

Article

Amid the COVID-19 Pandemic, Social Media Usage and Food Waste Intention: The Role of Excessive Buying Behavior and Religiosity

Alaa M. S. Azazz ^{1,2,3,*}  and Ibrahim A. Elshaer ^{1,4,5,*} 

- ¹ Al Bilad Bank Scholarly Chair for Food Security in Saudi Arabia, The Deanship of Scientific Research, The Vice Presidency for Graduate Studies and Scientific Research, King Faisal University, Al-Ahsa 31982, Saudi Arabia
² Department of Tourism and Hospitality, Arts College, King Faisal University, Al-Ahsa 31982, Saudi Arabia
³ Tourism Studies Department, Faculty of Tourism and Hotels, Suez Canal University, Ismailia 41522, Egypt
⁴ Department of Management, School of Business, King Faisal University, Al-Ahsa 31982, Saudi Arabia
⁵ Hotel Studies Department, Faculty of Tourism and Hotels, Suez Canal University, Ismailia 41522, Egypt
* Correspondence: aazazz@kfu.edu.sa (A.M.S.A.); ielshaer@kfu.edu.sa (I.A.E.)

Abstract: Despite being a religious country, the Kingdom of Saudi Arabia (KSA) ranks among the world's worst food wasters. Social media usage (SMU) and changes in customers' behavior, such as excessive buying, are some of the main influences of food waste. This paper examined the impact of SMU on food waste intention (FWI) with the mediating role of religiosity and excessive buying behavior amid the coronavirus (COVID-19) pandemic. A self-administered questionnaire was completed by 1250 restaurant customers in KSA. The study results employing structural equation modeling (SEM) demonstrated a significant negative impact of customer religion on the intention of food waste. Nevertheless, SMU fosters excessive buying, which in return results in a high FWI. The results also demonstrated that excessive buying behaviors partially mediate the influence of SMU and religiosity on the intention of food waste. The findings have numerous implications for policymakers, academics, and restaurant professionals.

Keywords: social media; food waste intention; religiosity; buying behavior; COVID-19



Citation: Azazz, A.M.S.; Elshaer, I.A. Amid the COVID-19 Pandemic, Social Media Usage and Food Waste Intention: The Role of Excessive Buying Behavior and Religiosity. *Sustainability* **2022**, *14*, 6786. <https://doi.org/10.3390/su14116786>

Academic Editor: Hong-Youl Ha

Received: 15 May 2022

Accepted: 31 May 2022

Published: 1 June 2022

Publisher's Note: MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



Copyright: © 2022 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

1. Introduction

The pandemic of coronavirus (COVID-19) has represented a threat to individuals' physical health, psychological disorders, and whether they have been subjected to the disease [1]. The pandemic has caused unpredictable behaviors such as excessive buying [1–3]. As a necessity, food has been one of the most frequently bought or panic-purchased items. COVID-19 was instrumental in altering purchasing and consumption patterns [4].

As of July 2020, the consequences of COVID-19, such as lockdowns and staying at home, had increased social media usage (SMU) by 10.5 percent [5]. Social media users totaled 3.6 billion in 2020, up from 3.4 billion in 2019. The figure is expected to reach nearly 4.41 billion by 2025 [6]. Consumers can use social media to promote foods by writing product reviews and uploading images and videos, allowing individuals to engage in more than just communication by socializing with other online users [7]. The increased use of social media and new food marketing strategies may lead to more excessive purchases [8]. The inability to go shopping has increased online food purchases. Food producers are urged to use online platforms as an approach to resiliency amid the COVID-19 pandemic [9]. Fear of COVID-19 consequences boosted excessive buying behavior, which impacted food waste intention (FWI) [10,11]. Food wastage was estimated at 1.3 billion tons per year before the COVID-19 pandemic [12]. The COVID-19 shutdowns were expected to increase this figure, due mainly to panicked excessive purchases and the use of food delivery services [13,14]. The GCCs (Gulf Cooperation Countries) are amongst the world's leading food wasters,

with KSA having one of the high-ranking food waste (FW) rates [15]. The Kingdom of Saudi Arabia (KSA) Ministry of Environment, Water, and Agriculture verified that a minimum of 33% of purchased food is lost, costing the Kingdom 40 billion SR (about \$11 billion) per year [16]. However, KSA has severely restricted agricultural land and a limited water supply; consequently, it relies heavily on massive imports to meet up to 80% of its food needs [17]. Yet, food loss poses a significant threat to food security and sustainability in Saudi Arabia. Besides meat and chicken, rice is one of the main products that are related to the KSA food security strategy [17]. KSA imports around 1.3 million tons of rice each year. Nonetheless, around 440 tons of rice are wasted annually. Economists anticipate that if Saudis decrease their food waste by 30%, it will decrease food prices nationally by at least 15% [16]. The average amount of food wasted per person is approximately 250 kg, of which 35% is comprised of baked goods and 30% is rice. Annually, it was reported that 917,000 tons of bread and flour, 557,000 tons of rice, 444,000 tons of poultry meat, and approximately 335,000 tons of vegetables are wasted [17]. The studies on food waste [18] indicate that environmental and economic approaches have been prioritized, while the religious approach has been neglected. A study of religiosity permits a comprehensive examination of consumer purchasing behavior [19,20].

In the context of COVID-19, there is a dearth of studies on the impact of SMU on FWI. As a result, the current study is recommended. The usage of social media platforms to reduce/maximize food waste has been asserted [21–23], but little research has been conducted on the impact of SMU on FWI [24]. Aside from this, most previous studies have looked at how religion influences customers' purchasing decisions through the lens of Christian and Jewish believers, with the majority of them taking place in the Western context [18]. As stated in several previous studies [18,25], such research cannot simply be extrapolated to other religious communities, including Islamic countries. The current study raises the following two questions: (1) What is the impact of using social media, religiosity, and excessive buying behavior on FWI? (2) Do excessive buying and religiosity act as mediators between SMU and FWI? To find out answers, the researchers conducted this study to see if the predictive power of SMU, religiosity, and excessive buying had an impact on FWI amid the COVID-19 pandemic period, with excessive buying and religiosity as mediators.

2. Literature Review

2.1. Social Media, Excessive Buying, and Food Waste Intention

FW is a multifaceted and complex issue with multiple antecedent factors [26,27]. Food waste has been defined as “Food which was originally produced for human consumption but then was discarded or was not consumed by humans, it includes food that spoiled before disposal and food that was still edible when thrown away” [28]. FW is becoming progressively recognized as a critical concern among business organizations, government institutions, and other involved bodies, as well as general public entities, as an indication of the massive amount of food wastage around the world continues to accumulate [27]. FW has environmental and social consequences because it could have fed one in every nine hungry people worldwide [29,30]. FW ignores current needs and threatens future needs. As a result, FW could be a potential factor that fosters the inability to sustainably feed the human population [31].

Consumer excessive buying behavior is among the key antecedents of FW [32,33]. Approximately 62% of in-store purchases are by excessive buying behavior, and online shoppers reinforce impulsive purchases even more [34]. Annually, billions of US dollars are paid out on excessive unplanned purchases, and food seems to be the most frequent purchase [35]. It is argued that SMU is a major contributor to excessive food buying [36]. This can be thought to be due to the widespread interest in watching food making or taking on social media platforms. In 2020, Instagram's most popular image was of an egg [37]. There are over 1.7 billion recipe pins on Pinterest [38]. The @buzzfeedtasty Instagram account has over 39.4 million followers. In contrast to the past, buyers now make and share

material based on personal preferences and previous experiences, give positive/negative word of mouth, and interact with product suppliers [39]. These actions encourage people to buy too much food [40], as well as to waste food [24].

SMU can be employed to satisfy personal main requirements and needs, such as achieving a sense of connectedness and promoting users on social media by capitalizing on these main requirements and needs [41]. Along with the abundance of material uploaded on social media platforms, food has evolved to be a common signifier of a user's everyday life. Millions of food-related posts have been uploaded and posted on social media, and by sharing photos of food on aesthetically pleasing plates, social media users have assisted in demonstrating to others what people are doing and making consumers feel good about their life [42]. The influence of social media on social norms associated with sustainable behaviors, such as preventing food waste, can be detrimental [43].

According to Mohan et al. [44], marketing stimuli can induce excessive purchasing. Price discounts for products, for example, fosters excessive buying behavior [45]. If greater discounts are offered for larger quantities, consumers will be convinced to buy more than they need, which may eventually lead to FW [46]. Similarly, promotions that promote excessive expenditure (e.g., Buy Two, Get Third Free) are critiqued for resulting in subsequent waste [47]. Inadequate preparation leads to overbuying, which in turn drives FW [48,49]. Therefore, Porpino et al. [32] and Schmidt [33] identify excessive purchasing as a cause of food waste.

We propose the following hypotheses based on the previous argument:

Hypothesis 1 (H1). *SMU is positively related to FWI.*

Hypothesis 2 (H2). *SMU is positively related to excessive buying behavior.*

Hypothesis 3 (H3). *Excessive buying is positively related to FWI.*

2.2. Social Media and Religiosity

Religion, as a cultural system, must be viewed in light of technology acceptance and internet usage, as it pervades almost every aspect of life [50]. Religiosity can be extremely potent and can force and guide moral behavior and discourage religious individuals from engaging in numerous socially unethical activities [51]. Weber's [52] secularization theory posits that the West's increased emphasis on reasonable and logical thought, systematic empiricism, and technological advancement over the past four centuries has led to the steady decline of mysticism and religion as valid worldviews regarding the nature of things [53]. Secularization theory is one of the most prominent approaches in the study of religion and mass media [54].

Using the secularization theoretical model, Armfield and Holbert [55] contended that internet usage should be negatively correlated with religiosity due to the largely secular and non-representative nature of the content found on the internet. Muslims view the internet as primarily reflecting Western beliefs and values. There is apprehension in the Islamic world that it will lose its identity as a result of the internet's transmission of a vast quantity of Western content. Some religious institutions view the internet as a Western instrument designed to destroy Islamic traditional values. Internet-facilitated free speech undermines the categorized composition of morality and ethics at the core of traditional religion [56]. Even though there have been various theoretical efforts to explain the relationship between Islam and SMU, empirical research is predominantly limited in Muslim societies; hence, the below hypothesis is suggested.

Hypothesis 4 (H4). *SMU is negatively related to religiosity.*

2.3. Religiosity, Excessive Buying, and Food Waste Intention (FWI)

The literature on FW has revealed some well-recognized dimensions that foster consumers' intention to reduce FW. Researchers have focused their attention on the role of religion in decreasing FW as one of the motivations for reducing FW; however, this research field is still under investigation [19]. Religiosity is among the most important elements of social-cultural behavior, and it has an impact on consumers and society both directly and indirectly [25]. Vitell et al. [57] asserted that religiosity influences consumers' decisions in conditions involving moral dilemmas. In a similar vein, Forghani et al. [58] stated that religiosity has been regularly reported as an important factor that has a significant impact on consumer purchasing decisions. Furthermore, Rakrachakarn et al. [59] asserted the remarkable conclusion that religiosity influences multiple factors of customers' habits, which inevitably restructures their buying behavior. Customers' decisions about whether to accept or reject certain goods are influenced by their religious beliefs and values [60–62]. The current study contends that religiosity has a main role in FWI directly and indirectly by affecting buying behavior. This argument is supported by two factors. First, one's belief system serves as the foundation for their attitudes and actions [63]. Second, because frugality in purchasing and food consumption can be explained as a commitment to God, it can be presumed that buyers who believe in God will be familiar with and accept the regulations and rules imposed on FW and excessive buying in their daily lives. In their study, Minton et al. [64] discovered that food consumption was related to religious regulations and rules. Based on the above debate, we introduce the following two hypotheses:

Hypothesis 5 (H5). *Religiosity negatively influences excessive buying behavior.*

Hypothesis 6 (H6). *Religiosity negatively influences food waste intention.*

3. Methodology

3.1. Measures

A comprehensive and extensive review of previous studies' measures, as well as a pilot test, were used to develop all of the measures used in this study, which were then validated. SMU ($\alpha = 0.910$) was operationalized with 4 items derived from Xu et al. [65]. A sample item included is "On social media, I often share something". Religiosity ($\alpha = 0.980$) was measured with 7 items, as suggested by Minton et al. [66]. The sample items contained "I am a religious one who allows religious considerations to impact my daily life." Similarly, excessive buying behavior ($\alpha = 0.968$) was operationalized with 3 items, as suggested by Neff et al. [67] and Stancu et al. [68]. Sample items included "When there are quantity discounts, we purchase larger quantities of food than we currently require." Finally, a FWI ($\alpha = 0.899$) 4-item scale developed by Aktas et al. [69] and employed by Elshaer et al. [20] was used in this study. Sample items included "I have no plans to find a use for remaining food".

On a five-point Likert scale, where 1 means strongly disagree and 5 reflects strongly agree, all of the questionnaire items were rated. The questionnaire was piloted by consumers (22) and academics (21) to ensure understandability, clarity, as well as appropriateness. Anonymity and confidentiality were explicitly guaranteed when gathering data from the targeted respondents. Because a self-reporting data collecting method (questionnaire) was utilized, common method variance (CMV) may be a problem [70]. To identify probable CMV issues, Harman's single factor analysis in SPSS EFA (exploratory factor analysis) analysis with no rotation was applied and indicated that only one factor must be extracted. Only 31% of the variation was explained by the factor. Thus, CMV is not a concern in this study [71].

3.2. Data Collection

In February 2022, survey questionnaires were dispersed to restaurant customers in the Eastern Province of Saudi Arabia. The eastern region of Saudi Arabia is the country's largest

province in terms of land area and the third most populous province in terms of population, after the Riyadh Province and the Mecca Province. The region is exceptionally prevalent, with its well-known national and international restaurant brands, and has beautiful long beaches on the Arabian Gulf, as reported by the General Authority for Statistics [72]. The study team makes use of their large personal connections and network to drop and collect the required data; this procedure is the most efficient technique for gaining a good response rate [73]. As a result of this procedure, 1250 valid questionnaires were generated. The independent sample t-test method was used to assess the differences in the mean values of late and early replies. Non-response bias was not an issue, as no statistically significant differences ($p > 0.05$) were found [74].

4. The Results

4.1. Respondents' Characteristics

The profile of the respondents is summarized in Table 1. Table 1 reveals that the vast majority of the participants were men (70%) and single (75%). The majority of the respondents (60%) were less than 21 years old, while 30% were aged between 22 and 45 years. Furthermore, the majority of respondents (62%) had a high school degree, while 30% were university graduates.

Table 1. Respondents' characteristics.

		N = 1250	%
"Gender"	"Man"	885	70
	"Woman"	250	30
"Marital status"	"Single"	227	75
	"Married."	817	20
	"Widowed/divorced."	91	5
"Respondents' age"	"<21 years old."	238	60
	"22–45 years old."	624	30
	"46 to 60 years old."	216	5
	">60 years old."	57	5
"Level of education"	"Has a high school certificate."	204	62
	"Has a university certificate."	738	30
	"Has a post-graduate certificate."	193	8

4.2. Descriptive Analysis

Table 2 displays some other descriptive statistics. The maximum answer was assigned the value of five, while the minimum value was one, as expected. It was found that the mean values (M) were between 3.06 and 3.81, while the standard deviation (S.D.) estimates were between 0.989 and 1.267. This indicated that the data were more scattered and less spied around its mean [75]. A normal distribution was detected in this data, as shown by the values of kurtosis and skewness (data dispersion) in Table 2. There were no values exceeding -2 or $+2$, suggesting that the study data exhibited a normal distribution curve [76].

Table 2. Descriptive statistics.

Abbr.	Items	M	S.D.	Skewness	Kurtosis
Social Media ($\alpha = 0.910$)					
SOME_1	"I frequently upload something on social media."	3.58	1.248	−0.475	−0.850
SOME_2	"I frequently view something on social media."	3.60	1.209	−0.475	−0.796
SOME_3	"I frequently share something on social media."	3.62	1.194	−0.437	−0.830
SOME_4	"I frequently reply to something on social media."	3.63	1.215	−0.489	−0.811
Religiosity ($\alpha = 0.980$)					
Relig_1	"I experience God's presence in my life."	3.81	1.244	−0.0944	−0.135
Relig_2	"My faith permeates my entire existence."	3.73	1.261	−0.853	−0.350
Relig_3	"I am a religious one who allows religious considerations to impact my daily life."	3.76	1.242	−0.886	−0.211
Relig_4	"My religious beliefs are the foundation of my entire life philosophy."	3.76	1.248	−0.919	−0.178
Relig_5	"Nothing is more important to me than serving God to the best of my ability."	3.74	1.256	−0.871	−0.272
Relig_6	"When making important decisions, one should seek God's guidance."	3.73	1.260	−0.860	−0.307
Relig_7	"I strive to incorporate my religion into every aspect of my life."	3.73	1.261	−0.844	−0.354
Excessive buying ($\alpha = 0.968$)					
Exc_buy_1	"When there are quantity discounts, we purchase larger quantities of food than we currently require."	3.66	1.263	−0.534	−0.832
Exc_buy_2	"We purchase food items that we discover we already had at home."	3.60	1.284	−0.502	−0.869
Exc_buy_3	"We purchase items that were not on our shopping list."	3.62	1.267	−0.506	−0.842
Food waste intention ($\alpha = 0.899$)					
FWI_1	"I have no intention of consuming leftovers."	3.33	0.989	−0.454	−0.225
FWI_2	"I throw away extra food."	3.21	1.050	−0.330	−0.114
FWI_3	"I have no plans to find a use for the remaining food."	3.06	1.143	−0.239	−0.576

4.3. Confirmatory Factor Analysis (CFA) Results of Scale Validity

To establish the convergent and discriminant validity of the study scale, a first-order CFA in the AMOS program with the MLE, "Maximum Likelihood Estimation", method was performed. As recommended by Byrne [77], Hair et al. [78], and Kline [76], several levels of the goodness of fit (GoF) indices were applied to assess the GOF of both structural- and measurement-employed models; these measures incorporated "Comparative Fit Index" (CFI); normed chi-square, "chi-square divided by degree of freedom"; "Root Mean-Square Error Approximation" (RMSEA); "Tucker Lewis index" (TLI); "standardized root mean squared" (SRMR); "Parsimony Normed Fit Index" (PNFI); and "Parsimony Comparative Fit Index" (PCFI). AMOS was chosen and employed for this study over other programs, such as Smart PLS, due to the current study's large sample size ($N = 1250$), its confirmatory nature, its usability within a graphical user interface, its capabilities to run and evaluate complex and multivariate models, and its prevalence among researchers in prior related studies [67–78]. While Smart PLS can be employed in studies that have a small sample size, it has an exploratory nature with a complicated model.

CFA calculations showed a perfect model fit to the data (see Table 3). Cronbach's alpha scores (as clarified previously) and composite reliability (CR) values were employed to measure the scale reliability. The CR scores of the four factors employed in this study were: SMU (0.983), religiosity (0.987), excessive buying behavior (0.968), and FWI (0.902), as displayed in Table 3. All of the scores exceeded the recommended limit level of 0.70, suggesting that the data has a perfect internal consistency [79].

Table 3. Psychometrics: validity and reliability tests.

Factors and Variables	SL	CR	AVE	MSV	1	2	3	4
1—Social media		0.983	0.934	0.081	0.967			
“SOME_1.”	0.951							
“SOME_2.”	0.982							
“SOME_3.”	0.966							
“SOME_4.”	0.967							
2—Religiosity ($\alpha = 0.986$)		0.987	0.916	0.002	0.047	0.957		
“Religiosity _1.”	0.956							
“Religiosity _2.”	0.951							
“Religiosity _3.”	0.978							
“Religiosity _4.”	0.955							
“Religiosity _5.”	0.960							
“Religiosity _6.”	0.947							
“Religiosity _7.”	0.951							
3—Excessive buying		0.968	0.910	0.081	0.285	−0.048	0.954	
“Exc_buy_1.”	0.962							
“Exc_buy_2.”	0.934							
“Exc_buy_3.”	0.966							
4—Food waste intention ($\alpha = 0.954$)		0.902	0.756	0.003	−0.057	0.014	0.008	0.869
“FWI_1.”	0.830							
“FWI_2.”	0.945							
“FWI_3.”	0.828							
“GOF indices: (χ^2 (113, N = 1250) = 443.751, $p < 0.001$, normed $\chi^2 = 3.927$, RMSEA = 0.048, SRMR = 0.0205, CFI = 0.977, TLI = 0.978, NFI = 0.979, PCFI = 0.823, and PNFI = 0.801)”. SL: Standardized Loading; AVE: average variance extracted; MSV: maximum shared value; CR: composite reliability; below diagonal values: inter-correlation between dimensions; diagonal values: the square root of AVE for each dimension.								

SL: Standardized Loading; AVE: average variance extracted; MSV: maximum shared value; CR: composite reliability; below diagonal values: inter-correlation between dimensions; diagonal values: the square root of AVE for each dimension.

For two key reasons, the employed scale’s convergent validity was achieved and ensured: (1) all standardized loadings (SL) scores were extremely high (>0.80) and significant ($p \leq 0.001$) (as depicted in Table 3), and (2) the AVE, “average variance extracted”, scores of all the four study factors (social media, religiosity, excessive buying behavior, and FWI) were 0.936, 0.916, 0.910, and 0.756, correspondingly (see Table 3). All the AVE records surpassed 0.50, suggesting an adequate convergent validity [78]. The MSV, “maximum shared variance”, values were accordingly lower than the AVE scores (see Table 3), implying a robust discriminant validity [78]. The discriminant validity was further established because the square root of the AVE values for each factor was larger than the scores of inter-correlations between factors [76–78] (see Table 3).

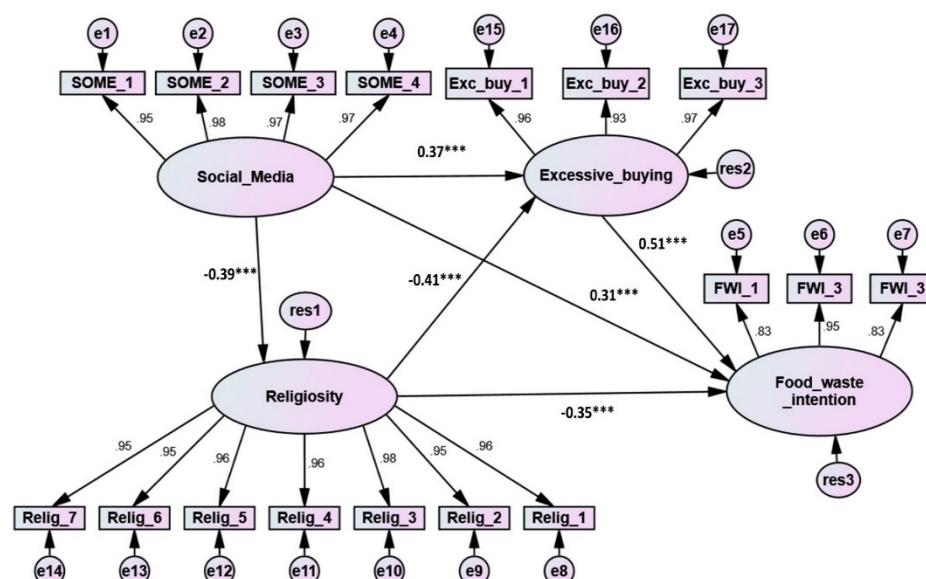
4.4. Structural Equation Modeling (SEM) Results

A confirmatory strategy was conducted in this study as suggested by Schumacker and Lomax [80], in which a full literature analysis was carried out in order to build a conceptual framework, and then empirical data was acquired in order to determine whether or not it matched the previously constructed conceptual model. Model fit indices were used to determine whether or not a conceptual framework (structural model) should be rejected or not rejected during this process. Given the SEM results appearing in Table 4, the structural proposed model shows a great model fit to the data (see Table 4).

Table 4. SEM Structural model and hypotheses testing.

	Hypotheses		Beta (β)	C-R (T-Value)	R ²	Hypo. Result
H1	SMU	→	FWI	0.31 ***	8.183	Supported
H2	SMU	→	Excessive buying behavior	0.37 ***	9.927	Supported
H3	Excessive buying behavior	→	FWI	0.51 ***	12.587	Supported
H4	SMU	→	Religiosity	−0.39 ***	−10.1929	Supported
H5	Religiosity	→	Excessive buying behavior	−0.41 ***	−11.333	Supported
H6	Religiosity	→	FWI	−0.35 ***	−7.988	Supported
Food waste intention					0.75	
"GOF indices: (χ^2 (113, N = 1250) = 466.464, $p < 0.001$, normed χ^2 = 4.128, RMSEA = 0.050, SRMR = 0.0265, CFI = 0.971, TLI = 0.975, NFI = 0.976, PCFI = 0.813 and PNFI = 0.811)".						

Following the attainment of a satisfactory model fit to the obtained data, the study hypotheses were evaluated. Each hypothesis was symbolized by a path in the structural model between the latent dimensions in Figure 1. The SEM outcomes suggest that SMU has a positive and significant impact on FWI ($\beta = 0.31$, t -value = 8.183, $p < 0.001$) and excessive buying behavior ($\beta = 0.37$, t -value = 9.927, $p < 0.001$), thus supporting hypotheses 1 and 2. This means that the greater the usage of social media, the more excessive are the buying and intention to waste food. Similarly, the SEM results indicated that excessive buying behavior has a positive significant impact ($\beta = 0.51$, t -value = 12.587, $p < 0.001$) on FWI; therefore, H3 was supported. However, SMU was found to have a significant but negative impact on religiosity ($\beta = -0.39$, t -value = -10.192 , $p < 0.001$), thus supporting hypothesis 4. This means that the more religious a customer is, the less their usage of social media is. Finally, religiosity was found to have a significant and negative impact on excessive buying behavior ($\beta = -0.41$, t -value = -11.333 , $p < 0.001$) and FWI ($\beta = -0.35$, t -value = -7.988 , $p < 0.001$), consequently supporting hypotheses 5 and 6.

**Figure 1.** The structural model. ***: significant level < 0.001 .

Furthermore, the SEM outcomes detected the mediation effects of religiosity and excessive buying behavior in the relationships between SMU and FWI. The direct path coefficients from SMU to FWI are positive and significant ($\beta = 0.31$, $p < 0.001$), while the indirect path through religiosity (path 1, $\beta = -0.39$, $p < 0.001$; path 2, $\beta = -0.35$, $p < 0.001$)

was significant but with negative signs. Thus, competitive mediation is confirmed as suggested by Zhao et al. [81]. Similarly, as the direct and indirect paths from SMU and FWI through excessive buying behavior were positive and significant, thus complementary mediation is approved [81]. Moreover, the result of SEM reveals additional signals that confirm the mediation impacts of religiosity and excessive buying in the relationship between SMU and FWI, as the direct significant positive influences of SMU on FWI was improved from ($\beta = 0.37, p \geq 0.001$) to a total weight of $\beta = 0.50$ with significant level $p > 0.001$ [78]. Table 4 as well shows that the R^2 explanatory power of all direct and indirect path coefficients accounts for 52% of the variance in the intention to waste food ($R^2 = 0.52$).

5. Discussion

The excessive use of social media and the implementation of new food marketing strategies may increase purchasing and overconsumption. Additionally, a fear of COVID-19 outcomes led to an increase in excessive purchasing, which influenced the intention to waste food (FWI) [82,83]. Religiosity, on the other hand, can be a highly potent force in guiding moral behavior and discouraging religious individuals from engaging in numerous socially unethical practices, such as FWI.

The results indicated that FW has been deeply affected by SMU, religiosity, and excessive buying behavior. These results challenged the conclusions of previous research, which suggested that SMU could be a useful method for decreasing FWI [21,23,84]. These interesting conclusions offer a theoretical contribution to the theme of whether SMU impacts FWI. In particular, this study gives an empirical indication that SMU is a source of generating FW. This study as well expands and confirms the conclusions of Sainsbury [24], criticizing SMU for creating FWI. Sainsbury's [24] study was conducted in the United Kingdom (UK) context. Similarly, the results of this study demonstrated the high impact of SMU on generating FWI in the context of Saudi Arabia. This study extends the further investigation of the role of SMU on excessive buying and the effect of excessive buying on FWI while expanding the body of knowledge on this topic.

The study results have contributed to the body of knowledge in two ways. The first way involves a strong relationship between SMU and excessive purchasing, which increases the FWI. Even though numerous studies have examined the relationships between SMU and excessive buying and between excessive buying and FWI, this study provided insight on the consequence of SMU and excessive buying in influencing and encouraging FWI during the COVID-19 pandemic. Particularly, this research contributed new insights to the excessive buying literature. For instance, Amos et al. [85] and Flight et al. [86] contended that positive circumstances usually affect excessive buying, and this research contends that, even amid urgent and uncertain circumstances such as the COVID-19 pandemic, SMU can promote excessive buying [87,88]. This result is consistent with the conclusions of [88,89]. Moreover, this study validates the study of Naeem [90], who claimed that excessive buying was increased amid the outbreak of the COVID-19 pandemic as a result of worries about product scarcity and the health crisis. Second, excessive buying was discovered to act as a mediator between SMU and FWI. Consequently, this study offered additional signals for the mediating role of excessive buying on the relationship between SMU and FWI at a time when consumers were spending extra time online and dealing with the stress and fear produced by the pandemic [91].

Furthermore, the study found that social media users are less likely to be religious people; this is due to those religious consumers being less likely to prefer online communication over face-to-face contact. This means that those religious consumers did not prefer staying online to surf social media platforms as they believe that their time is precious and should be used in worship rather than wasting it online. This result is consistent with secularization theory, which implies that traditional religious people prefer strong social interactions with like-minded people and social groups over online media [92]. According to secularization theory, religious people are less likely to rely on mass media, including social media. Less religious people, on the other hand, rely more on the media to meet their

needs. Similarly, the study results show that more religious consumers are less likely to show excessive buying behavior or FWI even during a crisis time. Finally, the findings also shed light on the distinctive role of religiosity as a moderating factor between the SMU and FWI. More specifically, it emerged as a negative competitive moderating factor, indicating that the relationship between SMU and FWI becomes weaker when the level of religiosity is high. These results are consistent with Islamic ethics and values, which command Muslims to be balanced and moderate in all worldly activities, including food consumption patterns and buying behavior. In addition, Islam prohibits greediness, such as an unwillingness to spend money on family or others out of fear of becoming poor, as well as overspending, such as excessive spending on unnecessary and superfluous things. Therefore, excessive buying behavior or food waste is forbidden according to Islamic values.

6. Conclusions

Several factors are commonly responsible for traditional food purchasing patterns [93,94]. Nevertheless, amid the COVID-19 pandemic, purchasers' basic habits were constrained, and consumers were required to remain home. Users' time on the internet has expanded amid the pandemic, and food purchasing habits have changed to involve more online buys than before the pandemic. The motivations, such as price discount, food ease of use, earlier experience, and restaurant variety were all mitigated and overwhelmed using social media platforms. Food is now more readily available due to social media and delivery services, and food prices can be easily compared online. The physical environment of the restaurant became irrelevant as food consumption activities transferred to being at the home. Online feedback and reviews could improve customers' food experience. Religiosity, on the other hand, can influence buying behavior and FWI, particularly in KSA, a Muslim country where it is forbidden by Islam and Allah for Muslims to waste food or engage in extravagant buying behavior. This study aimed to investigate the impact of SMU on FWI and explore excessive buying behavior and religiosity as mediating factors. Data were collected from 1250 restaurant customers, and several data analysis techniques were employed. The scale validity with regard to convergent and discriminant validity was obtained through conducting first-order confirmatory factor analysis. The main structural model was analyzed by using structural equation modeling (SEM) with the AMOS program v25. The SEM results showed that the more the customer uses social media, the more intention there is to waste food amid the COVID-19 pandemic. Excessive buying behavior was found to act as a mediator between SMU and FWI. Finally, the study results confirmed that the more religious the customers are, the less likely they are to buy extravagantly or waste food.

7. Limitations and Further Research Avenues

This study investigated the effect of SMU on FWI, not actual food waste behavior. Further investigation might focus on this limitation. The current study employed excessive buying behavior and religiosity as two mediators; however, other factors can be employed as mediators, such as food consumption culture and education level. In contrast to the declared statistics of KSA as a religious country that wastes a very high amount of food, other factors should be investigated to further illustrate this issue. One of these factors might be the generosity culture that fosters food waste in KSA, especially during the festivals of Eid, Hajj season, social gatherings, and Ramadan holy month. The respondents' characteristics, e.g., gender, education level, and age, can be investigated in further studies as moderators or by conducting a multigroup analysis to detect any differences in the investigated relationships due to age, education level, or gender. Further studies can employ religiosity as an independent variable as well and test its impact on SMU with the mediating role of excessive buying behavior and compare the results with our results. The study was conducted on restaurant customers, so generalizing the findings should be approached with caution. An additional avenue for future research could be to retest the current model in other countries with different cultural backgrounds. This study used a

cross-sectional sampling method. Consequently, while potential causal impacts between the study variables can be inferred thoughtfully, they cannot be confirmed with confidence.

Author Contributions: Conceptualization, I.A.E. and A.M.S.A.; methodology, I.A.E. and A.M.S.A.; software, I.A.E.; validation, I.A.E. and A.M.S.A.; formal analysis, I.A.E. and A.M.S.A.; investigation, I.A.E. and A.M.S.A.; resources, I.A.E.; data curation, I.A.E.; writing—original draft preparation, I.A.E. and A.M.S.A.; writing—review and editing, I.A.E. and A.M.S.A.; visualization, I.A.E.; supervision, I.A.E.; project administration, I.A.E. and A.M.S.A.; funding acquisition, I.A.E. and A.M.S.A. All authors have read and agreed to the published version of the manuscript.

Funding: This work was supported by the Al Bilad Bank Scholarly Chair for Food Security in Saudi Arabia, the Deanship of Scientific Research, Vice Presidency for Graduate Studies and Scientific Research, King Faisal University, Saudi Arabia [Grant No. CHAIR20].

Institutional Review Board Statement: The study was conducted according to the guidelines of the Declaration of Helsinki and approved by the deanship of scientific research ethical committee, King Faisal University (project number: CHAIR20, date of approval: 1 January 2022).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: Data are available upon request from researchers who meet the eligibility criteria. Kindly contact the first author privately through e-mail.

Acknowledgments: The authors acknowledge the Al Bilad Bank Scholarly Chair for Food Security in Saudi Arabia, the Deanship of Scientific Research, Vice Presidency for Graduate Studies and Scientific Research, King Faisal University, Saudi Arabia [Grant No. CHAIR20].

Conflicts of Interest: The authors declare no conflict of interest.

References

- Duan, L.; Zhu, G. Psychological interventions for people affected by the COVID-19 epidemic. *Lancet Psychiatry* **2020**, *7*, 300–302. [CrossRef]
- Meyer, S. Understanding the COVID-19 Effect on Online Shopping Behavior. *Bigcommerce* **2020**. Available online: <https://www.bigcommerce.com/blog/covid-19-ecommerce/> (accessed on 20 May 2022).
- Hossain, M.A.; Kim, M. A Comprehensive Study on Social Commerce in Social Networking Sites. *SAGE Open* **2020**, *10*, 2158244020936225. [CrossRef]
- Pappalardo, G.; Cerroni, S.; Nayga, R.M., Jr.; Yang, W. Impact of Covid-19 on Household Food Waste: The Case of Italy. *Front. Nutr.* **2020**, *7*, 585090. [CrossRef] [PubMed]
- Snyder, V. What Marketers Need to Know about People's Social Media Patterns during the Pandemic. 2020. Available online: [Business.com](https://www.business.com) (accessed on 20 May 2022).
- Statista. Number of Social Network Users Worldwide from 2017 to 2025. Available online: <https://www.statista.com/statistics/278414/number-of-worldwide-social-network-users/> (accessed on 17 September 2021).
- Appel, G.; Grewal, L.; Hadi, R.; Stephen, A.T. The Future of social media in Marketing. *J. Acad. Mark. Sci.* **2020**, *48*, 79–95. [CrossRef]
- Tariq, A.; Wang, C.; Tanveer, Y.; Akram, U.; Bilal, M. Online Impulse Buying of Organic Food: A Moderated (Website Personality) Mediation (Social Appeal) Process. *Int. J. Inf. Syst. Chang. Manag.* **2019**, *11*, 3–24. [CrossRef]
- Ali, M.H.; Suleiman, N.; Khalid, N.; Tan, K.H.; Tseng, M.-L.; Kumar, M. Supply chain resilience reactive strategies for food SMEs in coping to COVID-19 crisis. *Trends Food Sci. Technol.* **2021**, *109*, 94–102. [CrossRef]
- Royte, E. Food Waste and Food Insecurity Rising Amid Coronavirus Panic. *Natl. Geogr.* **2020**, *22*. Available online: <https://www.nationalgeographic.com/science/article/food-waste-insecurity-rising-amid-coronavirus-panic/> (accessed on 17 September 2021).
- The Senior. Panic Buying, Food Delivery Spurs Waste. Available online: <https://www.thesenior.com.au/story/7033602/panic-buying-food-delivery-spurs-waste/> (accessed on 8 May 2022).
- Food and Agricultural Organisation of the United Nations. *Global Food Losses and Food Waste—Extent, Causes and Prevention*; Food and Agricultural Organisation of the United Nations: Rome, Lazio, 2011.
- Food Waste Has Gone Viral. Available online: <https://www2.deloitte.com/nl/nl/pages/consumer/articles/food-covid-19-food-waste-gone-viral.html> (accessed on 8 May 2022).
- Press, A.A. *Australia's Food Waste Skyrockets amid Covid Panic Buying*; The Guardian: London, UK, 2020.
- UNDP Annual Report 2012. United Nations Development Programme. Available online: <https://www.undp.org/publications/undp-annual-report-2012> (accessed on 8 May 2022).
- Food Waste Costs Saudi Arabia SR40 Billion Annually, Says Minister AlFadley. Available online: <https://www.mewa.gov.sa/en/MediaCenter/News/Pages/News242020.aspx> (accessed on 8 May 2022).
- Baig, M.B.; Al-Zahrani, K.H.; Schneider, F.; Straquadine, G.S.; Mourad, M. Food waste posing a serious threat to sustainability in the Kingdom of Saudi Arabia—A systematic review. *Saudi J. Biol. Sci.* **2019**, *26*, 1743–1752. [CrossRef]

18. Zamri, G.B.; Azizal, N.K.A.; Nakamura, S.; Okada, K.; Nordin, N.H.; Othman, N.; Akhir, F.N.; Sobian, A.; Kaida, N.; Hara, H. Delivery, impact and approach of household food waste reduction campaigns. *J. Clean. Prod.* **2020**, *246*, 118969. [CrossRef]
19. Elhoushy, S.; Jang, S. Religiosity and food waste reduction intentions: A conceptual model. *Int. J. Consum. Stud.* **2020**, *45*, 287–302. [CrossRef]
20. Elshaer, I.; Sobaih, A.; Alyahya, M.; Abu Elnasr, A. The Impact of Religiosity and Food Consumption Culture on Food Waste Intention in Saudi Arabia. *Sustainability* **2021**, *13*, 6473. [CrossRef]
21. Grainger, M.J.; Stewart, G.B. The jury is still out on social media as a tool for reducing food waste a response to Young. *Resour. Conserv. Recycl.* **2017**, *122*, 407–410. [CrossRef]
22. Lazell, J. Consumer food waste behaviour in universities: Sharing as a means of prevention. *J. Consum. Behav.* **2016**, *15*, 430–439. [CrossRef]
23. Närvänen, E.; Mesiranta, N.; Sutinen, U.-M.; Mattila, M. Creativity, aesthetics and ethics of food waste in social media campaigns. *J. Clean. Prod.* **2018**, *195*, 102–110. [CrossRef]
24. Modern Life Is Rubbish—Sainsbury's. Available online: <https://www.about.sainsburys.co.uk/news/latest-news/2016/06-09-2016> (accessed on 8 May 2022).
25. Mokhlis, S. Relevancy and Measurement of Religiosity in Consumer Behavior Research. *Int. Bus. Res.* **2009**, *2*, p75. [CrossRef]
26. Gao, S.; Bao, J.; Li, R.; Liu, X.; Wu, C. Drivers and reduction solutions of food waste in the Chinese food service business. *Sustain. Prod. Consum.* **2020**, *26*, 78–88. [CrossRef]
27. Schanes, K.; Dobernig, K.; Gözet, B. Food waste matters—A systematic review of household food waste practices and their policy implications. *J. Clean. Prod.* **2018**, *182*, 978–991. [CrossRef]
28. Thyberg, K.L.; Tonjes, D.J. Drivers of food waste and their implications for sustainable policy development. *Resour. Conserv. Recycl.* **2016**, *106*, 110–123. [CrossRef]
29. Dagiliūtė, R.; Musteikytė, A. Food waste generation: Restaurant data and consumer attitudes. *Environ. Res. Eng. Manag.* **2019**, *75*, 7–14. [CrossRef]
30. World Food Programme. Global Hunger Continues to Rise, New UN Report Says. Available online: <https://www.wfp.org/news/global-hunger-continues-rise-new-un-report-says> (accessed on 8 May 2022).
31. Aschemann-Witzel, J.; de Hooge, I.; Normann, A. Consumer-Related Food Waste: Role of Food Marketing and Retailers and Potential for Action. *J. Int. Food Agribus. Mark.* **2016**, *28*, 271–285. [CrossRef]
32. Porpino, G.; Parente, J.; Wansink, B. Food waste paradox: Antecedents of food disposal in low income households. *Int. J. Consum. Stud.* **2015**, *39*, 619–629. [CrossRef]
33. Schmidt, K. Explaining and Promoting Household Food Waste-Prevention by an Environmental Psychological Based Intervention Study. *Resour. Conserv. Recycl.* **2016**, *111*, 53–66. [CrossRef]
34. Chamorro-Premuzic, T. *The Psychology of Impulsive Shopping*; The Guardian: London, UK, 2015.
35. Food Tops List of Impulse Purchases—Insider Intelligence Trends, Forecasts & Statistics. Available online: <https://www.emarketer.com/content/food-tops-list-of-impulse-purchases> (accessed on 8 May 2022).
36. Aragoncillo, L.; Orus, C. Impulse buying behaviour: An online-offline comparative and the impact of social media. *Span. J. Mark. ESIC* **2018**, *22*, 42–62. [CrossRef]
37. Influencer Matchmaker. Most Liked Instagram Photos in 2020. Available online: <https://influencermatchmaker.co.uk/blog/most-liked-instagram-posts-2021> (accessed on 8 May 2022).
38. Arnold: How Social Media Can Impact Your Consumption Habits. Available online: https://scholar.google.com/scholar_lookup?title=How%20Social%20Media%20Can%20Impact%20Your%20Consumption%20Habits%20%5BWWW%20Document%5D&author=A.%20Arnold&publication_year=2019 (accessed on 8 May 2022).
39. Khokhar, A.A.; Qureshi, P.A.B.; Murtaza, F.; Kazi, A.G. The Impact of Social Media on Impulse Buying Behaviour in Hyderabad Sindh Pakistan. *Int. J. Entrep. Res.* **2019**, *2*, 8–12. [CrossRef]
40. Zafar, A.U.; Qiu, J.; Shahzad, M.; Shen, J.; Bhutto, T.A.; Irfan, M. Impulse Buying in Social Commerce: Bundle Offer, Top Reviews, and Emotional Intelligence. *Asia Pac. J. Mark. Logist.* **2020**, *33*, 945–973. [CrossRef]
41. Nadkarni, A.; Hofmann, S.G. Why Do People Use Facebook? *Personal. Individ. Differ.* **2012**, *52*, 243–249. [CrossRef] [PubMed]
42. Atanasova: The Psychology of Foodstagramming. Available online: https://scholar.google.com/scholar_lookup?title=The%20Psychology%20of%20Foodstagramming%20%5BWWW%20Document%5D&author=A.%20Atanasova&publication_year=2016 (accessed on 8 May 2022).
43. Turkle: Reclaiming Conversation: The Power of Talk. Available online: https://scholar.google.com/scholar_lookup?title=Reclaiming%20conversation.%20The%20power%20of%20talk%20in%20a%20digital%20age&author=S.%20Turkle&publication_year=2015 (accessed on 8 May 2022).
44. Mohan, G.; Sivakumaran, B.; Sharma, P. Impact of store environment on impulse buying behavior. *Eur. J. Mark.* **2013**, *47*, 1711–1732. [CrossRef]
45. Omar, N.A.; Abdullah, N.L.; Zainol, Z.; Nazri, M.A. Consumers' Responsiveness towards Contaminated Canned Sardine in Malaysia: Does Perceived Severity Matter? *Food Control* **2021**, *123*, 107780. [CrossRef]
46. Lyndhurst: Helping Consumers Reduce Food Waste—A. Available online: https://scholar.google.com/scholar_lookup?title=Helping%20consumers%20reduce%20food%20waste%20%E2%80%93%20A%20retail%20survey%202011%20%5BWWW%20Document%5D&author=B.%20Lyndhurst&publication_year=2012 (accessed on 8 May 2022).
47. Guldmond, R.A.; Purdon, A.; Van Aarde, R.J. A systematic review of elephant impact across Africa. *PLoS ONE* **2017**, *12*, e0178935. [CrossRef]
48. Bond, M.; Meacham, T.; Bhunnoo, R.; Benton, T. *Food Waste within Global Food Systems*; Global Food Security: Swindon, UK, 2013.

49. Priefer, C.; Jörissen, J.; Bräutigam, K.-R. Food waste prevention in Europe—A cause-driven approach to identify the most relevant leverage points for action. *Resour. Conserv. Recycl.* **2016**, *109*, 155–165. [\[CrossRef\]](#)
50. Hirschman, E.C. Aesthetics, Ideologies and the Limits of the Marketing Concept. *J. Mark.* **1983**, *47*, 45–55. [\[CrossRef\]](#)
51. Durkheim, E.; Swain, J.W. *The Elementary Forms of the Religious Life*; Courier Corporation: North Chelmsford, MA, USA, 2008.
52. Weber, M. *The Protestant Ethic and the Spirit of Capitalism*; Parsons, T., Translator; Scribner: New York, NY, USA, 1958; pp. 1904–1905.
53. Swatos, W.H.; Christiano, K.J. Introduction—Secularization Theory: The Course of a Concept. *Sociol. Relig.* **1999**, *60*, 209–228. [\[CrossRef\]](#)
54. Buddenbaum, J.M. Social Science and the Study of Media and Religion: Going Forward by Looking Backward. *J. Media Relig.* **2002**, *1*, 13–24. [\[CrossRef\]](#)
55. Armfield, G.G.; Holbert, R.L. The Relationship Between Religiosity and Internet Use. *J. Media Relig.* **2003**, *2*, 129–144. [\[CrossRef\]](#)
56. Wheeler, K. How a ‘Segment of One’ Approach Can Help Businesses Connect with Their Customers. Available online: <https://www.fourthsource.com/general/how-a-segment-of-one-approach-can-help-businesses-connect-with-their-customers-23392> (accessed on 12 November 2019).
57. Vitell, S.; Ramos-Hidalgo, E.; Rodríguez-Rad, C. A Spanish Perspective on the Impact on Religiosity and Spirituality on Consumer Ethics. *Int. J. Consum. Stud.* **2018**, *42*, 675–686. [\[CrossRef\]](#)
58. Forghani, M.H.; Kazemi, A.; Ranjbarian, B. Religion, Peculiar Beliefs and Luxury Cars’ Consumer Behavior in Iran. *J. Islamic Mark.* **2019**, *10*, 673–688. [\[CrossRef\]](#)
59. Rakrachakarn, V.; Moschis, G.P.; Ong, F.S.; Shannon, R. Materialism and Life Satisfaction: The Role of Religion. *J. Relig. Health* **2013**, *54*, 413–426. [\[CrossRef\]](#)
60. Al Ansari, M.S. Improving Solid Waste Management in Gulf Co-operation Council States: Developing Integrated Plans to Achieve Reduction in Greenhouse Gases. *Mod. Appl. Sci.* **2012**, *6*, 60. [\[CrossRef\]](#)
61. Essoo, N.; Dibb, S. Religious Influences on Shopping Behaviour: An Exploratory Study. *J. Mark. Manag.* **2004**, *20*, 683–712. [\[CrossRef\]](#)
62. Rehman, A.; Shabbir, M.S. The relationship between religiosity and new product adoption. *J. Islam. Mark.* **2010**, *1*, 63–69. [\[CrossRef\]](#)
63. Fishbein, M.; Ajzen, I. *Predicting and Changing Behavior: The Reasoned Action Approach*; Psychology Press: East Sussex, UK, 2011.
64. Minton, E.A.; Johnson, K.A.; Liu, R.L. Religiosity and special food consumption: The explanatory effects of moral priorities. *J. Bus. Res.* **2018**, *95*, 442–454. [\[CrossRef\]](#)
65. Xu, C.; Ryan, S.; Prybutok, V.; Wen, C. It is not for fun: An examination of social network site usage. *Inf. Manag.* **2012**, *49*, 210–217. [\[CrossRef\]](#)
66. Minton, E.A.; Xie, H.J.; Gurel-Atay, E.; Kahle, L.R. Greening up because of god: The relations among religion, sustainable consumption and subjective well-being. *Int. J. Consum. Stud.* **2018**, *42*, 655–663. [\[CrossRef\]](#)
67. Neff, R.A.; Spiker, M.L.; Truant, P.L. Wasted Food: U.S. Consumers’ Reported Awareness, Attitudes, and Behaviors. *PLoS ONE* **2015**, *10*, e0127881. [\[CrossRef\]](#)
68. Stancu, V.; Haugaard, P.; Lähteenmäki, L. Determinants of consumer food waste behaviour: Two routes to food waste. *Appetite* **2016**, *96*, 7–17. [\[CrossRef\]](#) [\[PubMed\]](#)
69. Aktas, E.; Sahin, H.; Topaloglu, Z.; Oledinma, A.; Huda, A.K.S.; Irani, Z.; Sharif, A.M.; van’t Wout, T.; Kamrava, M. A Consumer Behavioural Approach to Food Waste. *J. Enterp. Inf. Manag.* **2018**, *31*, 658–673. [\[CrossRef\]](#)
70. Lindell, M.K.; Whitney, D.J. Accounting for common method variance in cross-sectional research designs. *J. Appl. Psychol.* **2001**, *86*, 114–121. [\[CrossRef\]](#)
71. Podsakoff, N.P.; LePine, J.A.; LePine, M.A. Differential challenge stressor-hindrance stressor relationships with job attitudes, turnover intentions, turnover, and withdrawal behavior: A meta-analysis. *J. Appl. Psychol.* **2007**, *92*, 438–454. [\[CrossRef\]](#)
72. General Authority for Statistics Yearbook. 2022. Available online: <https://www.stats.gov.sa/en/258>, (accessed on 20 May 2022).
73. Ibeh, K.; Brock, J.K.-U.; Zhou, Y.J. The drop and collect survey among industrial populations: Theory and empirical evidence. *Ind. Mark. Manag.* **2004**, *33*, 155–165. [\[CrossRef\]](#)
74. Armstrong, J.S.; Overton, T.S. Estimating Nonresponse Bias in Mail Surveys. *J. Mark. Res.* **1977**, *14*, 396–402. [\[CrossRef\]](#)
75. Bryman, A.; Cramer, D. *Quantitative Data Analysis with IBM SPSS 17, 18 & 19: A Guide for Social Scientists*; Routledge: London, UK, 2012.
76. Kline, R.B. *Principles and Practice of Structural Equation Modeling*; Guilford Publications: New York, NY, USA, 2015.
77. Byrne, B.M. *Structural Equation Modeling with Mplus: Basic Concepts, Applications, and Programming*; Routledge: London, UK, 2013.
78. Hair, J.F.; Black, W.C.; Babin, B.J.; Anderson, R.E. *Multivariate Data Analysis: Pearson New International Edition*; Pearson Education Limited: London, UK, 2014.
79. Nunnally, J.C. *Psychometric Theory 3E*; Tata McGraw-Hill Education: New York, NY, USA, 1994.
80. Schumacker, R.E.; Lomax, R.G. *A Beginner’s Guide to Structural Equation Modeling*, 3rd ed.; Taylor & Francis Group: New York, NY, USA, 2010.
81. Zhao, X.; Lynch, J.G., Jr.; Chen, Q. Reconsidering Baron and Kenny: Myths and Truths about Mediation Analysis. *J. Consum. Res.* **2010**, *37*, 197–206. [\[CrossRef\]](#)
82. Roe, B.E.; Bender, K.; Qi, D. The impact of COVID-19 on consumer food waste. *Appl. Econ. Perspect. Policy* **2021**, *43*, 401–411. [\[CrossRef\]](#)
83. Avuş, O.; Bayhan, I.; Ismail, B.B. An Overview of the Effect of Covid-19 on Household Food Waste: How Does the Pandemic Affect Food Waste at the Household Level? *Int. J. Food Syst. Dyn.* **2022**, *13*, 1–16.
84. Reynolds, C.; Goucher, L.; Quested, T.; Bromley, S.; Gillick, S.; Wells, V.K.; Evans, D.; Koh, L.; Kanyama, A.C.; Katzeff, C.; et al. Consumption-stage food waste reduction interventions—What works and how to design better interventions. *Food Policy* **2019**, *83*, 7–27. [\[CrossRef\]](#)
85. Amos, C.; Holmes, G.R.; Keneson, W.C. A Meta-Analysis of Consumer Impulse Buying. *J. Retail. Consum. Serv.* **2014**, *21*, 86–97. [\[CrossRef\]](#)

86. Flight, R.L.; Rountree, M.M.; Beatty, S.E. Feeling the Urge: Affect in Impulsive and Compulsive Buying. *J. Mark. Theory Pract.* **2012**, *20*, 453–466. [[CrossRef](#)]
87. Ahmed, R.R.; Streimikiene, D.; Rolle, J.-A.; Duc, P.A. The COVID-19 Pandemic and the Antecedents for the Impulse Buying Behavior of US Citizens. *J. Compet.* **2020**, *12*, 5–27. [[CrossRef](#)]
88. Gazali, H.M. The COVID-19 Pandemic: Factors Triggering Panic Buying Behaviour among Consumers in Malaysia. *Labu. Bull. Int. Bus. Financ.* **2020**, *18*, 84–95.
89. Rabobank Financial Health Barometer Food Waste Infographic 2020. Available online: <https://www.rabobank.com.au/savings/2020/11/15/23/39/financial-health-barometer-food-waste-infographic-2020/> (accessed on 9 May 2022).
90. Naeem, M. Understanding the customer psychology of impulse buying during COVID-19 pandemic: Implications for retailers. *Int. J. Retail. Distrib. Manag.* **2020**, *49*, 377–393. [[CrossRef](#)]
91. Fernandes, N. Economic Effects of Coronavirus Outbreak (COVID-19) on the World Economy. 2020. Available online: <https://ssrn.com/abstract=3557504> (accessed on 20 May 2022).
92. Hood, R.W., Jr.; Hill, P.C.; Spilka, B. *The Psychology of Religion: An Empirical Approach*; Guilford Publications: New York, NY, USA, 2018.
93. Iyer, G.R.; Blut, M.; Xiao, S.H.; Grewal, D. Impulse Buying: A Meta-Analytic Review. *J. Acad. Mark. Sci.* **2020**, *48*, 384–404. [[CrossRef](#)]
94. Muruganantham, G.; Bhakat, R.S. A Review of Impulse Buying Behavior. *Int. J. Mark. Stud.* **2013**, *5*, 149.