A5	I do not mind leaving food on the plate because I can afford it and my Friends approve it.					
A6	I enjoy it when colleagues see me leave large amounts of food on my plate.					
A7	Leaving food on my plate when am with my friends gives me satisfaction.					
C	**Customs**	**1**	**2**	**3**	**4**	**5**
C1	Happiness is achieved through being served large amounts of food.					
C2	Serving small amounts of food is an indication that there is a lack of food.					
C3	It is good manners to leave food on the plate.					
C4	Leaving food on the plate indicates that one is satisfied.					
C5	Serving Little food is like showing off.					
C6	A wealth person should have a variety of foods in sufficient amounts during a meal.					
C7	Serving oneself large amounts of food brings satisfaction in daily life.					
Perceived Control		**Level of Agreement**				
OB	**Obsessive behavior**	**1**	**2**	**3**	**4**	**5**
OB1	Whenever I am serving myself, I rarely have thoughts, ideas, and impulses on foods I have to avoid.					
OB2	I hardly avoid some foods served on Buffet.					
OB3	I hardly miss any food included in the buffet.					
OB4	I lack the effort to resist serving myself large amounts of food.					
OB5	I have a high drive to serve myself a variety of foods even when I am not likely to finish them.					
OB6	I get ambitious about missing certain foods on a buffet.					

SR	Self-Regulation	1	2	3	4	5
SR1	I am weak at resisting tempting foods and consequently serve myself large amounts of food.					
SR2	I lack the ability to monitor what I serve myself at a buffet.					
SR3	Sometimes I serve myself some foods, which I find I do not want in the course of eating.					
SR4	When serving myself I hardly think about my weight.					
SR5	I rarely think about the consequences of serving myself large amounts of food.					
SR6	When serving myself food I hardly think about whether I will be able to finish it.					
SR7	When eating I sometimes get distracted and leave food on the plate.					

Appendix B: Validity Test Results

Food Waste

Judges	Relevant	Irrelevant
Judge 1	7	1
Judge 2	6	2

8

CVI = 7 + 6 = 13÷ 2 = 7.5

7.5 ÷ 8 = 0.94

Rewarding yourself with Food

Judges	Relevant	Irrelevant
Judge 1	5	1
Judge 2	4	2

6

CVI = 5 + 4 = 9 ÷ 2 = 4.5

4.5 ÷ 6 = 0.75

Craving for food

Judges	Relevant	Irrelevant
Judge 1	4	1
Judge 2	3	2

5

CVI = 4 + 3 = 7 ÷ 2 = 3.5

3.5 ÷ 5 = 0.7

Food pleasure

Judges	Relevant	Irrelevant
Judge 1	4	1
Judge 2	3	2

5

CVI = 4 + 3 = 7 ÷ 2 = 3.5

3.5 ÷ 5 = 0.7

Obsessive behavior

Judges	Relevant	Irrelevant	
Judge 1	5	1	
Judge 2	4	2	
			6

CVI = 5 + 4 = 9 ÷ 2 = 4.5

4.5 ÷ 6 = 0.75

Self-Regulation

Judges	Relevant	Irrelevant	
Judge 1	6	1	
Judge 2	5	2	
			7

CVI = 6 + 5 = 11 ÷ 2 = 5.5

5.5 ÷ 7 = 0.786

Approval

Judges	Relevant	Irrelevant	
Judge 1	6	1	
Judge 2	5	2	
			7

CVI = 6 + 5 = 11 ÷ 2 = 5.5

5.5 ÷ 7 = 0.786

Customs

Judges	Relevant	Irrelevant	
Judge 1	6	1	
Judge 2	5	2	
			7

CVI = 6 + 5 = 11 ÷ 2 = 5.5

5.5 ÷ 7 = 0.786

Appendix C: Reliability Results

Reliability Statistics for Food Waste

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.768	0.767	8

Summary items statistics for Food Waste

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1.	0.473	0.743
2.	0.472	0.743
3.	0.373	0.760
4.	0.579	0.722
5.	0.600	0.720
6.	0.569	0.724
7.	0.481	0.741
8.	0.209	0.786

Reliability Statistics for Rewarding self with food

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.700	0.689	6

Summary items statistics for Rewarding self with food

	Corrected Item-Total Correlation	**Cronbach's Alpha if Item Deleted**

1.	0.247	0.702
2.	0.470	0.639
3.	0.440	0.649
4.	0.537	0.614
5.	0.510	0.628
6.	0.345	0.679

Reliability Statistics for Craving for food

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.735	0.737	5

Summary items statistics for craving for food

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1	0.530	0.676
2	0.408	0.722
3	0.551	0.670
4	0.513	0.683
5	0.487	0.692

Reliability Statistics for Food pleasure

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.760	0.758	5

Summary items statistics for food pleasure

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1	0.587	0.695
2	0.387	0.760
3	0.631	0.680
4	0.590	0.694
5	0.456	0.744

Reliability Statistics for Approval

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.787	0.791	7

Summary items statistics for Approval

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1	0.491	0.765
2	0.630	0.737
3	0.433	0.781
4	0.559	0.752
5	0.568	0.750
6	0.526	0.759
7	0.416	0.778

Reliability Statistics for Customs

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.709	0.704	7

Summary items statistics for Customs

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1	0.592	0.625
2	0.465	0.665
3	0.297	0.703
4	0.206	0.728
5	0.479	0.661
6	0.346	0.693
7	0.552	0.637

Reliability Statistics for Obsessive behaviors

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.762	0.764	6

Summary items statistics for Obsessive behaviour

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1	0.459	0.738
2	0.435	0.746
3	0.568	0.712
4	0.494	0.729
5	0.595	0.702
6	0.480	0.734

Reliability Statistics for Self-Regulation

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.737	0.740	7

Summary items statistics for Self-Regulation

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1	0.577	0.676
2	0.544	0.685
3	0.581	0.674
4	0.048	0.790
5	0.591	0.673
6	0.603	0.670
7	0.283	0.746