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Consumers' Purchase Intention of Suboptimal Food Using Behavioral Reasoning Theory: A Food Waste Reduction Strategy

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Abstract: Food waste has attained considerable attention globally during the last decade, owing to its environmental and social impacts. Consumers' low preference to purchase edible fruits and vegetables with unusual appearance, discoloration, etc., technically referred to as suboptimal food, significantly contributes to food waste. Consumers are more likely to reject suboptimal food while purchasing food, resulting in unnecessary food waste. However, consumers' perceptions of whether or not to purchase suboptimal food are still unidentified. Therefore, the purpose of this research is to explore the factors influencing as motivators (reason for) and barriers (reason against) in explaining the consumers' purchase intention toward suboptimal food using Behavioral Reasoning Theory (BRT). This study conducts a questionnaire survey from 650 consumers using a purposive sampling method. The Partial Least Square Structural Equation Modeling (PLS-SEM) is used to analyze the data. The findings support the proposed theoretical framework and confirm its robustness in exploring the factors influencing the consumers' purchase intention of suboptimal food. The findings suggest that the factors including values, reason for (environmental concern and price consciousness), reason against (quality inferior and unappealing appearance), and attitude have direct and indirect influence on consumers' purchase intention of suboptimal food. Based on the results, the study highlights several insights for policymakers, marketers, business professionals, and practitioners to promote suboptimal food in order to reduce food waste.

Keywords: suboptimal food; food waste; purchase intention; Behavioral Reasoning Theory (BRT); environmental concern

1. Introduction

The United Nations Sustainable Development Goal 2 (SDG 2) aims to attain food security, zero hunger, improve food quality, and promote suboptimal food. One of the terrible ironies in solving the hunger problem is the increasing ratio of food waste all over the world. An astounding amount of edible food around 1.3 billion tons is wasted every year [1]. Researchers and policymakers have been concerned about rising levels of food waste because this level of food waste has a substantial influence on society, inclusive of growing food insecurity and increasing adverse environmental and economic impacts [2,3]. For food waste, one of the major contributors is consumers' less favorable preference

to purchase edible vegetables and fruits due to imperfections including discolorations, unusual shapes, etc., technically called suboptimal food [4,5].

Consumers play a significant role in causing food waste in developed and developing countries mainly due to consumer households [3,6,7]. The European States, such as the United Kingdom and France, introduced a campaign to promote suboptimal food in superstores, thus echoing the European Union's movement to stop food waste [7]. However, similar marketing campaigns are not common in developing countries like Pakistan, China, India, and Indonesia. Pakistan is one of the world's most food-insecure countries, ranking 94th on the food security risk index as "very vulnerable". Hundreds of people die each year in Pakistan as a result of malnutrition and other deficiencies [8]. Thus, there is a need to reduce food waste and to successfully promote purchase intention of suboptimal food among consumers, especially in a country like Pakistan. However, it is critical to raise consumer knowledge of the waste created by not eating suboptimal food and to understand the important elements that affect customer buy intentions for suboptimal food [3,5].

The existing literature mainly focuses on food waste reduction [9,10], organic food purchasing decisions [11], local food consumption [12], sustainable food buying behavior [13], green consumption attitude [14], and electronic waste collection [15,16]. To the best of our knowledge, no prior empirical study has explored the factors influencing as motivators and barriers in explaining the consumer purchase intention towards suboptimal food within a unified framework. This research fills the gap by applying the Behavioral Reasoning Theory (BRT) to better understand the consumers' purchase intention toward suboptimal food. BRT is an emergent theory that provides a wide-ranging overview of the consumers' behaviors and intentions by considering the association between reasons (for and against), values (belief), attitude, and intention to use certain innovations [17].

This study has three main objectives. First, the study examines the relative influence of reason for (motivators) and reason against (barriers) factors in influencing the attitude and purchase intention towards suboptimal food. Second, this study extends the theoretical base of the existing literature due to the following reasons: (a) this is the first empirical research that applies the BRT to study the suboptimal food; (b) this study examines the mediating role of reason for (Price Consciousness and Environmental Concern), reason against (Unappealing Appearance and Quality Inferior), and attitude for consumers' purchase intention of suboptimal food. Third, the study particularly provides a decisive understanding of Pakistani consumers' intention and perception to engage in purchasing the suboptimal food. Practically, the findings of the current study highlight several insights for policymakers, marketers, and business professionals and practitioners.

2. Theoretical Background and Hypotheses Development

2.1. Behavioral Reasoning Theory (BRT)

Prior research has examined the purchasing behaviors of suboptimal food from a diverse theoretical lens, including the Theory of Interpersonal Behavior (TIB) [4], Cue Utilization Theory [2], Theory of Planned Behavior (TPB) [6,7,18], and Theory of Reasoned Action (TRA) [19,20]. The mentioned theories have the potential to explain the purchase intention of suboptimal food, however, they did not consider the barriers related to purchase intention of suboptimal food within a theoretical framework. The integration of barriers with purchasing intention of suboptimal food is significantly important within a theoretical framework because it provides the researchers with a diverse cognitive perspective to understand the consumers' intentions and behaviors [21]. Therefore, the BRT is used as a theoretical foundation in this research since it integrates the motivators (reasons for) and the barriers (reasons against) in explaining the consumers' behavioral intention towards suboptimal food (see Figure 1).

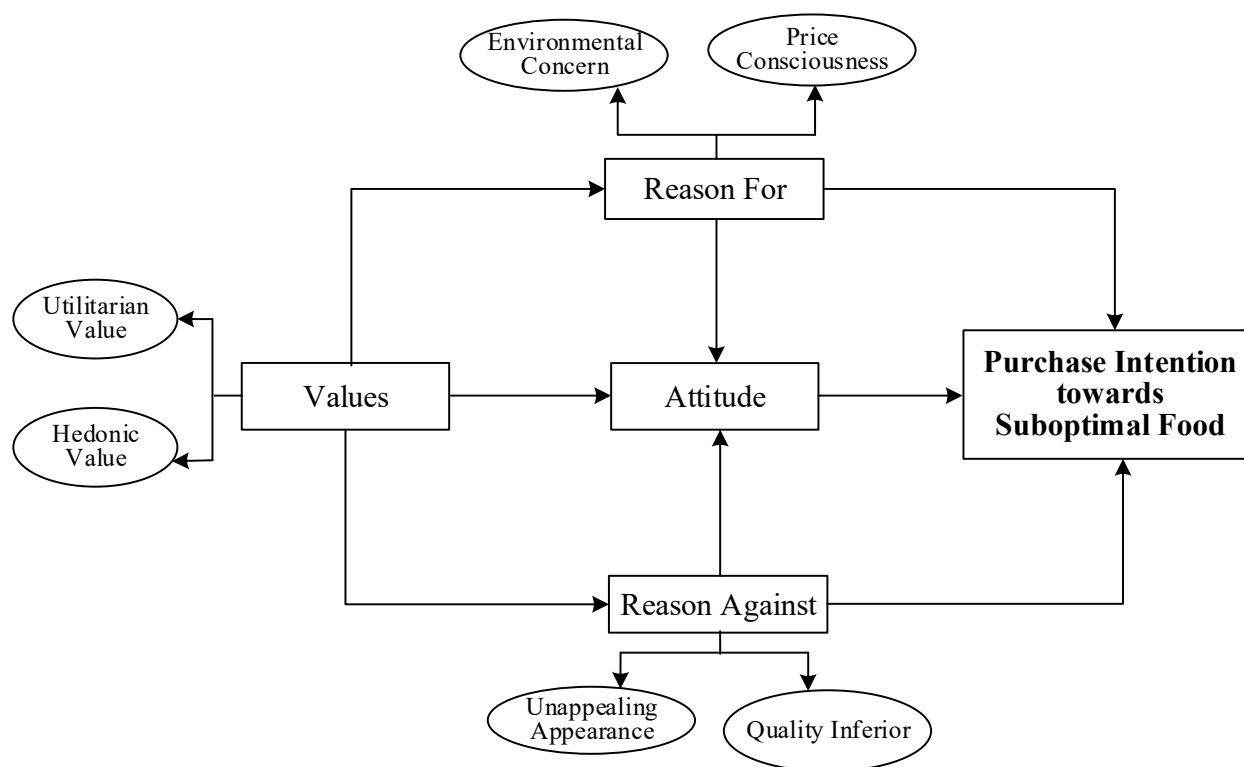


Figure 1. Proposed framework.

2.2. Suboptimal Food and Consumer Purchase Intention

Suboptimal food is referred to as imperfect or abnormal food products (i.e., vegetables and fruits) that deviate from the normal products based on appearance standards including weight, shape, color, size, packaging, and date labeling [7,22,23]. Consumers' acceptance of food products is influenced by their physical look [23]. Consumers normally refuse to purchase abnormal vegetables and fruits because they believe that abnormality is a sign of inferior quality [4,24]. Earlier literature demonstrates that a consumer's purchase intention toward suboptimal food is lower than his optimal food purchase intention [19,25]. However, consumers' purchase intention toward suboptimal food is comparatively increased due to minor changes in physical appearance [4,7].

2.3. Factors Influencing the Suboptimal Food Purchase Intention

2.3.1. Attitude

Attitude is the degree to which an individual has a favorable or unfavorable feeling regarding concerned behavior [26]. According to the BRT, individuals who have a significantly positive attitude towards a specific behavior are more likely to involve in it [21]. The relationship between consumer attitude and intention in relation to suboptimal food consumption behavior has long been investigated [6,19,27]. Prior studies have demonstrated that one's attitude can predict one's behavioral intention towards suboptimal food [4,6,18,19,28], green consumption behavior [14,29], and the organic food consumption behavior [26,30]. Consumers' attitude is a strong predictor of suboptimal food purchase intention [28]. Similarly, the research suggests that the consumer attitude has a positive impact on suboptimal food purchase intention [2,6,18,19]. Therefore, the study postulates that:

H1. Consumer attitude has a positive impact on suboptimal food purchase intention.

2.3.2. Reasons For

On a specific behavior, the ‘reasons for’ represented the motivators or enablers that may prompt the favorable perceptions among consumers [21,31]. The current study deliberates ‘reasons for’ as the combination of price consciousness and environmental concerns because the existing literature on suboptimal food highlighted the significance of these two variables [7,18].

Price consciousness (PC) refers to what extent the consumer focuses on paying low prices [7,32]. Prior literature has suggested that effective pricing techniques such as discounts and dropped prices can rise the suboptimal food purchase intention [33]. Price-conscious consumers have positive thoughts regarding suboptimal foods [34]. Similarly, prior research posits that the consumers who are price conscious have a positive attitude toward suboptimal food purchase intention [7,33,35].

Environmental concern (EC) refers to the degree to which individuals are aware of environmental issues, support solving the issues, and actively contribute to providing a solution [18]. The intention to purchase suboptimal food among consumers increased due to the high level of EC [18,36,37]. The literature discusses that the EC has a positive effect on consumer attitude and suboptimal food purchase intention because consumers are aware of the environmental issues and are willing to solve the problems [5,6,36]. Therefore, the study postulates that:

H2. *Reasons for positively influencing purchase intention toward suboptimal food.*

H3. *Reasons for positively influencing consumer attitude toward suboptimal food.*

2.3.3. Reasons Against

On a specific behavior, the ‘reasons against’ represented the resistors or barriers that may prompt the negative perceptions among consumers [21,31]. The current study considers ‘reasons against’ as the combination of inferior quality and unappealing appearance because the existing literature on suboptimal food highlighted the significance of these two variables [7,38,39].

Quality Inferior (QI) refers to fruits and vegetables with minor or major defects [7]. Perceived quality is an important predictor of consumers’ readiness to purchase suboptimal food items [2]. High-quality fruits and vegetables have a positive impact on consumer purchase intention [40]. However, inferior quality has a negative impact on attitude and purchase intention towards suboptimal food [29,41]. Fruits with small and high defects have a negative influence on purchase intention [42].

Unappealing appearance (UA) refers to an intrinsic attribute with minor changes in food appearance such as abnormal size, shape, and color [7]. Sensory appeal significantly influences the customer’s purchase intention [7,43]. Consumers are not willing to purchase suboptimal food due to their visual imperfection [39]. In addition, researchers suggested that the UA of food negatively influences the consumer attitude and purchase intention towards suboptimal food [23,44]. Consequently, the study postulates that:

H4. *Reasons against negatively influencing purchase intention towards suboptimal food.*

H5. *Reasons against negatively influencing consumer attitude toward suboptimal food.*

2.3.4. Value

Value refers to a person’s cognitive patterns resulting in appropriate likely behavior in the future [45]. The extant literature on food used the utilitarian and hedonic values towards the food purchase intention based on their significance [46,47]. Utilitarian value refers to an overall assessment of functional benefits [46,48]. Hedonic value refers to the degree to which a product arouses emotions and creates pleasant experiences [46]. Consumer norms, values, and beliefs have the strong ability to impact reason for, reason against, and attitude towards certain behavior [21,26]. Values are related to favorable attitudes

toward suboptimal food items and reasons for buying organic food products [47,49]. Prior studies suggested that value has a positive effect on attitude and purchase intention [31,50]. Consequently, the study postulates that:

H6. *Value is positively influencing the reasons for (motivators) towards the purchase intention of suboptimal food.*

H7. *Value is negatively influencing the reasons against (barriers) towards the purchase intention of suboptimal food.*

H8. *Value is positively influencing the attitude towards the purchase intention of suboptimal food.*

2.3.5. The Mediating Role of Attitude and Reasons

The mediating role of reasons (for and against) and attitude provide vision into mechanisms that drive consumers' decision-making in a specific state. There is a need to investigate the reasons and attitude as a mediating variable to fill the attitude-intention gap [26]. In prior research, attitude (based on TPB) is used as mediator to examine green hotel consumption intention [51], and suboptimal food purchase intention [6]. However, BRT is only used to examine innovative and new product purchase intention [52], local food consumption [12], and organic food purchase intention [26]. Similarly, reasons (motivators and barriers) have been used as a mediator in some empirical studies including underutilization of urban bicycle commuting [53], local food consumption [12], and organic food purchase intention [26].

Based on the research gap, this study thus posits that consumers' values (utilitarian and hedonic) are likely to influence the reasons and attitude toward suboptimal food purchase intention. In addition, this study hypothesizes that both types of reasons (for and against) mediate the relationship between consumer values (utilitarian and hedonic) and purchase intention. Similarly, this study also hypothesizes that attitude has a mediating effect on reasons and suboptimal food purchase intention. Therefore, the study postulates that:

H9. *Value and attitude are significantly mediated by (a) reason against, and (b) reason for.*

H10. *Attitude and purchase intention are significantly mediated by (a) reasons against, and (b) reasons for.*

3. Research Methods

3.1. Questionnaire Development

The study adopted questionnaires to measure consumers' purchase intention and attitude toward suboptimal food [54]. Reason for was measured using environmental concern and price consciousness items by following [32,55]. Reason against was measured using unappealing appearance and inferior quality items by following [56,57]. The questionnaire items for value (utilitarian value and hedonic value) were adapted [41,58].

The questionnaire had two main portions; the first portion had the demographic details of the respondents and the second portion had 32 statements to measure five constructs using a seven-point Likert scale ranging from strongly agree (codified as 7) to strongly disagree (codified as 1). A pilot study was conducted with a sample of 30 respondents to confirm the reliability and validity of the questionnaire.

3.2. Sample and Data Collection

The questionnaires were distributed to the consumers who reside in Pakistan and have grocery shopping experience. The survey was conducted in the metropolitan cities of Pakistan including Islamabad, Lahore, Karachi, Faisalabad, Sahiwal, Multan, etc. This study employed the purposive sampling technique because it was hard to collect data from all grocery consumers [59]. Due to the wide geographical range, this study used paper and online distribution channels to collect data. A total of 1500 questionnaires were distributed, of which 900 were returned, and finally after the primary screening, 650 questionnaires

were found to be useable for further analysis with an effective recovery rate of 43.3 %. The demographic details of the sample are presented in Table 1.

Table 1. Demographic Information of Respondents.

Variable	Category	Frequency	Percentage
Gender	Male	422	64.9
	Female	228	35.1
Age	20–30 years	343	52.8
	31–40 years	169	26.0
	41–50 years	96	14.8
	51–60 years	32	4.9
	More than 60 years	10	1.5
Marital Status	Married	339	52.2
	Unmarried	311	47.8
Education	Intermediate	35	5.4
	Undergraduate	184	28.3
	Graduate	221	34.0
	Postgraduate	169	26.0
	Professional	41	6.3
Occupation	Govt. Employee	156	24.0
	Private Employee	148	22.8
	Self-Employed	143	22.0
	Other	203	31.2
Household income monthly (PKR)	Less or equal to 20,000	54	8.3
	20,001–50,000	176	27.1
	50,001–100,000	150	23.1
	100,001–200,000	107	16.5
	Above 200,000	163	25.1
Household size	Small (1–3 members)	81	12.5
	Medium (4–5 members)	318	48.9
	Large (above 6 members)	251	38.6

3.3. Data Analysis

PLS-SEM was employed for evaluating the proposed research framework using Smart PLS 3.0 [17]. In most management-related studies, Structural Equation Modeling (SEM) is the preferred choice through two well-known techniques: covariance-based SEM (CB-SEM) and PLS-SEM. The study chose the PLS-SEM approach mainly because it is more appropriate for exploring theoretical levels and testing complex relationships between latent constructs [60]. PLS-SEM is used with a two-stage analysis approach to estimate the research framework: an assessment of the measurement model for the outer model evaluation; and an assessment of the structural model for path analysis [60].

4. Data Analysis and Results

4.1. Measurement Model

4.1.1. First-Order Reflective Constructs

At two levels, the indicator level and construct level, the attributes of first-order reflective constructs are analyzed. At the indicator level, all indicators in the proposed conceptual framework including attitude, reasons for (EC and PC), reasons against (UA and QI), values (UV and HV), and purchase intention towards suboptimal food are above the threshold value of 0.7 [60]. At the construct level, Cronbach's alpha (α) and composite reliability (CR) are used to examine the internal consistency of measures (see Table 2). The constructs have acceptable reliability as Cronbach's alpha (α) values are from 0.882 to 0.972 and CR values ranged from 0.919 to 0.977 [60]. With this, the constructs are confirming the convergent validity as the obtained average variance extracted (AVE) values vary from

0.738 to 0.897 [61]. For the discriminant validity (see Table 3), the square root of the AVE of each construct is greater than its correlations with other constructs in the model [61].

Table 2. Lower order reflective constructs reliability and validity.

First-Order Construct	Second-Order Construct	Item	Outer Loading	α	CR	AVE
Attitude		ATT1	0.918	0.951	0.964	0.872
		ATT2	0.950			
		ATT3	0.934			
		ATT4	0.933			
Purchase Intention (PI)		PI1	0.944	0.962	0.972	0.897
		PI2	0.950			
		PI3	0.953			
		PI4	0.941			
Environmental Concerns (EC)		EC1	0.831	0.882	0.919	0.738
		EC2	0.892			
		EC3	0.872			
		EC4	0.841			
Price Consciousness (PC)	Reason for	PC1	0.830	0.899	0.930	0.768
		PC2	0.892			
		PC3	0.899			
		PC4	0.882			
Quality Inferior (QI)		QI1	0.930	0.930	0.955	0.877
		QI2	0.946			
		QI3	0.934			
		QI4	0.934			
Unappealing Appearance (UA)	Reason against	UA1	0.865	0.903	0.938	0.835
		UA2	0.942			
		UA3	0.932			
		UA4	0.937			
Hedonic Value (HV)		HV1	0.928	0.972	0.977	0.876
		HV2	0.941			
		HV3	0.919			
		HV4	0.919			
Utilitarian Value (UV)	Values	HV5	0.950	0.911	0.937	0.789
		HV6	0.940			
		UV1	0.866			
		UV2	0.882			
		UV3	0.900			
		UV4	0.905			

Table 3. Fornell–Larcker criterion, Lower order discriminant validity.

	Attitude	EC	HV	Intention	PC	QI	UA	UV
Attitude	0.934							
EC	0.359	0.859						
HV	0.782	0.302	0.936					
Intention	0.813	0.288	0.735	0.947				
PC	0.487	0.617	0.446	0.445	0.876			
QI	−0.390	−0.102	−0.392	−0.410	−0.117	0.936		
UA	−0.286	−0.052	−0.285	−0.323	−0.047	0.742	0.914	
UV	0.698	0.316	0.841	0.669	0.453	−0.296	−0.178	0.888

4.1.2. Second-Order Reflective Constructs

The attributes of second-order reflective constructs including reasons against, reasons for, and value are also analyzed. These constructs are projected for reliability, convergent validity and discriminant validity. The constructs have acceptable reliability as Cronbach's alpha (α) and CR values are above 0.70 [60]. The AVE values are greater than 0.50, satisfying the requirement of convergent validity [61], as shown in Table 4. For discriminant validity,

the second-order reflective constructs are validated with other lower-order constructs [62]. The results show the square root of AVE of each construct is greater than its correlations with all other constructs [61], as shown in Table 5.

Table 4. Second-order reflective constructs reliability and validity.

	α	CR	AVE
Reason against	0.852	0.930	0.869
Reason for	0.763	0.891	0.804
Values	0.914	0.958	0.920

Table 5. Fornell–Larcker criterion, Higher-order discriminant validity.

	Attitude	Intention	Reason against	Reason for	Values
Attitude	0.934				
Intention	0.813	0.947			
Reason against	−0.370	−0.399	0.932		
Reason for	0.482	0.422	−0.100	0.896	
Values	0.774	0.734	−0.333	0.452	0.959

4.2. Structural Model

The structural model is evaluated using PLS-SEM to test the proposed hypotheses. This study applied the bootstrapping techniques with 1000 sub-samples and t-statistics to explain relationships. The structural model is evaluated, thoroughly delineating the coefficient of determination (R^2) and the path coefficients (Figure 2 and Table 6 explain the path coefficients for H1–H8). The mediation analysis of detailed specific indirect and total indirect effects represents H9–H10 (see Tables 7 and 8).

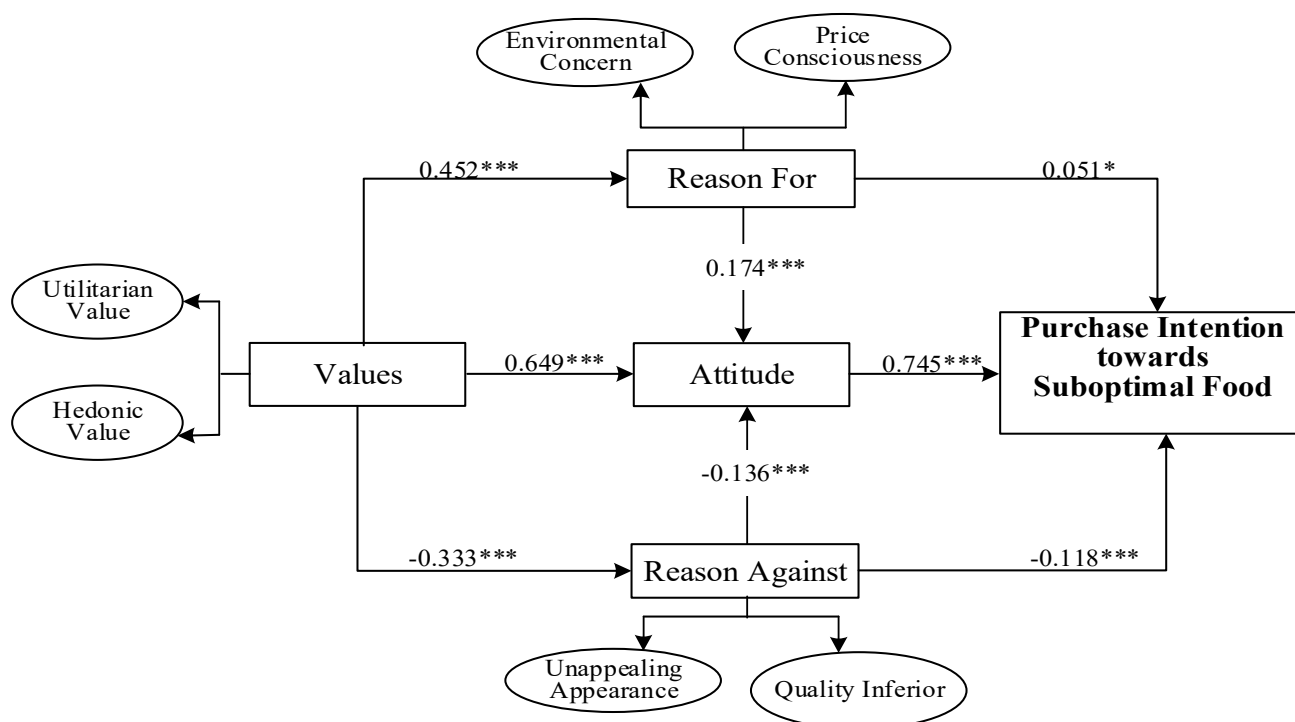


Figure 2. Structural model results. [Note(s): * $p < 0.05$; *** $p < 0.001$].

Table 6. Path coefficients for the model relating BRT and purchase intention towards suboptimal food.

Paths	Path Coefficients	Std. Errors	t-Value	Decision	f ²
H1: Attitude → Intention	0.745	0.026	28.30 ***	Supported	1.132
H2: Reason for → Intention	0.051	0.028	1.842 *	Supported	0.006
H3: Reason for → Attitude	0.174	0.032	5.421 ***	Supported	0.066
H4: Reason against → Intention	−0.118	0.025	4.811 ***	Supported	0.037
H5: Reason against → Attitude	−0.136	0.026	5.173 ***	Supported	0.045
H6: Value → Reason for	0.452	0.036	12.42 ***	Supported	0.257
H7: Value → Reason against	−0.333	0.041	8.144 ***	Supported	0.125
H8: Value → Attitude	0.649	0.031	20.83 ***	Supported	0.826

Notes: * $p < 0.05$; *** $p < 0.001$.

Table 7. Specific indirect effects.

Paths	Effect	Std. Errors	p-Value	Mediation Type
H9a: Values → Reason against → Attitude	0.045	0.011	0.000	Complete mediation
H9b: Values → Reason for → Attitude	0.079	0.017	0.000	Complete mediation
H10a: Reason against → Attitude → Intention	−0.102	0.020	0.000	Complete mediation
H10b: Reason for → Attitude → Intention	0.130	0.024	0.000	Complete mediation

Table 8. Total indirect effects.

Paths	B	p-Value
Reason against → Intention	−0.102	0.000
Reason for → Intention	0.130	0.000
Values → Attitude	0.124	0.000
Values → Intention	0.639	0.000

The results explain that all eight hypotheses are accepted (see Figure 2 and Table 6). Attitude has positive significant impact on purchase intention towards suboptimal food ($\beta = 0.745$, $t = 28.30 > 1.64$, $p = 0.000 < 0.05$). Consequently, H1 is supported. Reasons for have a positive significant effect on purchase attitude and intention towards suboptimal food ($\beta = 0.174$, $t = 5.421 > 1.64$, $p = 0.000 < 0.05$) ($\beta = 0.051$, $t = 1.842 > 1.64$, $p = 0.000 < 0.05$). Thus, H2 and H3 are supported. Reasons against have a significant negative effect on attitude and purchase intention ($\beta = -0.136$, $t = 5.173 > 1.64$, $p = 0.000 < 0.05$) ($\beta = -0.118$, $t = 4.811 > 1.64$, $p = 0.000 < 0.05$). Hence, H4 and H5 are supported. Values have positive and negative effect on attitude, reasons for, and reasons against ($\beta = -0.649$, $t = 28.837 > 1.64$, $p = 0.000 < 0.05$), ($\beta = -0.452$, $t = 12.428 > 1.64$, $p = 0.000 < 0.05$), ($\beta = -0.333$, $t = 8.144 > 1.64$, $p = 0.000 < 0.05$). Thus, H6, H7, and H8 are supported.

With this, this paper explored the mediating role of reasons (for and against) and attitude towards suboptimal food in the association between values, attitudes towards suboptimal food, and purchase intention (see Tables 7 and 8). The study showed that reasons for (environmental concern, price consciousness) and reasons against (quality inferior, unappealing appearance) fully mediated the relationship among values and attitude towards suboptimal food (H9a–H9b). Additionally, attitude towards suboptimal food was found to fully mediate the relationship between the reasons for (environmental concern, price consciousness) and reasons against (quality inferior, unappealing appearance) with purchase intention (H10a–H10b). Table 8 shows the total indirect effect of the dependent and independent variables of this study.

5. Discussion

Food waste management is a rising concern worldwide because of its contrary effect on society's well-being and environment. The current study's objective was to explore the consumer's intention to purchase suboptimal food. As a theoretical lens, the study used BRT, a popular consumer behavior framework. The proposed framework examines the relationship between values, reasons (for and against), attitude, and intention towards suboptimal food. With this, the study investigates the mediation effect of reasons (for and against) and attitude on suboptimal food purchase intention. The study used PLS-SEM to test the framework with 650 grocery consumers. The results show that all the hypotheses H1 to H10 are supported.

The findings of the study showed that attitude is positively associated with consumer purchase intention. These findings are in line with previous studies [6,7,12,18,26,51]. The possible reason could be that consumer food consumption practices are aligned with their positive feelings and their lifestyle.

The study findings proposed that reasons for (environmental concern and price consciousness) are positively related to consumer attitude and their purchase intention. As implied by prior studies, it could be supposed that suboptimal food with a poorer quality is purchased at lower prices than optimal food with a better quality [6,7,22]. Henceforth, people may be taking benefit of this lower pricing, which benefits themselves and highlights the selfish aspect of suboptimal food consumption. Furthermore, consuming suboptimal food helps reduce food waste and environmental issues, which benefits everyone and emphasizes the altruistic aspect of consumption. The findings of this research are consistent with prior research [18,36]. The reasons could be (a) society's well-being (b) environmental cleanness (c) cost-conscious consumers (d) discount prices [18,36].

Conversely, the study results showed that reasons against (quality inferior and unappealing appearance) are negatively associated with consumer attitude and their purchase intention. These results are consistent with extant studies [4,23,25] which show the possible reasons, e.g., consumers dislike (a) abnormal food shape and size, (b) damaged packaging, (c) food near to expiry date, (d) discolored food.

This paper further explored values (utilitarian and hedonic values) which show a bright side of the purchase intention of suboptimal food among consumers. The results reveal that values (utilitarian and hedonic values) are positively associated with consumer attitude and reasons for. The results of this existing study are supported by previous studies which involved food purchasing behavior [7,18,22,46–48], which show that consumers are excited to purchase suboptimal food and be a part of society's well-being. Further, the findings of this study suggested that values (utilitarian and hedonic values) are negatively associated with reasons against because consumers avoided purchasing a typical size, shapes, and color food. The findings are consistent with the prior literature suggesting the significant association between values and reasons against [4,7]. Precisely, this research established that "reasons for" consuming suboptimal food mediate the relationship between values and consumer attitude in line with previous research [12]. Similarly, the findings revealed that attitude mediates the relationship between reasons and purchase intention in line with prior studies [24,49].

5.1. Theoretical Contribution

This study proposes three main theoretical contributions to the existing literature on suboptimal food and consumers' purchase intention. First, the results provide a thorough effect of reason for (motivators) and reason against (barriers) factors in influencing the attitude and purchase intention towards suboptimal food. Second, this study prolonged the theoretical base of the prevailing literature due to the following reasons: (a) this is the first empirical-based research applying the BRT to study the suboptimal food; (b) this study examined the mediating role of reason for (Price Consciousness and Environmental Concern), reason against (Unappealing Appearance and Quality Inferior), and attitude for consumers' purchase intention of suboptimal food. Third, the findings particularly provide

a decisive understanding of Pakistani consumers' intention and perception to engage in purchasing the suboptimal food. There is a need to reduce food waste by consuming suboptimal food [63]. However, there is limited understanding of the Pakistani consumers' perception relative to suboptimal food. To enhance the further understanding of the topic, this study encourages the researchers to conduct similar kind of studies among different cultures and geographical boundaries.

5.2. Managerial implications

This research provides several visions for policymakers, marketers, business professionals, and practitioners. Firstly, consumer awareness campaigns and educational initiatives should be developed to educate people about the environmental implications of squandering suboptimal food to foster the favorable attitudes about it. Retailers can persuade customers to buy suboptimal food by portraying it as an environmentally good product with no negative consequences. Food wastage is one of the most un-talked about problems in Pakistan and it needs awareness campaigns as well as advocacy drives to highlight the issue. Policymakers and business professionals must conceive of more effective strategies to encourage purchase intention towards suboptimal food, increasing the consumers' awareness about proper food waste reduction and environmental sustainability and enhancing the involvement of other retailers in food waste management practice.

Secondly, promoting food waste messages in retail outlets about such products will have a favorable impact on consumer attitudes, leading to positive behavioral intention.

Despite the removal of formalized quality standards and the unpleasant appearance of most products, it is still common retail practice to reject products that deviate from a presumed ideal quality because retailers assume consumers will refuse buy it [6,63].

However, the study's positive findings propose that a portion of consumers will have favorable attitudes toward such items and will be eager to purchase them; as a result, shop-keepers and retailers should review their plans and policies of refusing suboptimal food [6,63]. Retailers are urged to embrace the placement of suboptimal food on shelves since consumers' experience to such products familiarizes them and makes them more accessible, favorably influencing consumers' opinions toward them [38,63].

Third, to increase suboptimal food awareness and food waste management practices, the Punjab Food Authority can play a significant role in providing food waste management education to consumers. Lastly, marketers, retailers, vendors, and restaurant managers could promote the sale of suboptimal food at discount prices or associated food items by involving environmental concern concept advertisements for suboptimal food. The marketing department should focus on the suboptimal food promotion. These marketing campaigns provide information to the general public about suboptimal food. These campaigns educate consumers about suboptimal vegetables and fruits that have good taste, smell, and even nutritional value as the optimal food has.

5.3. Conclusions and Future Research

The current study contributed to the literature by conducting a comprehensive investigation of different values which impact consumer attitude and intention towards suboptimal food. Results exposed that attitude has an encouraging influence on purchase intention, which consequently positively influences suboptimal food purchase intention. For food waste reduction in Pakistan, it is important to convey the message about pricing tactics and environmental issues regarding suboptimal food consumption. Hence, reasons for positively influence consumer attitude and purchase intention for suboptimal food. Unappealing appearance and inferior quality are stronger predictors of consumers' suboptimal food purchase intention. Thus, the findings notified that those reasons against negatively influence consumer attitude and purchase intention toward suboptimal food. Further, suboptimal food can be made more valuable for consumers through values, utilitarian and hedonic values. The results revealed that values have positively influenced the consumer attitude and reason for and negatively influenced the reason against. Furthermore, this

study has contributed to the existing literature by expanding values toward consumers' suboptimal food purchase intention. Analysis showed that attitude and reasoning have a mediated effect on consumer values and purchase intention for suboptimal food.

There are some limitations to the study that indicate future research directions. First, the Pakistani consumers are the pivotal point for predicting intentions to purchase suboptimal food. Cross-cultural research (the comparison of different countries) can also be conducted for future research. Second, this study measured the consumer intention toward suboptimal food. Future research can measure the actual buying behavior of suboptimal food. Third, in this study, reasons (for and against) act as a mediator. Furthermore, future research can add some moderator variables such as the socio-demographic traits of consumers. Fourth, this study is quantitative in nature. Future research can be conducted qualitative and experimental in nature. Fifth, the study results are concluded based on cross-sectional data. Future studies can be based on longitudinal data. Sixth, the current study focused on different fruits and vegetables. Future studies should also consider other suboptimal food-related products, e.g., bakery and dairy products. Moreover, future research could compare those consumers who accept and reject suboptimal foods.

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