Customers' Perception on Hotel Buffet Menu Setting, Drivers of Plate Waste and Food Waste Awareness

Mohd Khairul Adzahan Kamalul Ariffin[1]
Mohd Syahril Salwey[1]
Mohd Onn Rashdi Abd Patah[1]
Hamizad Abdul Hadi[1]
Samsul Bahri Usman[2]
Mushaireen Musa[2]*

[1]Faculty of Hotel and Tourism Management, Universiti Teknologi MARA, Selangor, MALAYSIA
[2]Faculty of Hotel and Tourism Management, Universiti Teknologi MARA, Terengganu, MALAYSIA
*musha268@uitm.edu.my

Proposed citation:

Abstract

This study elucidated the problem of food waste in buffet-style restaurants, the factors that contribute to food loss, and the aim to investigate the feedback received from restaurant consumers. The present study utilised a quantitative research approach, employing a structured questionnaire as the primary research instrument and employed a research strategy characterised by descriptive methods and a correlational approach. A cross-sectional study design was employed, wherein data was collected at a single moment in time from individual respondents encountered during the specified period. Findings showed the relationship between the signal provided by buffet menu settings and the drivers of plate waste, and their collective impact on food waste awareness among buffet customers. Future studies may examine the strategies employed by hotel operators to raise consumer awareness on the issue of food waste associated with buffet services.

Keywords:

Buffet Menu Setting, Drivers of Plate Waste, Food Waste Awareness

1 Introduction

The practice of offering buffet-style meals, which enables patrons to consume unlimited quantities of food, has gained popularity in numerous nations (Chang et al., 2022). The culinary items are meticulously displayed on elongated, embellished surfaces, systematically categorized according to meal classifications, including appetizers, soups, main courses or entrees, and desserts. Hotel restaurants strategically offer buffet options to expedite the dining experience for guests, particularly during lunch hours when time constraints may limit the duration of the meal or lunch break. The buffet offers patrons an infinite supply of food, with provisions being consistently replenished, at a fixed cost that is deemed by customers to be commensurate with its perceived worth. Nevertheless, the provision of unlimited food at buffets leads to superfluous food preparation. The provision of unlimited food on the buffet table is likely to result in increased food wastage, as clients may not feel compelled to be mindful of the amount of food, they leave uneaten on their plates. The origins of food waste within the restaurant and hotel sector can be attributed to various factors, such as meal preparation and portion sizes, including consumer consumption (Dolnicar et al., 2020).

A buffet is a common dining option frequently provided by hotel restaurants during lunch, Hi-Tea, or dinner, wherein patrons are afforded the opportunity to select and consume a variety of food items that are displayed on a designated buffet counter or table. According to Chang (2021), the use of buffets in hotels contributes to the hotel's operational efficiency by lowering reliance on servers, hence enhancing service efficiency for clients. Despite the potential high cost of the buffet meal, customers remain willing to pay for many reasons. There are several noteworthy factors contributing to the appeal of buffet-style dining. Firstly, the reduced waiting time for food preparation ensures prompt availability of meals when required. Additionally, the wide array of food options presented for patrons' selection enhances the dining experience. Furthermore, the freedom granted to customers to partake in unlimited servings and frequent visits to the buffet table throughout the designated meal period further contributes to the allure of this dining format. Hotel buffet patrons, despite their advantageous position to consume copious amounts of food, are frequently deceived by the realization that the food items showcased on the buffet counter may ultimately be discarded as food waste. Food waste is a prevalent issue that occurs at several stages of the food manufacturing process. However, it is particularly noteworthy to focus on the end consumers, since food waste becomes more visible through the accumulation of uneaten food and leftover plates (Soorani & Ahmadvand, 2019). According to Dolnicar and Juvan (2019), research has indicated that various factors contribute to plate waste among drivers. These factors include a lack of acquaintance with food ingredients and proper eating techniques, excessive portion sizes, a lack of self-control and over-serving, and subpar food quality that ultimately results in food waste.

The lack of knowledge of food ingredients or the preparation methods of certain foods might be attributed to the exposure of customers to various types of cuisines.

Certain customers may lack familiarity with a certain culinary genre. It is possible that their knowledge is limited to the culinary traditions of the local region. According to the research conducted by Filimonau et al. (2021), it was observed that food waste emerged as a rather big concern in Asian regions when compared to Western nations. The understanding of cultural influences on individuals' ability to control food portion and intake is a complex matter (Chang, 2021). The efficacy of food waste reduction initiatives in hotels is contingent upon the perception of customers on the consequentiality of their actions. The examination of the buffet menu setting and the factors that contribute to plate waste serve as crucial precursors to understanding the issue of food waste. Additionally, exploring the level of awareness among hotel restaurant customers regarding the reduction of food waste emerges as a significant sustainable objective for the future.

2 Literature Review

2.1 Buffet Menu

Hotel restaurants provide a diverse range of culinary styles and dining options. The buffet menu is highly desirable among consumers due to its self-selection feature, allowing individuals to freely choose their preferred meal items. Moreover, the buffet menu frequently offers unlimited portions without direct oversight from servers. The restaurant and hospitality sectors, frequently offering all-you-can-eat buffets, are exerting a subtle influence on consumers, encouraging them to request or take larger quantities of food than they typically consume. According to Juvan et al. (2017), buffets are a form of meal service that allows customers to independently select their preferred dishes and consume them to their satisfaction. Hotel and restaurant menus play a pivotal role as marketing instruments in facilitating consumers' engagement with various food and beverage choices (Pavesic, N.D.). Menu design plays a pivotal part in effectively conveying the many offerings of a restaurant and shaping consumers' initial perception of the establishment (Reynolds, Merrit, & Pinckney, 2005). A meticulously designed menu facilitates the decision-making process for clients by strategically directing their focus towards particular goods. The menu design has a direct impact on customers' views of the restaurant, attitudes, and purchasing intentions (McCall & Lynn, 2008). Food and beverage expenditures have been recognized as substantial factors that contribute to the financial performance of various establishments within the hospitality industry. In order to maintain a competitive edge, operators in the dining industry must possess a comprehensive understanding of the consumer eating experience, as their primary offering revolves around the provision of food and drinks inside a restaurant environment. Menus play a crucial role in the communication of food and beverage options inside restaurant environments, while also serving as a means to convey the establishment's overall image. To effectively create and implement customized menus, it is imperative for restaurant owners to possess a comprehensive understanding of the contemporary customer mindset (Ada et al., 2017).

2.2 Drivers of Plate Waste

The quantification of food waste in a restaurant context pertains to the enumeration of plates containing residual food (Chang et al., 2022). Based on the research conducted by Goh and Jie (2019) and Juvan et al. (2017), it has been established that plate waste, referring to the uneaten food left by guests, constitutes a significant portion of overall waste in the hospitality industry, ranging from 6% to 40%. This phenomenon has been identified as a primary contributor to food waste in the sector (Wansink and Johnson, 2015). The prevailing body of research on plate waste has consistently identified several variables contributing to this phenomenon, including customer apathy, oversized portions, excessive ordering, inadvertent over-serving, and insufficient training (Ang et al., 2021; Rasool et al., 2021; Dolnicar et al., 2020; Principato et al., 2018). Despite the desire of staff members to intervene in order to mitigate plate waste, they find themselves entangled in a challenging predicament due to the presence of paying clients. The phenomenon in question is particularly evident in high-end dining establishments that cater to affluent clientele (Principato et al., 2018). In such contexts, the wastage of food on plates has been found to be associated with redundant service practices (Chang, 2018). While food decoration has been found to enhance the visual appeal of meals and evoke favourable emotional responses (Chen et al., 2015), some customers may see it as superfluous (Tsaur & Yen, 2019). This finding was substantiated by a study conducted by Mirosa et al. (2016), wherein it was seen that patrons displayed hedonistic tendencies, such as a tendency to discard food if they did not derive satisfaction or enjoyment from their dining experience.

Various strategies can be employed to mitigate food waste within the context of hotel operations (Beretta & Hellweg, 2019). Although there is a prevalent inclination to exceed expectations in terms of food and service quality, this service culture can be perceived as an instance of service redundancy (Chang, 2018). Fine dining establishments ought to reassess the repetitive nature of their meal presentation. Despite the fact that food decoration enhances the visual appeal of meals and evokes pleasant emotional responses (Chen et al., 2015), it is possible that customers may see it as superfluous (Tsaur and Yen, 2019). It is advisable to refrain from employing intricate food decoration techniques that are extremely technical, since they might lead to both wastage during the preparation process and on the plate. In addition, it is advisable for restaurant management to endorse innovative methods of preparing healthy meals, such as grilling, as it results in a significantly lower percentage of plate waste (less than 10%) compared to deep frying (37% waste) (Betz et al., 2015). Moreover, it is recommended to reduce the use of starch embellishments, as they contribute to a substantial amount of waste (30%) (Betz et al., 2015). From a managerial perspective, it is imperative for operations managers to allocate resources towards the acquisition of enhanced forecasting tools. This strategic decision is crucial in effectively managing consumer demand, especially in the context of buffet operations, with the aim of minimizing superfluous food preparation. In order to enhance monitoring and discourage excessive self-serving by customers, managers can effectively employ

strategies such as restricting plate size and employing decorative screens to create an illusion of a smaller buffet area.

2.3 Food Waste Awareness

The Food and Agriculture Organization of the United Nations (FAOs) has recognized food waste as a significant global concern, which carries significant environmental, economic, and societal consequences. Regrettably, hospitality enterprises find themselves in the forefront of the food waste predicament across several nations. According to Coskun and Ozbuk (2020), restaurants in Turkey are responsible for around 3,782 kg of food waste annually, placing them in the second position among nations belonging to the Organization of Islamic Cooperation. The term "food waste" encompasses any residual or discarded material that arises from the various stages of food production, processing, distribution, and consumption (Okazaki et al., 2008). In the realm of hospitality, food waste can typically be classified into two distinct types, namely meal preparation waste and plate waste, as identified by Boruhan and Ozbiltekin-Pala (2021) and Okumus (2020). Consumers exhibit a higher propensity to pay an equivalent price for a reduced quantity of food subsequent to the implementation of promotional strategies. However, the anticipated effect on food waste is deemed to be inconsequential. The prevention of food waste is associated with social emotions of guilt and shame, which presents opportunities for an effective information campaign aimed at motivating consumers to decrease their food waste (Jagau et al., 2017). According to Parfitt et al. (2010), consumer participation presents a significant opportunity for reducing food waste in industrialized nations. Consumers can potentially contribute to the attainment of this objective by enhancing their understanding of the matter and actively promoting a favourable perception of food preservation.

2.4 Customers' Perceptions on Buffet Menu Setting, Drivers of Plate Waste and Food Waste Awareness

Multiple research investigations have identified noteworthy associations between customers' evaluations of buffet settings and their level of food awareness. The hospitality industry, characterized by its all-you-can-eat buffet-style settings, is often associated with the development of food waste. This can be attributed to factors such as heightened customer anonymity and the sense of an excess of food (Dolnicar and Juvan, 2019; Juvan et al., 2018). The food waste problem in the hotel industry is often underestimated by providers, despite its significant scale (Filimonau et al., 2021; Vizzoto et al., 2020). There is noticeable skepticism among these providers regarding the implementation of measuring operations aimed at quantifying the leftover food (Kasavan et al., 2019; Sakaguchi et al., 2018). The statement raises concerns as it highlights the need of measurement activities in engaging personnel in efforts to combat food waste and increasing consumer awareness to prevent discrepancies between the amount of food taken from a buffet and the amount actually consumed (Principato et al., 2018). Several studies have been conducted, with a primary emphasis

on the creation of messages that elicit consumer awareness regarding the mitigation of plate waste. However, the adoption of strategies to minimize food leftovers remains relatively infrequent, as evidenced by the works of Filimonau et al. (2019), Kasavan et al. (2017), and Sundt (2012).

According to a study conducted by Thyberg and Tonjes (2016), plate waste has been identified as a significant contributor to food waste in the hotel business, particularly in the context of all-you-can-eat arrangements (Matzembacher et al., 2020). In a study conducted by Dolnicar et al. (2020), it was seen that the dissemination of a leaflet or a stamp collecting booklet had a significant impact on enhancing hotel guests' consciousness regarding plate waste, resulting in a notable reduction in the quantity of food being wasted. This experiment stands out as one of the limited numbers of field studies conducted on this subject matter. Nevertheless, the inclusion of a pro-environmental message in the flyer or stamp collection booklet does not significantly reduce the average amount of food waste generated. In a similar vein, Kallbekken and Saelen (2013) provide evidence of the positive impact associated with providing social cues that encourage patrons to make several visits to the buffet, as opposed to consuming all requested food in a single sitting. This practice effectively mitigates the quantity of food waste generated in hotel restaurants.

Moreover, it has been shown that buffet-style settings tend to foster plate waste due to psychological variables that might heighten the probability of food remnants. These factors include the fear of experiencing a sense of deprivation and individuals' disinclination to make multiple visits to the buffet (Dolnicar & Juvan, 2019). There is limited academic research available that provides evidence for the effectiveness of the following measures in mitigating plate waste in buffet-style environments: Kallbekken and Saelen (2013) have posited that the implementation of smaller plates, a reduction in the number of buffet service stations, or the avoidance of live cooking at the buffet can effectively curtail food waste by a significant margin of up to 20%. Therefore, the following hypothesis was proposed and tested.

H1: Buffet menu setting significantly related to food waste awareness.
H2: Drivers of plate waste significantly related to food waste awareness.

3 Methodology

3.1 Research Design

This study involved the utilization of a quantitative research design, employing a structured questionnaire as the primary research instrument. This study employs a descriptive research design and utilizes a correlational technique as well. A cross-sectional study design was employed, wherein data were collected at a single moment in time from individual respondents encountered during the specified period. The data gathering approach involved the use of self-administered questionnaires, which were prepared in an online format. The study's demographic comprises individuals who frequent buffet restaurants in the state of Selangor. Given the total population of 6.56

million individuals in the state of Selangor, as reported by the Department of Statistics Malaysia (DOSM, 2021), the application of Krejcie and Morgan's (1970) table for determining sample size indicates that a minimum of 381 respondents would be adequate for achieving statistical representation of a population exceeding 50,000 individuals.

In assessing the items for the study variables, 5-points Likert scale was used. The instruments used for the three variables in this study capsulate the work of several researchers related to the issue. For assessing the perceptions of respondents on buffet menu setting, 10-items instrument used by Tekin and Ilyasov (2017) was adapted. The items for measuring the response on drivers of plate waste was adapted from Dolnicar and Juvan (2019). In addition, assessing respondents' food waste awareness involved the combination of items and adaptation of several studies such as Filimonau et al. (2020), Soorani and Ahmadvand (2019), and Principato et al. (2015).

Table 1.0: Measures of the study variables

Study Variables	No. of Items	Sources of Scale	Type of Scale	Questions Number
Perceptions on Buffet Menu Setting	10	Tekin and İlyasov (2017)	A five-point Likert-scale from (1) "Strongly Disagree" to (5) "Strongly Agree"	1-10
Drivers of Plate Waste	12	Dolnicar and Juvan (2019)	A five-point Likert-scale from (1) "Strongly Disagree" to (5) "Strongly Agree"	11-22
Food Waste Awareness	10	Filimonau et al. (2020); Soorani and Ahmadvand (2019); Principato et al. (2015)	A five-point Likert-scale from (1) "Strongly Disagree" to (5) "Strongly Agree"	23-32
Demographic Profile Information	5	Education Level, Marital Status, Ethnicity, Gender & Age	Selection of nominal & ordinal scales	33-37

The data gathered from the survey were analysed using SPSS software to examine the reliability, mean and standard deviation, correlation, and strength of the relationship between the variables in the study.

4 Findings

4.1 Response Rate

Following the administration of the online questionnaire, a total of 120 valid responses were received out of the initial pool of 381 questionnaires. These responses were subsequently processed and assigned appropriate codes. The questionnaire was made available to responders for a duration of one month prior to its closure for the purpose of data gathering. As previously stated, the target demographic for this study comprises individuals who frequent buffet restaurants in the state of Selangor.

4.1.1   Respondents' Demograhic Profiles

The following Table 2.0 outlines the respondents' demographic which include gender, age group, marital status, ethnic origin / race and monthly income. The table lists the frequency of each profile and its respective percentage value.

Table 2.0: Respondents' Demographic

Profiles	Categories	Frequencies	Percentage (%)
Gender	Male	50	41.7
	Female	70	58.3
Age	≤20	4	3.3
	21-29	16	13.3
	30-39	32	26.7
	≥40	68	56.7
Marital Status	Single	24	20.0
	Married	44	36.7
	Married with Children	50	41.7
	Others	2	1.7
Ethnic Origin	Malay	104	86.7
	Chinese	6	5.0
	Indian	6	5.0
	Others	4	3.3

Table 2.0 illustrates that the gender distribution had a higher representation of females, with a total of 70 female responses accounting for 58.3% of the sample. In contrast, the proportion of male respondents was 41.7 percent, with a total of 50 individuals. The data pertaining to the age distribution of the participants indicated that a majority of them fell within the age brackets of 30 years and above, particularly in the 40-year-old and above category. In the study, a total of 68 respondents, accounting for 56.7% of the sample, were aged 40 years and above. The next highest age group consisted of respondents aged between 30 and 39 years, with a frequency of 32 or 26.7% of the total sample. Lastly, there were 16 respondents, equivalent to 13.3% of the sample, who fell within the age range of 21 to 29 years. An additional 4% or 3.3% of the population falls within the age bracket of below 20 years.

The majority of participants in the study were married and had children, accounting for 50 respondents or 41.7% of the total sample. Married individuals without children constituted 44 respondents or 36.7%, while single individuals accounted for 20.0% of the sample. The remaining 1.7% of respondents fell into the "others" category. In relation to ethnic composition, the predominant group consisted of Malays, comprising 86.7% of the population. Chinese and Indian ethnicities followed, each accounting for 5.0% of the population. In conclusion, a total of four participants, comprising 3.3 percent of the sample, identified themselves as belonging to a category other than those previously mentioned.

4.2 Reliability Analysis of Study Variables

The Cronbach's Alpha Coefficient value for all the independent variables in the study revealed a range of coefficient values from .726 to .760. The dependent variable that has the highest coefficient value is food waste awareness with a value of .780. For the independent variable which are the buffet menu setting with a value of .726 and drivers of plate waste with value of .760. This shows that all variables are accepted as the Cronbach's Alpha value is more than .50.

Table 3.0: Reliability Coefficient Values of Study Variables

Variable	Number of scale items	Cronbach's Alpha Coefficient (α)
Buffet Menu Setting	10	.726
Drivers of Plate Waste	12	.760
Food Waste Awareness	10	.780

4.3 Correlation Analysis of Study Variables

Pallant (2007) asserts that the Pearson product-moment correlation coefficient analysis is employed to assess and investigate the correlation relationship and direction among the variables of a study. The interpretation of the analysis yields a range of coefficients, with values ranging from r=.10 to .29 for small coefficients, r=.30 to .49 for medium coefficients, and r=.50 to 1.0 for big coefficients (Pallant, 2007). A correlation coefficient of .90 indicates the existence of multicollinearity (Hair et al., 2006).

According to Pallant (2007), it is important to acknowledge that the magnitude of the sample size significantly influences the statistical significance of the correlation coefficient, whether it is denoted as r or rho. The speaker proceeded to assert that even a slight correlation can achieve statistical significance when the sample size is large (N>100). Pallant (2007) argues that correlations of modest or moderate magnitude, which fail to reach statistical significance at the conventional threshold of $p<0.05$, can nonetheless be considered acceptable when based on a limited sample size.

Table 4.0 Pearson Product-Moment Correlation Matrix of Study Variable

Scale	1	2	3	Mean	SD
Buffet Menu Setting	1	-.448**	.365**	3.55	.491
Drivers of Plate Waste	-.448**	1	.267**	3.17	.492
Food Waste Awareness	.365**	.267**	1	4.12	.399

Note: N=120

As shown in the Table 4.0 above, a Pearson product-moment correlation coefficient was computed to assess the relationship between the food waste awareness with buffet

menu setting and drivers of plate waste. There was a positive correlation between the buffet menu setting and food waste awareness, *r=.365 (p<.002).* The relationship between buffet menu setting and food waste awareness is moderately significant correlated*,* hence the H1 is accepted. In addition, there was a positive correlation between the drivers of plate waste and food waste awareness, *r=.267 (p<.003).* The relationship between buffet menu setting and food waste awareness is correlated*,* hence the H2 is accepted. The summary of the hypothesis testing as reported in Table 4.0 found that buffet menu setting, and drivers of plate waste were having positive significant relationship with food waste awareness.

5   Discussion & Conclusion

The primary emphasis of the discourse was to examine the aims of the investigation and the research inquiries established at the outset of the study. The primary aim of this study is to investigate the correlation between consumers' perceptions regarding the arrangement of hotel buffet menus. Hence, the initial series of inquiries aims to ascertain the respondent's level of attraction towards each character with respect to the study variables. The second aim of this study is to investigate the correlation between factors influencing plate waste and the level of food waste awareness among patrons of hotel buffets. The initial set of inquiries in this research was to ascertain the primary objective of the study, which is to investigate the potential influence of the buffet menu setting and drivers of plate waste on individuals' food waste awareness. Therefore, it can be said that buffet menu setting, and drivers of plate waste has significant relationship with food waste awareness of the respondents when they dine in a buffet setting.

The significance of menu design in the mitigation of food waste cannot be overstated. Prior studies have demonstrated that over 50% of restaurants in Nordic countries acknowledge menu planning as a crucial measure for mitigating food waste. The presence of inadequate or insufficient menu planning, as well as the provision of a vast array of menu options, have been identified as contributing factors to the issue of food waste within the food production chain of restaurants and foodservice establishments (Wu & Teng, 2022). The issue of food waste has garnered significant attention due to its substantial environmental, social, and economic ramifications. Scholars have recently focused on the extensive magnitude of food waste within the global food supply chain (Pinto, Melo, Campos, & Cordovil, 2018). This study holds significant importance in elucidating whether customers possess the requisite information to effectively seize job opportunities.

Previous research has indicated that food waste predominantly transpires within the food service cycle. However, a significant oversight in these studies is the failure to consider the influence of customers' attitudes and actions on the extent of food loss within all-inclusive hotels. All-inclusive hotels are distinguished by their provision of limitless food service as an integral component of a prepaid package. The findings of the study suggest that both the provision of all-inclusive services, such as open buffets and

dinner performances, and the actions of visitors play a role in the generation of food waste. In addition, the adoption of inappropriate dietary practices, such as repeated visits to the buffet, extensive sampling of various buffet items, and consumption of excessively large portions, can be attributed to the escalation of food waste. Hence, the findings of this study indicate the necessity of redesigning current menus in alignment with the preferences of the majority of hotel patrons, or alternatively, substituting the primary entrée area of the buffet with interactive live cooking stations. Consequently, the study recommends the revamping of current menus in order to align them with the tastes of the majority of hotel patrons. Alternatively, it suggests the substitution of the main dish section of the buffet with live cooking stations that offer made-to-order dishes.

This study highlights the significance of engaging in effective communication with visitors regarding the adoption of sustainable practices. The implementation of awareness campaigns plays a pivotal role in disseminating ideas and reinforcing the significance of sustainability among tourists. The utilization of many communication channels, including social media platforms, brochures, and posters, has the potential to exert an influence on the behaviour of guests. The staff members working at food and beverage outlets within hotels have the potential to fulfil a significant function in teaching and providing guidance to guests regarding suitable portion sizes, ingredients, and flavours. Additionally, they can enhance visitors' understanding in a polite manner, all while assuring customer satisfaction. Based on the findings, it was determined that the training and awareness of personnel play a crucial role in the efficient functioning of both back of house and front of house operations.

6   References

Ada L., King, B. & Mackenzie, M. (2017). Restaurant Customers' Attitude toward Sustainability and Nutritional Menu Labels, Journal of Hospitality Marketing & Management, 26:8, 846-867, DOI: 10.1080/19368623.2017.1326865

Ang, W., Narayanan, S. and Hong, M. (2021), "*Responsible consumption: addressing individual food waste behaviour*", British Food Journal, Vol. 123 No. 9, pp. 3245-3263.

Beretta, C., & Hellweg, S. (2019). Potential environmental benefits from food waste prevention in the food service sector. *Resources, Conservation and Recycling, 147*, 169–178.

Betz, A., Buchli, J., Gobel, C. and Muller, C. (2015), "*Food waste in the Swiss food service industry: magnitude and potential for reduction*", Waste Management, Vol. 35, pp. 218-226.

Boruhan, G. and Ozbiltekin-Pala, M. (2021), "*Food waste management: an example from university refectory*", British Food Journal, Vol. 124 No. 1, pp. 293-313, doi: 10.1108/BFJ-09-2020-0802.

Bowen, J. T., & Morris, A. J. (1995). Menu design: Can menus sell? International Journal of Contemporary Hospitality Management, 7 (4), 4–9. doi:10.1108/09596119510091699

Bryman, A. (2012). *Social Research Methods* (4th ed.). Oxford University Press.

Chang, Y. Y.-C. (2021). All you can eat or all you can waste? Effects of alternate serving styles and inducements on food waste in buffet restaurants. *Current Issues in Tourism*, *25*(5), 727-744. https://doi.org/10.1080/13683500.2020.1870939

Chang, Y. Y.-C., Lin, J.-H., & Hsiao, C.-H. (2022). Examining effective means to reduce food waste behaviour in buffet restaurants. *International Journal of Gastronomy and Food Science*, *29*. https://doi.org/10.1016/j.ijgfs.2022.100554

Chang, S. (2018), "*Experience economy in hospitality and tourism: gain and loss values for service and experience*", Tourism Management, Vol. 64, pp. 55-63.

Chen, A., Peng, N. and Hung, K. (2015), "*The effects of luxury restaurant environments on diners' emotions and loyalty: incorporating diner expectations into an extended Mehrabian-Russell model*", International Journal of Contemporary Hospitality Management, Vol. 27 No. 2, pp. 236-260.

Coskun, A. and Ozbuk, R. (2020), "*What influences consumer food waste behaviour in restaurants? An application of the extended theory of planned behaviour*", Waste Management, Vol. 117 Nov, pp. 170-178.

Dolnicar, S., & Juvan, E. (2019). Drivers of plate waste. *Annals of Tourism Research*, *78*. https://doi.org/10.1016/j.annals.2019.05.008

Dolnicar, S., Juvan, E. and Grun, B. (2020), "*Reducing the plate waste of families at hotel buffets: a quasi-experimental field study*", Tourism Management, Vol. 80 October, 104103.

Engström, R., & Carlsson-Kanyama, A. (2004). Food losses in food service institutions Examples from Sweden. *Food Policy*, *29*(3), 203–213.

FAO. (2019). *The state of food and agriculture: Moving forward on food loss and waste reduction*.

Filimonau, V., Matute, J., Kubal-Czerwińska, M., Krzesiwo, K., & Mika, M. (2020). The determinants of consumer engagement in restaurant food waste mitigation in Poland: An exploratory study. *Journal of Cleaner Production*, *247*. https://doi.org/10.1016/j.jclepro.2019.119105

Filimonau, V., Nghiem, V. N., & Wang, L.-e. (2021). Food waste management in ethnic food restaurants. *International Journal of Hospitality Management*, *92*. https://doi.org/10.1016/j.ijhm.2020.102731

Filimonau, V., Krivcova, M. and Pettit, F. (2019), "*An exploratory study of managerial approaches to food waste mitigation in coffee shops*", International Journal of Hospitality Management, Vol. 76, pp. 48-57.

Goh, E. and Jie, F. (2019), *"To waste or not to waste: exploring motivational factors of Generation Z hospitality employees towards food wastage in the hospitality industry"*, International Journal of Hospitality Management, Vol. 80 July, pp. 126-135.

Hair.Jr., J. F., Black., W. C., Babin., B. J., Anderson., R. E., & L. Tatham., R. (2006). Multivariant Data Analysis. New Jersey: Pearson International Edition.

Jagau, H.L. and Vyrastekova, J. (2017), "Behavioral approach to food waste: an experiment", *British Food Journal*, Vol. 119 No. 4, pp. 882-894.

Juvan, E., Grun, B. and Dolnicar, S. (2017), *"Biting off more than they can chew: food waste at hotel breakfast buffets"*, Journal of Travel Research, Vol. 57 No. 2, pp. 232-242.

Kallbekken, S. and Sælen, H. (2013), "*Nudging hotel guests to reduce food waste as a win-win environmental measure*", Economics Letters, Vol. 119 No. 3, pp. 325-327.

Kasavan, S., Mohamed, A.F. and Halim, S.A. (2017), "*Sustainable food waste management in hotels: case study Langkawi Unesco Global Geopark*", Planning Malaysia: Journal of the Malaysian Institute of Planners, Vol. 15 No. 4, pp. 57-68.

Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, *30*, 607-610.

Matzembacher, D.E., Brancoli, P., Maia, L.M. and Eriksson, M. (2020), *"Consumer's food waste in different restaurants configuration: a comparison between different levels of incentive and interaction"*, Waste Management, Vol. 114, pp. 263-273.

McCall, M., & Lynn, A. (2008). The effects of restaurant menu item descriptions on perceptions of quality, price, and purchase intention. Journal of Foodservice Business Research, 11 (4), 439–445. doi:10.1080/15378020802519850

Mirosa, M., Munro, H., Mangan-Walker, E. and Pearson, D. (2016), *"Reducing waste of food left on plates: interventions based on means-end chain analysis of customers in foodservice sector"*, British Food Journal, Vol. 118 No. 9, pp. 2326-2343.

Okazaki, W., Turn, S. and Flachsbart, P. (2008), *"Characterization of food waste generators: a Hawaii case study"*, Waste Management, Vol. 28, pp. 2483-2494.

Okumus, B., Taheri, B., Giritlioglu, I. and Gannon, M.J. (2020), *"Tackling food waste in all-inclusive resort hotels"*, International Journal of Hospitality Management, Vol. 88, p. 102543.

Pallant, J. F., & Tennant, A. (2007). An introduction to the Rasch measurement model: an example using the Hospital Anxiety and Depression Scale (HADS). *British Journal of Clinical Psychology*, *46*(1), 1-18.

Parfitt, J., Barthel, M. and Macnaughton, S. (2010), *"Food waste within food supply chains: quantification and potential for change to 2050"*, Philosophical Transactions of the Royal Society B: Biological Sciences, Vol. 365 No. 1554, pp. 3065-3081.

Pavesic, D. (N.D.). *The psychology of menu design: Reinvent your "Silent Salesperson" to increase check averages and guest loyalty*. Retrieved November 3, 2016 from http://rrgconsulting.com/ psychology_of_restaurant_menu_design.htm

Pinto, R. S., dos Santos Pinto, R. M., Melo, F. F. S., Campos, S. S., & Cordovil, C. M. D. S. (2018). A simple awareness campaign to promote food waste reduction in a University canteen. *Waste management*, *76*, 28-38.

Pirani, S.I. and Arafat, H.A. (2016), *"Reduction of food waste generation in the hospitality industry"*, Journal of Cleaner Production, Vol. 132, pp. 129-145.

Principato, L., Secondi, L., & Pratesi, C. A. (2015). Reducing food waste: an investigation on the behaviour of Italian youths. *British Food Journal*, *117*(2), 731-748. https://doi.org/10.1108/bfj-10-2013-0314

Principato, L., Pratesi, C. and Secondi, L. (2018), *"Towards zero waste: an exploratory study on restaurant managers"*, International Journal of Hospitality Management, Vol. 74, pp. 130-137.

Rasool, S., Cerchione, R., Salo, J., Ferraris, A. and Abbate, S. (2021), *"Measurement of consumer awareness of food waste: construct development with a confirmatory factor analysis"*, British Food Journal, Vol. 123 No. 13, pp. 337-361.

Reynolds, D., Merrit, E. A., & Pinckney, S. (2005). Understanding menu psychology: An empirical investigation of menu design and consumer response. International Journal of Hospitality & Tourism Administration, 6 (1), 1–9. doi:10.1300/J149v06n01_01

Sakaguchi, L., Pak, N. and Potts, M.D. (2018), *"Tackling the issue of food waste in restaurants: options for measurement method, reduction and behavioural change"*, Journal of Cleaner Production, Vol. 180, pp. 430-436.

Soma, T., Li, B., & Maclaren, V. (2020). Food waste reduction: A test of three consumer awareness interventions. *Sustainability*, *12*(3), 907.

Soorani, F., & Ahmadvand, M. (2019). Determinants of consumers' food management behavior: Applying and extending the theory of planned behavior. *Waste Manag*, *98*, 151-159. https://doi.org/10.1016/j.wasman.2019.08.025

Sundt, P. (2012), Prevention of Food Waste in Restaurants, Hotels, Canteens and Catering, Nordic Council of Ministers, Copenhagen.

Tekin, Ö. A., & İlyasov, A. (2017). The Food Waste in Five-Star Hotels: A Study on Turkish Guests Attitudes. *Journal of Tourism and Gastronomy Studies*, *3*(5), 13-31. https://doi.org/10.21325/jotags.2017.81

Thyberg, K.L. and Tonjes, D.J. (2016), "*Drivers of food waste and their implications for sustainable policy development*", Resources, Conservation and Recycling, Vol. 106, pp. 110-123.

Tsaur, S. and Yen, C. (2019), "*Service redundancy in fine dining: evidence from Taiwan*", International Journal of Contemporary Hospitality Management, Vol. 31 No. 2, pp. 830-854.

Vizzoto, F., Tessitore, S., Iraldo, F. and Testa, F. (2020), "*Passively concerned: horeca managers' recognition of the importance of food waste hardly leads to the adoption of more strategies to reduce it*", Waste Management, Vol. 107, pp. 266-275.

Wansink, B. and Johnson, A. (2015), "*The clean plate club: about 92% of self-served food is eaten*", International Journal of Obesity, Vol. 39, pp. 371-374.

Wu, C. M. E., & Teng, C. C. (2022). Reducing food waste in buffet restaurants: a corporate management approach. *Foods*, *12*(1), 162.