


## Influencing Hotel Guests' Food Waste Reduction Intentions Through Social Marketing and Corporate Social Responsibility Stimuli

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### Abstract

Food waste is a growing concern in South Africa's hospitality sector yet little is known about hotel guests' response to food waste reduction stimuli. This study examines how hotel guests in South Africa respond to food waste reduction stimuli using the stimulus-organism-response (SOR) model and prospect theory. Quantitative data was collected from 302 hotel guests using a structured questionnaire. The posited hypotheses were tested using structural equation modelling. Social norms and food insecurity concern emerged as key factors that favourably influence hotel guests' attitude towards food waste reduction. Environmental sustainability concern and perceived corporate social responsibility were found to have a negative effect on attitude towards food waste reduction. The results showed that the promising strategy to promote food waste reduction is by invoking social norms and food insecurity concerns as they are more instrumental in stimulating favourable attitudes towards food waste reduction. This study contributes to efforts aimed at reducing food waste in the hospitality sector. Attitude change strategies are recommended to address the negative perceptions attributed to corporate social responsibility initiatives related to food waste reduction.

**Keywords:** food waste reduction; perceived corporate social responsibility; social marketing; environmental sustainability concern; South Africa

### Introduction

The magnitude of food wasted in the hospitality industry is a growing concern for environmentalists and hoteliers (Principato et al., 2018; Filimonau et al., 2020). The Food Waste Index (2021) reports that the hospitality sector contributes almost twenty-six percent to the global total of food wasted. Food waste refers to any form of avoidable or unavoidable loss that occurs at various stages of the supply chain such as production, distribution or consumption (Dhir et al., 2020; Talwar et al., 2021). Food waste is associated with negative externalities such as straining the capacity of waste management systems, worsening food insecurity, loss of biodiversity and contributing to greenhouse gas emissions (Dolnicar & Juvan, 2019; Alonso-Munoz et al., 2022). It is also regarded as a form of social injustice due to its negative impact on food security (Dhir et al., 2020; Sharma et al., 2021). In South Africa, the context of this study, it is estimated that 12.6 million tons of food is wasted every year in all sectors at a projected cost of R75 million per annum (United Nations Development Programme, 2021). To minimise the challenge of food waste, the South African government committed to reduce food waste by 50 percent by the year 2030 (United Nations Development Programme, 2021).

Although specific data on food waste in South Africa's hospitality sector could not be established, previous studies point to its enormity (Mabaso & Hewson, 2018; Sucheran & Olarewaju, 2021). In particular, the buffet food service practice is blamed for contributing to more food waste as it projects an impression of food abundance (Sucheran & Olarewaju, 2021). In an attempt to minimise food waste in South Africa's hospitality sector, campaigns such as the "Same Taste, No Waste" and "Repurpose The Surplus" have been rolled out (WWF South Africa, 2021). Moreover, several hotels in South Africa have also introduced green practices such as recycling and reusing with the objective of minimising their carbon foot print (Sucheran & Olarewaju, 2021). Against this background, this study examines the influence of social marketing and corporate social responsibility stimuli on hotel guests' food reduction behaviour in the context of the buffet food service.

Although research on food waste has grown exponentially in South Africa, critical research gaps still remain. The majority of previous studies (Nahman et al., 2012; de Lange & Nahman, 2015; Ramukhwatho et al., 2016; Oelofse et al., 2018) mainly focused on quantifying the costs related to household food waste. While it is critical to understand the quantities of food wasted, comparatively little is known about how hotel guests as critical stakeholders in the hospitality sector respond to food reduction messages. While a study by Mabaso and Hewson (2018) was instrumental in understanding hotel employees' perceptions of food waste, examining hotel guests' response to food waste reduction messages provides a potential avenue to develop long term strategies to address the challenge of food waste. A review of previous studies on food waste reduction conducted in developed economies (Dolnicar et al., 2020; Cozzio et al., 2021; Huang et al., 2021) showed that a scenario-based experimental research design was employed which is known to be limited in terms of generalisability (Saunders et al., 2012). This study intends to address this limitation by conducting a cross-sectional quantitative research study in a real hotel setting.

Another strand of prior studies (Pearson & Perera, 2018; Närvänen et al., 2018; Kim et al., 2020) utilised social marketing campaigns in an attempt to minimise food waste. While the role of social marketing campaigns in promoting behavioural change is widely acknowledged, Dolnicar et al. (2020) and Juvan et al. (2021) note that little is known about the persuasiveness of social marketing messages especially among hedonic oriented hotel guests. This study seeks to contribute to this debate by examining hotel guests' response to food reduction campaigns used in South Africa such as the "*Same Taste No Waste*" and "*Repurpose The Surplus*". This cannot be ignored given that earlier findings (Chen & Jai, 2018; Huang et al., 2021) revealed that consumers' reception of food waste reduction stimuli is influenced by message framing and credibility. Hotels are also positioning food waste reduction initiatives as part of their corporate social responsibility (CSR) commitment (Ettinger et al., 2020; Huang et al., 2021). As mixed views were reported on how hotel guests perceive environmentally oriented CSR initiatives (Lee et al., 2016; Ettinger et al., 2020), this study also intends to examine the influence of perceived corporate social responsibility on food reduction behaviour. Moreover, this study also aims to address the geographical gap on food waste studies in developing economies. A systematic review by Dhir et al. (2020) indicate that, in Africa, food waste studies were mainly conducted in Eastern and Northern Africa and that other countries remain under researched. The limited research on food waste in Southern African countries such as South Africa is concerning as it is a key emerging BRICs market with a growing hospitality sector.

The Food Waste Index (2021) notes the central role of consumers in addressing food waste. Thus, this study draws on the SOR model and prospect theory to investigate how social marketing messages and perceived corporate social responsibility influence hotel guests' food waste reduction intentions. Specifically, the study intends to address three research objectives. First, it examines the influence of social marketing messages on attitude towards food waste

reduction. Then, determines the influence of perceived corporate social responsibility on hotel guests' attitude towards food waste reduction, and thereafter, ascertains the influence of attitude towards food waste reduction on food waste reduction intention. The findings of this study are expected to provide input towards the formulation of food waste reduction strategies in South Africa's hospitality sector. The proceeding section reviews literature on food waste interventions followed by hypotheses development and methodology. Thereafter the results of the study are presented which inform conclusion, theoretical and managerial implications.

## **Literature review**

### ***Theoretical framework***

The primary objective of this study is to understand how hotel guests respond to food waste reduction stimuli. To address this objective, this study is underpinned by the Stimulus Organism Response (SOR) model and Prospect Theory. The SOR model was developed by Mehrabian and Russell (1974). It posits that individual decision making is a sequential process that is triggered by environmental stimuli (S), which in turn influences internal states (O) resulting in behavioural response (R). The SOR model is applied in this study to argue that social marketing and corporate social responsibility messages (stimuli) related to food waste reduction have the potential to influence hotel guests' psychological state (organism) to engage in food waste reduction behaviour (response). The SOR was considered appropriate for this study because it provides a mechanism to understand how hotel guests receive, assimilate and respond to food waste reduction messages. The SOR model was also applied in previous studies on food waste (Rasool et al., 2021) and consumption of organic food (Kumar et al., 2021; Tandon et al., 2021).

Prospect Theory was proposed by Kahneman and Tversky (1979) and it states that message framing influences an individuals' behavioural response. Message framing refers to the focal point of a message in terms of the gain or loss associated with specific behavioural performance (Muralidharan & Sheehan, 2016). Messages with a gain frame emphasises the benefits of behaviour performance while loss-framed messages focus on the losses that will be incurred due to failure to engage in certain behaviours. According to the Prospect Theory (Kahneman & Tversky, 1979), behavioural performance also depends on the persuasiveness of the message. The prospect theory is employed in this study to argue that food (in) security and environmental (un) sustainability are the gains and losses associated with food waste or food waste reduction. This study therefore seeks to understand how food waste reduction messages framed based on food insecurity, environmental sustainability concern, perceived corporate social responsibility and social norms influence hotel guests' attitudes and behavioural intentions.

### ***Hypotheses development***

#### ***Food waste reduction, social marketing and corporate social responsibility stimuli***

Food waste reduction is a critical imperative for the attainment of economic efficiency, environmental sustainability and social justice (Wakefield & Axon, 2020; Alonso-Munoz et al., 2022). Social marketing and corporate social responsibility are the main interventions employed to address food waste behaviour (Stockli et al., 2018; Juvan et al., 2021; Sutinen, 2022). Food waste is of interest to social marketers because it affects the well-being of communities due to its association with hunger, malnutrition and loss of biodiversity (Parfitt et al., 2010; Sutinen, 2022). Social marketing interventions mainly utilise informative and normative messages to promote food waste reduction behaviour (Ellison et al., 2019; Cozzio et al., 2021). In this study, social marketing stimuli refers to any form of communication or intervention aimed at fostering food waste reduction behaviour. Eliciting behavioural change

is a common strategy utilised by social marketers. In this regard, recent studies by Dolnicar et al. (2020) as well as Juvan et al. (2021) underscore the importance of understanding the extent to which message framing influences the thought processes of the targeted audience. Towards this end, this study sets out to understand how social marketing messages related to food waste reduction influence hotel guests' attitudes.

Hoteliers are also compelled to reduce food waste as part of their corporate social responsibility (CSR) obligation (Randle et al., 2019). The adoption and implementation of green hotel practices represents the hospitality sector's response to the call for sustainable production and consumption (Ettinger et al., 2020). However, there are mixed findings on how hotel guests perceive sustainability oriented CSR initiatives (Chen & Jai, 2018; Oh & Ki, 2019). For instance, one of the dilemmas confronted by hoteliers is whether to communicate CSR initiatives with a sustainability orientation to their stakeholders or not (Chaudary et al., 2016; Albus & Ro, 2017). Effective communication of CSR sustainability initiatives has the potential to enhance a hotel's image and market performance (Randle et al., 2019). However, if such initiatives are construed as green washing, it has adverse effects on hotel guest patronage intentions (Chen & Jai, 2018). Thus, an understanding of how CSR initiatives related to food waste are perceived by hotel guests is another focus area of this study. In view of promoting effective waste management practices among others, responsible tourism was widely accepted across the hospitality sector as one of the sustainable measures (Hanafiah et al., 2016). Musavengane (2019) proposed a model on 'Best Responsible Tourism' for small hotels that is hinged on four pillars; economic motivation, marketing motivation, education and building social networks. In the same vein, Lee and Jan (2023) found out that environmental responsible behaviour tend to develop among visitors with stronger smart tourism experiences, in particular the biosphere which provides great aesthetic experience.

#### *Social norms and attitude towards food waste reduction*

Food waste occurs in a social setting such as hotels or household and this explains the importance of understanding the role of social norms (Talwar et al., 2022). Social norms refer to a set of shared beliefs and values that define behavioural acts which are considered right or wrong in a given community (Talwar et al., 2022). In some cultures, (e.g., Tanzania, Indonesia, Poland), it is considered morally wrong to waste food whilst others are in dire need (Thyberg & Tonjes, 2016; Misiak et al., 2020). This explains why social marketing messages on food waste reduction are mainly premised on the moral burden of food waste (Dhir et al., 2020). The practice of prosocial behaviours such as food waste reduction was found to be associated with moral satisfaction which engenders feelings of pride (Bratanova et al., 2015; Bodur et al., 2020). For this reason, normative messages are commonly used to promote food waste reduction (Pearson & Perera, 2018; Kim et al., 2020). In previous studies, normative appeals were found to play a critical role in the development of favourable attitudes linked to the performance of prosocial behaviours (Neubig et al., 2020), recycling (Issock et al., 2021) and organic food consumption (Nguyen et al., 2017). Individuals who regard food waste as immoral were found to be more willing to support food waste reduction efforts (Malti, 2016; Misiak et al., 2020). Thus, it is hypothesised that:

*H<sub>1</sub>: Social norm messages positively influence attitude towards food waste reduction*

#### *Food insecurity and attitude towards food waste reduction*

Food insecurity measures the degree to which individuals perceive that they are susceptible to food shortages (Paslakis et al., 2021; Rasool et al., 2021). The proclamation of Sustainable Development Goals 2 (End Hunger) and 12 (Sustainable production and Consumption)

increased awareness on the importance of reducing food waste (Jribi et al., 2020). Food waste also causes the unintended consequences of food shortages and price increases (Beretta et al., 2013; Papargyropoulou et al., 2019). Past studies (Neffet al., 2015; Duro et al., 2020; Jribi et al., 2020) attributed food waste behaviour to lack of awareness on the adverse effects. To mitigate this problem, Duro et al. (2020) underscore the need to disseminate information on the benefits of food waste reduction (e.g., saved resources) and the cost of waste food (e.g. wasted resources). Hotel guests who understand the adverse effects of food waste were found to be more apt to develop favourable attitudes towards food waste reduction (Jribi et al., 2020; Paslakis et al., 2021). It is thus hypothesised that:

*H<sub>2</sub>: Food insecurity concern has a positive effect on attitude towards food waste reduction*

#### *Environmental sustainability concern and attitude towards food waste reduction*

Environmental sustainability concern refers to the extent to which individuals are worried about the implications of environmental damage (Dhir et al., 2021). Food waste is an environment concern as it results in the loss of biodiversity including pollution emanating from irresponsible disposal (Melbye et al., 2016; Dhir et al., 2020; Krishnan et al., 2020). For this reason, the development of social marketing stimuli that stimulate environmental concern on the adverse effects of food waste on environmental sustainability is regarded as imperative. (Dhir et al., 2021; Talwar et al., 2021). Previous studies (Melbye et al., 2016; Dhir et al., 2021) found that consumers who are concerned with the well-being of the natural environment are more likely to develop favourable attitudes towards food waste reduction. Thus, it is hypothesised that:

*H<sub>3</sub>: Environmental sustainability concern positively influence attitudes towards food waste reduction*

#### *Perceived corporate social responsibility and attitude towards food waste reduction*

Perceived CSR captures one's objective or subjective evaluation of an organisation's CSR initiatives (Kim & Ham, 2016; Chen & Jai, 2018). Food waste reduction is regarded as a critical facet of CSR because it contributes to address the environmental harm and social injustices caused by wasted food (Albus & Ro, 2017). In order to gain the support of key stakeholders such as customers, companies communicate their CSR initiatives as a way of signalling their commitment to corporate citizenship behaviours (Villarino & Font, 2015; Randle et al., 2019). When an organisation's CSR initiatives are perceived as genuine and sincere, customers are more likely to be loyal to its products and services (Chaudary et al., 2016; Line et al., 2016; Kim and Ham, 2016). For example, a study by Line et al. (2016) showed that when a company disseminates pro-environmental messages, customers are more likely to develop favourable attitudes toward the company. Similarly, Chaudary et al. (2016) revealed that the perception of CSR influence consumers' purchase intention. However, other studies (e.g. Lee et al., 2016; Rhou et al., 2016) revealed that hotel guests are more likely to be ambivalent to CSR initiatives if they regard them as infringing on their convenience. Based on the foregoing discussion, it is hypothesised that:

*H<sub>4</sub>: Perceived CSR positively influence attitude towards food waste reduction*

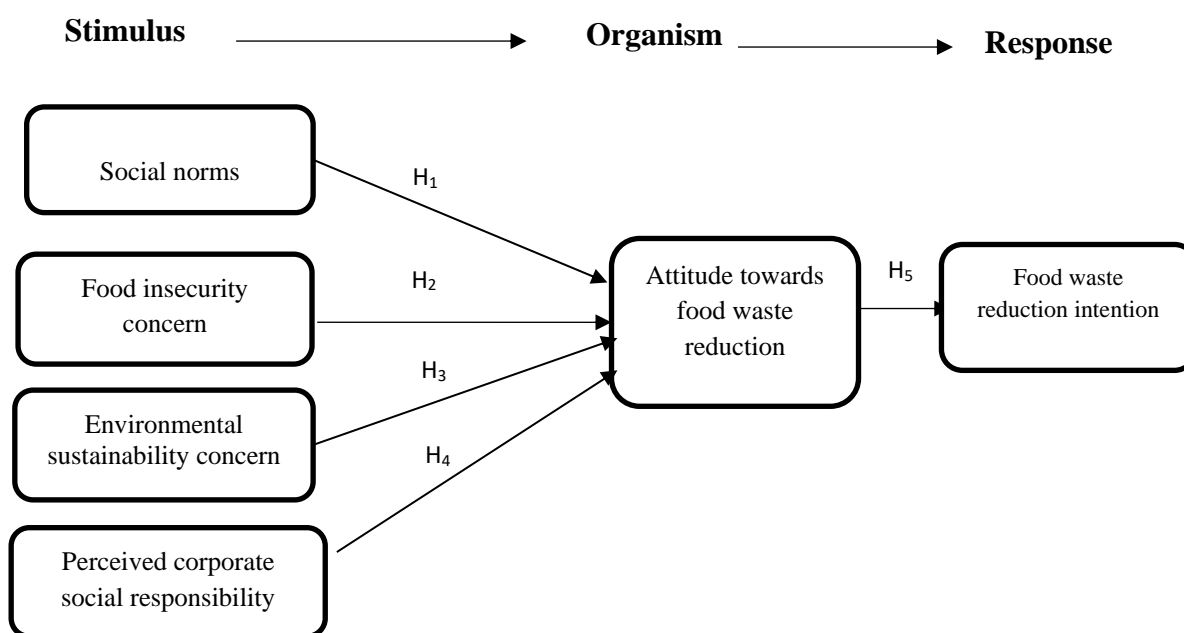


*Attitude towards food reduction and food waste reduction intentions*

Food waste reduction behaviour is known to stimulate both cognitive and affective feelings (Ettinger et al., 2020). The desire to contribute to enhance food security is a cognitive feeling that encourages waste reduction behaviour (Visschers et al., 2016; van Herpen & van der Lans, 2019). Conversely, the inconvenience associated with food waste reduction has the potential to constrain food waste reduction (Stancu et al., 2016). Food waste reduction is also influenced by affective states such as feelings of pride or guilt (Ettinger et al., 2020). Participation in food reduction initiatives was found to engender feelings of pride while food waste triggers guilt emotions especially for individuals who value social norms (Visschers et al., 2016; Ettinger et al., 2020). Individuals who show favourable attitudes towards food waste reduction were found to be more receptive to food waste reduction strategies (Evans, 2012; van Herpen and van der Lans, 2019). It is therefore hypothesised that:

*H<sub>5</sub>: Attitude towards food waste reduction positively influences food waste reduction intention*

Based on the foregoing discussion, Figure presents the research model



**Figure 1: Research model**

**Methods**

***Research setting and measurement scales***

A structured paper-based questionnaire was used to collect quantitative data from hotel guests. Respondents were recruited from South African hotels located in Cape Town and Durban. The management of participating hotels waived the need for an ethical clearance. To be included in the study, the hotels were supposed to be promoting green hotel practices such as food waste reduction. The questionnaire used for data collection consisted of six constructs. The questionnaire was accompanied by a cover letter which explained the purpose of the study. Respondents verbally consented to participate and no incentives were offered. Study constructs were measured using validated measurement items adapted from previous similar studies. All constructs were measured using a 5 point Likert scale. The data collection instrument was pilot

tested with 50 hotel guests who represented the target population. Minor adjustments related to the phrasing of scale items were done using the feedback from the pilot study. Table 1 summaries the measurement scales that were used to measure study constructs.

**Table 1: Measurement scale items**

Construct	Measurement items	Source of scale items
Social norm (SN)	SN1: People who are important to me think I should reduce food waste.	Talwar et al. (2021).
	SN2: People who important to me think I should support food waste initiatives.	
	SN3: Most people whose opinions I value think it is wrong to waste.	
	SN4: Most people who are important to me participate in food waste reduction.	
Environmental sustainability concern (ESC)	ESC1: I am concerned with the effect of food waste on the environment.	Rasool et al. (2021).
	ESC2: Avoiding food waste can help reduce environmental pollution.	
	ESC3: I am concerned that usable land is continuously covered by food waste.	
	ESC4: Avoiding food waste helps to solve environmental problems such as greenhouse gas emissions.	
Perceived corporate social responsibility (PCSR)	PCSR1: I think the hotel has a sense of responsibility to reduce food waste.	Lee and Oh (2014).
	PCSR2: I think the hotel fulfils its social responsibility by providing a food waste reduction message.	
	PCSR3: I think the hotel's efforts to reduce food waste are genuine.	
	PCSR4: I don't trust the hotel's food waste reduction messages.	
Food insecurity concern (FIC)	FIC1: Avoiding food waste can help reduce food waste.	Rasool et al. (2021).
	FIC2: I need to reduce food waste because food shortage is increasing.	
	FIC3: I need to reduce food waste because people I know are food insecure.	
	FIC4: I support organisations that are working to reduce food waste.	
Attitude towards food waste reduction (ATFWR)	ATFWR1: I approve the behaviour of saving food.	Rasool et al. (2021).
	ATFWR2: Reducing food waste is beneficial to the society and environment.	
	ATFWR3: I think promoting food waste reduction is a good practice.	
Food waste reduction intention (FWRI)	FWRI1: I intent to reduce food waste next time I check in this hotel.	Rasool et al. (2021).
	FWRI2: I plan to always take food portions I am able to finish .	
	FWRI3: I intend to take an extra effort to reduce food waste.	

### ***Sampling and data collection***

Respondents were recruited using the purposive sampling method. Only hotel guests with the knowledge of the adverse effects of food waste and who have been exposed to food waste messages were included in the study. The study also focused on hotel guests of South African nationality as they were deemed to be more knowledgeable of the food waste reduction campaigns in South Africa. Data was collected from eleven hotels, 6 in Durban and 5 in Cape Town. Questionnaires were distributed with the assistance of hotel service staff from November 2022 to January 2023. This period was selected because it is the holiday season in South Africa. The sample profile (n= 302) was as follows: 57 % female (n = 172) and 43 % male (n = 130). The average age of the respondents was 42 years. 52 % (n = 157) of respondents reported a high income, while 47.8% (n =145) reported medium income.

### ***Data analysis***

The analysis of data was done using SPSS 26 and AMOS 26 statistical software. SPSS 26 was used to assess data normality, common method bias assessment and correlational analysis. AMOS 26 was used to assess the fitness of the measurement and structural models as well as for path analysis. The results of data analysis are as follows:

#### ***Data normality, common method bias and multicollinearity***

First, the inspection of the data showed that there were no unengaged responses and missing data signifying the absence of non-response bias. Kolmogorov–Smirnov (K–S) and Shapiro–Wilk (S–W) statistical techniques were used to assess data normality. The K–S and S–W test values were all insignificant ( $p > 0.05$ ), indicating that the data was normally distributed (Hair et al., 2016). Harman’s single-factor test was performed to check the potential effect of common method bias since the study relied on self-reported data. As recommended by Podsakoff et al. (2012) the scores for all measurement items were loaded on an un-rotated exploratory factor analysis. This procedure resulted in a total explained variance of 39.3% below the recommended threshold of 50 % (Podsakoff et al., 2012). This is an indication that common method variance was not a concern in this study. The tolerance values were greater than 0.1 and the variance inflation factor values were less than 5 indicating the absence of multicollinearity (Hair et al., 2016). The data was therefore considered fit to conduct further analyses.

### Reliability and validity

The reliability and validity of scale items was established by conducting confirmatory factor analysis (CFA). The reliability of measurement scales was confirmed as Cronbach’s alpha and composite reliability values were all above the recommended cut-off point of 0.7 (Hair et al., 2016). The average variance explained (AVE) values for all study variables were above the recommended threshold of 0.5 indicating the attainment of convergent validity (Fornell & Larcker, 1981). The square root of the AVE was higher than the inter-correlations between study constructs, thereby indicating the existence of discriminant validity (Hair et al., 2016). The CFA model fitted well with the data as indicated by the following indices:  $\chi^2/df = 2.67$ , CFI = 0.94, TLI = 0.92, RMSEA = 0.06 (Bagozzi & Yi, 2012). Table 2 provides the reliability and validity indicators.

**Table 2 Reliability and validity indicators**

Construct	Scale items	Factor loadings	Mean	SD	Cronbach’s alpha	CR	AVE	Square root of AVE
Social norm (SN)	SN1	0.822	3.2	0.77	0.87	0.89	0.67	0.82
	SN2	0.814						
	SN3	0.816						
	SN4	0.817						
Environmental sustainability concern (ESC)	ESC1	0.911	3.4	0.80	0.93	0.95	0.82	0.95
	ESC2	0.913						
	ESC3	0.890						
	ESC4	0.901						
Perceived corporate social responsibility (PCSR)	PCSR1	0.803	3.9	0.69	0.87	0.89	0.66	0.81
	PCSR2	0.814						
	PCSR3	0.820						
	PCSR4	0.818						
Food insecurity concern (FIC)	FIC1	0.888	4.3	0.54	0.89	0.93	0.77	0.88
	FIC2	0.863						
	FIC3	0.872						
	FIC4	0.880						
Attitude towards food waste reduction (ATFWR)	ATWFR1	0.912	3.7	0.72	0.91	0.94	0.83	0.911
	ATWFR2	0.917						
	ATWFR3	0.910						
Food waste reduction intention (FWRI)	FWRI1	0.910	3.8	0.67	0.90	0.93	0.82	0.905
	FWRI2	0.906						
	FWRI3	0.902						

SD= standard deviation; CR = Composite reliability; AVE = average variance extracted

### Correlation analysis

Prior to hypotheses testing, correlation analysis was conducted using Pearson Product Moment to assess the degree of association between the study constructs. The results of correlation analysis provided an initial assessment of the relationship between study constructs. Table 3 provide the correlation analysis results.





**Table 3: Inter-correlation matrix**

Constructs	SN	FIC	ESC	PCSR	ATFWR	FWRI
SN	<b>0.82</b>					
FIC	0.54	<b>0.88</b>				
ESC	0.38	0.44	<b>0.95</b>			
PCSR	0.33	0.28	0.40	<b>0.81</b>		
ATFWR	0.444	0.39	-0.34	-0.54	<b>0.911</b>	
FWRI	0.22	0.055	0.26	0.14	-0.411	<b>0.905</b>

**NB:** Diagonal values in bold denote the square root of AVE

### Hypotheses testing results

The posited hypotheses were tested using the structural equation modelling. Prior to hypotheses testing, the structural model was validated and it fitted well with the data:  $X^2 / df = 2.67$ , CFI= 0.92, TLI = 0.90, RMSEA =0.040 (Bagozzi & Yi, 2012). The results supported the hypothesised positive effect of social norm on attitude towards food waste reduction (H1:  $\beta = 0.26$ ;  $p < .001$ ). The second hypothesis which predicted a positive effect of food insecurity concern on attitude towards food waste reduction was also supported (H2:  $\beta = 0.31$ ;  $p < .001$ ). In contrast, the hypothesised positive association between environmental sustainability concern and attitude towards food waste reduction was not supported (H3:  $\beta = -0.29$ ;  $p < .001$ ). H4 was also not supported as perceived corporate social responsibility was shown to have a negative effect on attitude towards food waste reduction (H4:  $\beta = -0.42$ ;  $p < .001$ ). Attitude towards food waste reduction was found to have a negative effect on food waste reduction intention thereby refuting H5 ( $\beta = -0.37$ ;  $p < .001$ ). Table 4 summarises hypotheses testing results.

**Table 4: Hypotheses testing results**

Hypothesis	Path	B	P-value	Decision
H1	Social norm → attitude towards food waste	0.26	< .001	Supported
H2	Food insecurity concern → attitude towards food waste	0.31	< .001	Supported
H3	Environmental sustainability concern → attitude towards food waste	- 0.29	< .001	Not supported
H4	Perceived corporate social responsibility → attitude towards food waste	-0.42	< .001	Not supported
H5	Attitude towards food waste → food waste reduction intention	- 0.37	< .001	Not supported

### Discussion

The results confirmed H1, supporting that social norm has a positive effect on attitude towards food waste reduction. This finding is consistent with that of earlier studies (Thyberg & Tonjes, 2016; Misiak et al., 2020). This result implies that social norm framed messages have a positive influence on the formation of favourable attitudes towards food waste reduction. This result also suggests that hotel guests surveyed in South Africa consider wasting food as immoral. This result is important for food waste reduction because as noted by Misiak et al. (2020), it promotes a sense of self-regulation among hotel guests. This offers the advantage of lessening the burden of monitoring and enforcing food waste reduction initiatives on the part of hoteliers. H2, which proposed a positive effect of food insecurity concern on attitude towards food waste was also supported. This result concurs with past studies (Jribi et al., 2020; Rasool et al., 2021). This result suggests that although hotels are often portrayed as compulsive consumption settings, hotel guests surveyed were altruistic in nature as they considered the plight of those who are food insecure. This result offers a promising avenue to entrench the food waste reduction behaviour as individuals who are concerned with food insecurity were also found to be more willing to adopt food waste reduction strategies (Paslakis et al., 2021). H3, proposing a positive relationship between environmental sustainability concern and attitude towards food waste reduction was not supported. In fact, the results showed a statistically significant negative association. This finding contradicts the results from past studies (Melbye et al., 2016; Dhir et

al., 2021). This result suggests that hotel guests surveyed lack awareness of the adverse effects of food waste on the environment. A possible explanation of this finding could be the level of priority accorded to environmental issues in developing countries. For instance, de Lange and Nahman (2015) note that in developing economies such as South Africa, poverty and inequalities are perceived to be more immediate challenges than environmental sustainability.

The results did not support H4, which posited a positive association between perceived corporate social responsibility and attitude towards food waste reduction. This result is not consistent with our expectations based on previous studies (e.g., Lee et al., 2016; Albus & Ro, 2017). The result suggests that hotel guests do not trust the food reduction initiatives. A possible explanation to this result could be that the importance of corporate social responsibility initiatives related to food waste is not being effectively communicated. For instance, Lee et al. (2016) found that hotel guests are likely to complain about the inconvenience of food waste reduction initiatives if they are not preceded by informative explanations. There is also a possibility that food waste reduction initiatives are not being perceived as genuine by hotel guests. When CSR initiatives are perceived as a ploy to enhance profitability, Albus and Ro (2017) note that hotel guests are likely to develop negative attitudes. Lastly, H5, proposing a positive effect of attitude towards food waste reduction on food waste reduction intention was not supported by the results. On the contrary, a negative statistically significant result was revealed. This result is not consistent with previous results (Misiak et al., 2020; van Herpen & van der Lans, 2019). This result implies that the gains or losses associated with food waste reduction are failing to entice hotel guests to develop intentions to reduce food waste.

### ***Theoretical and managerial implications***

This study offers three main contributions to theory. First, the novelty of this study emanates from being among the few to try to understand how hotel guests respond to food waste reduction messages. This was done by proposing a model underpinned by the propositions of the SOR Model and Prospect Theory. Secondly, this study contributes to literature on food waste reduction by acknowledging the complementary role of social marketing and corporate social responsibility stimuli. By so doing, this study diverts from the common practise of regarding social marketing and corporate social responsibility as distinct interventions in addressing food waste. Lastly, this study revealed that the promising strategy to promote food waste reduction is by invoking social norms and food security concerns as they are more instrumental in stimulating favourable attitudes towards food waste reduction. Turning to managerial implications, this study offers valuable insights to hoteliers and policymakers who intend to minimise food waste. Social norms and food security concern emerged as key factors that favourably influence hotel guests' attitudes towards food waste. This accentuate the key role of normative messages in reducing food waste and enhancing food security. Policymakers may leverage on this result by identifying opinion leaders to deliver messages on the gains and losses associated with food waste. The potency of such messages may be improved by emphasising the importance of achieving SDGs 2 and 12.

The findings of this study underscore the need for hoteliers to embark on awareness campaigns to educate hotel guests to understand the adverse effects of food waste on environmental sustainability. This can be done by emphasising the negative effects of food waste such as constraining waste management systems, contribution to the loss of biodiversity and greenhouse gas emissions. It is also particularly important to enforce that intersections between food security and environmental sustainability. This will assist in addressing the prevailing misperception in developing economies that environmental sustainability is not an immediate priority.

It was also noted that corporate social responsibility initiatives related to food waste were perceived with scepticism by hotel guests. Hoteliers may need to implement attitude change strategies to address such negative perceptions. To do this, Randle et al. (2019) suggest the need to communicate effectively the rationale for such initiatives. Where possible, hoteliers may also need to involve hotel guests when planning CSR initiatives related to food waste reduction. This will assist in gaining the support of hotel guests. When CSR initiatives are perceived as genuine and beneficial to communities, Chaudary et al. (2016) note that hotel guests are more likely to support them with the potential of enhancing revisit intentions.

## Conclusion

This study sets out to examine how hotel guests respond to food waste reduction messages using the SOR model and prospect theory. Social norms and food security concern emerged as key factors that favourably influence hotel guests' attitudes towards food waste. This accentuates the key role of normative messages in reducing food waste and enhancing food security. It was also noted that corporate social responsibility initiatives related to food waste were perceived with scepticism by hotel guests. Hoteliers may need to implement attitude change strategies to address such negative perceptions. This study revealed that the promising route to promote food waste reduction is by invoking social norms and food security concerns as they are more instrumental in stimulating favourable attitudes towards food waste reduction. The results of this study should be considered in view of the following limitations which provide avenues for further research. The study relied on self-reported data collected from hotel guests and the results may be susceptible to social desirability bias. Future studies may need to use more objective methods of data collection to enhance the objectivity of the results. Moreover, data was only collected from two coastal cities in South Africa. Future studies may enhance the generalisability of the findings by focusing on other major inland cities in South Africa. Lastly, the research model utilised in this study may be improved by considering the potential influence of demographical variables such as age, gender and income level.

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