#### RESEARCH ARTICLE





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# What motivates the adoption of green restaurant products and services? A systematic review and future research agenda

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#### **Abstract**

Issues regarding green restaurants have received significant scholarly and practitioner attention in the last decade, particularly concerning why consumers adopt green restaurants. Although several reviews exist on green hospitality, a comprehensive review of the literature on consumers' green restaurant adoption is currently lacking. The following systematic literature review examines 50 research studies published on the consumer adoption of green restaurant services to address this gap accordingly. Through a detailed content analysis, the research profile and thematic analysis are presented. The review further identifies four key thematic foci: (a) consumer behavior variables studied, (b) antecedents internal to the consumer, (c) antecedents due to the perception of external factors, and (d) moderators. Limitations and gaps from each of the themes are offered with potential future research questions. The novelty of the review lies in the development of a "green restaurant adoption research framework" that cuts across multiple theoretical perspectives to summarize why consumers adopt green restaurant services.

#### **KEYWORDS**

green restaurants, sustainability, systematic review, thematic analysis

#### 1 | INTRODUCTION

The restaurant industry is notoriously wasteful and exerts a heavy toll on the environment due to its environmentally unsustainable practices (Kasim & Ismail, 2012). For instance, it is estimated that in 2018 alone, food worth 643 million meals was thrown away in the United States (Cochran et al., 2018). In addition to organic food waste, about 40 billion units of plastic forks, spoons, and other cutlery end up in landfills and oceans every year (Tenenbaum, 2019). At the same time, consumers' awareness of their impact on the environment and their role in minimizing it is increasing, with a recent wave of responsible green consumerism being observed (Awan, 2020; Awan et al., 2020; Kushwah, Dhir, & Sagar, 2019; Kushwah, Dhir, Sagar, & Gupta, 2019;

Nicolau et al., 2020; Rustam et al., 2020). A study by Neff et al. (2015) showed that consumers were aware of the restaurants' impact on the environment and recommended several suggestions to reduce this impact, in turn. For instance, 73% of US consumers said excess food should be donated, and 61% said that the meals should be served in smaller portions. As similar green and sustainability practices in the restaurant industry have become a major topic in various national and international conferences, seminars, and workshops, the concept of a green restaurant has now become popular to address these environmental concerns from the perspective of businesses, academicians, consumers, and policymakers (Kasim & Ismail, 2012). For the purpose of this review, a green restaurant is any restaurant set up and run in an eco-friendly and energy-efficient way (Lorenzini, 1994).

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Although green practices and sustainability are essential for the environment, implementing these initiatives in green restaurants is capital intensive and consequently expensive for the guests (Baloglu et al., 2020). The only way to compete competitively with non-green restaurants and stay in business is to have the managerial foresight to employ a differentiation strategy and have the resolve to charge a price premium from consumers for green restaurant services (Iraldo et al., 2017). Choi and Parsa (2006), for example, estimated that green restaurants charge up to 6% premium from their customers.

Consequently, research addressing the issues of consumers' green restaurant adoption has become popular in the last decade (Filimonau et al., 2017; Lo et al., 2020; Moon, 2021), particularly regarding consumers' willingness to pay a price premium at a green restaurant (e.g., Hu et al., 2014; Nicolau et al., 2020; Shin et al., 2019). Moreover, a significant body of knowledge is now emerging, which investigates the role of both consumer and restaurant characteristics on green restaurant visit intention (Chen et al., 2017; Kim et al., 2013), patronage (Yu et al., 2018), and other behavioral actions. In fact, Myung et al. (2012) noted that, in 2012, there were only three studies related to consumer behavior in green restaurants. However, a quick search through the Web of Science (WOS) index revealed 38 results with just the keywords "green restaurants" and "consumer behavior." indicating significant growth in the area in the years since. Furthermore, we also observed that extant reviews on green restaurants were either too broad in scope, thus considering both hotels and restaurants homogenously (Gao et al., 2016), were not focused on consumer behavior (Myung et al., 2012), or considered the complete sustainability spectrum without paying special attention to green initiatives (Higgins-Desbiolles et al., 2019). Due to this increased scholarly interest and lack of focused reviews, we believe the time is optimal to examine the bigger picture of consumers' adoption of green restaurants to suggest future research directions accordingly. We propose that this can be done by analyzing, synthesizing, and comparing the studies in the existing literature on the issue. In this way, the existing literature can be further evaluated in terms of study findings, implications, and contribution to the industry and academia by assessing its geographical, social, cultural, and economic characteristics.

Considering the potential positive environmental impact of green practices in restaurants and the recent surge of informed consumers who prefer sustainable alternatives, our review has the following objectives. Given the evolving body of literature, we seek to consolidate the body of literature addressing the consumer adoption of green restaurant services. This will enable the structuring of the area and suggest future research directions. By doing so, we seek to provide a cognitive mapping of the existing published literature on green restaurants, the most popular research methods (e.g., online surveys, interviews, observations, reviews, and content analysis), and the research progress on this prosperous field of study (Okumus et al., 2018, 2020; Sánchez et al., 2017). We further intend to contribute to the ongoing policy and managerial discussion of how to get consumers to prefer a green option in restaurants.

To this end, the current review is guided by four primary research questions (RQs) as follows:

**RQ1.** What is the research profile of the studies addressing the consumer adoption of green restaurant services?

RQ2. What the key themes of analysis in the body of literature?

**RQ3.** What are the limitations of the existing studies, and what future research questions can be drawn from them?

**RQ4.** Can a unified theoretical framework be developed from the results of the existing body of literature?

To address the above research questions, we present a systematic literature review (SLR) of the existing literature on green restaurant adoption. We performed a content analysis of the 50 research studies identified to derive the research profile and thematic analysis. We identified the prominent journals, trends, country and restaurant contexts, and the methodological distribution as well as the theoretical perspectives used in the study. In the thematic analysis, we derived four research themes: (a) green consumer behavior and the behavioral intentions studied, (b) antecedents of these behaviors that are internal to the consumers. (c) antecedents due to the perception of external factors, and (d) moderators. We then identified research gaps in each of the themes and suggested possible future research questions. The results are summarized in the "consumer adoption of green restaurants" framework. The study's novelty thus lies in the consolidation of different theoretical perspectives to create a comprehensive framework of consumer adoption.

The rest of the article is structured as follows. The next section presents the scope of the review, followed by a brief overview of the SLR method used in the study. This is followed by the research profile and thematic analysis. The gaps and limitations, along with potential research questions, are then presented. Following this, the framework is developed. The article concludes with a discussion on the review's implications, limitations, future research scope, and conclusion.

#### 2 | SCOPE OF THE REVIEW

Green restaurants refer to restaurants that are created or operated in an environmentally friendly way, with the purpose of reducing the impact of their operations on the environment (Lorenzini, 1994). The extant literature has highlighted that several food-related (e.g., cooking, serving, and leftovers) and non-food-related (e.g., energy and water wastage) instances of environmental unsustainability exist in running a restaurant (Filimonau & De Coteau, 2019). Accordingly, restaurants engage in a variety of green practices to address these inefficiencies. These green initiatives can appear as offerings of green products and green services to their customers. The former primarily includes prepared food (Hatjiathanassiadou et al., 2019) and initiatives like reusable cutlery (Trafialek et al., 2019), while the latter makes the restaurant experience more efficient and environmentally friendly through innovative initiatives like creating an eco-friendly ambiance (Tan et al., 2019), enabling consumers to preorder food (Mu et al., 2019), and responsibly procuring food (Filimonau, Todorova, et al., 2020), among others.

The literature has also shown that environmentally conscious consumers prefer green restaurants (Han et al., 2019; Sarmiento & El Hanandeh, 2018; Tan et al., 2018). However, this implies that consumers have to be aware of whether the restaurant that they are dining at is green or not. Restaurants thus put significant effort into communicating their green initiatives to entice customers to prefer green restaurants (Jeong et al., 2014). As discussed earlier, green restaurants mainly function by employing a differentiation business strategy and expecting to collect a price premium from their customers. Therefore, much of the research interest on adoption has been on the behavioral intention of consumers' willingness to pay more (Choi et al., 2009; Nicolau et al., 2020). To capture the full gamut of consumer adoption behaviors, we adopt a broader definition and consider all kinds of adoption behavior, including visit intention, willingness to pay and pay the premium, and willingness to engage in word of mouth (Gao et al., 2016).

#### 3 | SYSTEMATIC REVIEW METHOD

We followed a SLR method to find and analyze the studies investigating the consumer adoption of green restaurants (Tranfield et al., 2003). An SLR ensures a reproducible review, which is highly reliable (Jin & Wang, 2016; Khanra et al., 2020; Ruparel et al., 2020; Veltri & Silvestri, 2020) and, as such, is a very popular method in sustainability-related reviews (Betancourt Morales & Zartha Sossa, 2020; Daddi et al., 2018). We performed our search on two leading research databases, Scopus and WOS, to provide adequate literature coverage. Both of these databases cover a wide variety of hospitality journals and are popularly used in systematic reviews in the tourism and hospitality domain (Booth et al., 2020; Gomezelj, 2016; Pahlevan-Sharif et al., 2019; Sakdiyakorn & Wattanacharoensil, 2018). We used a three-stage process in our SLR method: (a) identifying appropriate keywords, (b) defining the inclusion-exclusion criteria, and (c) applying the review criteria.

#### 3.1 | Identification of keywords

We initially used two main keywords, "green" and "restaurant," for published materials in journals listed in the Scopus and WOS databases. Going through the literature, we realized that the review's scope was based on a niche area. Thus, we did not include keywords like "food service" and "catering" in our search. These terms presented extensive categories of businesses and were likely to yield results that were not relevant to restaurants. However, after analyzing the keywords of the search results, we decided to update the keywords with "green," "environment\*," and "sustain\*" as well as "environmentally responsible practices," "pro-environmental," "environmentally friendly practices," and "environmental management." The final set of keywords was validated with a panel of three academic and three industry experts associated with green practices and restaurants.

#### 3.2 | Inclusion and exclusion criteria

In keeping with the SLR method (Kushwah, Dhir, Sagar, & Gupta, 2019), we defined strict inclusion/exclusion criteria for our review to enable the easy reproduction of the results. This review has three inclusion criteria: (a) studies in English, (b) studies addressing some issue on the consumer adoption of green restaurant products or services, and (c) studies across all of the years covered in the searched databases. We had the following exclusion criteria: (a) non-peer-reviewed articles, including books, book chapters, conference proceedings, and other non-peer-reviewed articles, (b) articles not in the English language; and (c) articles that discussed the restaurant adoption of green practices without discussing consumer perception of the same.

## 3.3 | Application of review criteria—Identification of literature

We conducted a second round of searches (December 2020) in Scopus and WOS to identify relevant literature. The initial search yielded a total of 710 results (Scopus—453, WOS—357). Compliant with the strict review protocol defined in the preceding section, only the highest quality articles were considered in the review. We read each abstract to see whether the published materials represented green practices in the restaurant business. To this end, we actively eliminated all kinds of non-peer review articles, including books, book chapters, conference proceedings, and other non-peer-reviewed articles. We also eliminated all literature that was not published in the English language. We then proceeded to eliminate duplicates from the two databases, ending up with 593 studies.

In the second round of filtering, we read the studies' titles and abstracts to gauge their relevance to restaurant adoption. We were thus left with 182 studies as a result. Finally, we proceeded to read the full text of each article. We eliminated all studies that did not have consumer adoption as the focus of the study. Examples of such topics included studies that discussed green measures in restaurants without considering consumer perception or its influence on their adoption decision. We were left with only 42 studies that studied consumers' adoption of green restaurants. To ensure that no relevant studies were left out, we performed reverse and forward citation analysis on every study. In doing so, we were able to identify eight more studies investigating green restaurant adoption. The 50 extracted research articles were then analyzed using qualitative content analysis techniques.

We used a qualitative content analysis approach to analyze our search results (Hsieh & Shannon, 2005). An increasing number of health and social science researchers currently use qualitative research approaches to examine novel topics, provide textual information, and identify the years, subject, authors, and institutes of the published materials (Bouyssou & Marchant, 2011). When analyzing the research articles, we took special care to note the following information: the article's journal source, year of publication, the primary issue

discussed in the article, country of interest, method, type of restaurant, antecedents to green behaviors, relevant moderators/mediators, limitations, and gaps mentioned in the article. We then proceeded to the research profiling and thematic analysis of the selected studies.

#### 3.4 | Research profile

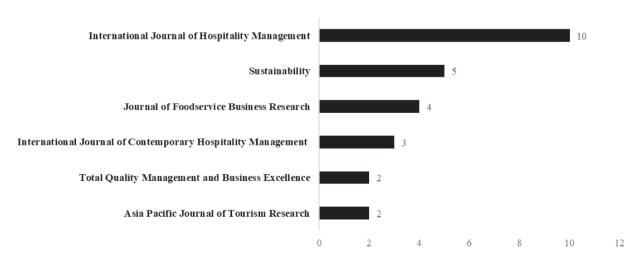
As mentioned earlier, we observed the profiling information related to the journal, year of publication, country of study, the method used, and the restaurant type. We present a detailed summary of the same in this section. Regarding the source of publication, as seen in Figure 1, the *International Journal of Hospitality Management* had the highest number of studies addressing green restaurant adoption. All the journals with at least two research publications in the area are listed in the figure below. The distribution of articles indicates that 56% of the articles came from five research outlets, primarily from within the hospitality and sustainability domain. We suggest that this area can greatly benefit from studies in other journals in the hospitality, tourism, and food services sectors. We also call for more special issues on the topic to encourage more research from a different disciplinary perspective.

Regarding the trend of publication across the years, in Figure 2, the output of research on the consumer adoption of green restaurants is growing considerably, with studies doubling every year from 2017 to 2019. We believe the dip in studies in 2020 is due to two primary reasons. First, firms in the hospitality sector have been severely hit by COVID-19 and have remained closed for longer durations (Gössling et al., 2020). Second, researchers have thus been unable to contact or

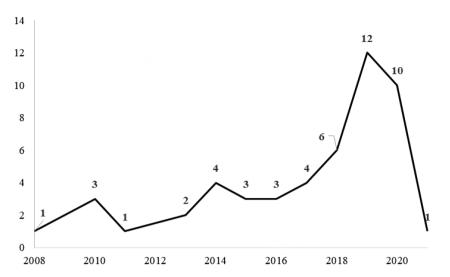
get in touch with appropriate respondents accordingly. We expect the studies to continue growing at the 2017–2019 rate in 2021 if the pandemic subsides and the industry recovers sufficiently. We also identified the most influential works in our sample using the Citation Per Year (CPY) metric. As of 2020, the five most influential studies were identified from the School of Hotel and Restaurant Administration, USA (Kim et al., 2013) (37.42), the Hospitality Management Department at Ming Chuan University, Taiwan (Hu et al., 2010) (35), Department of Human Nutrition and Hospitality Management, University of Alabama (Shin et al., 2018) (34), the Dedman School of Hospitality, The College of Business, Florida State University, USA (Jang et al., 2011) (32.7), and Kyung Hee University, South Korea (Kwok et al., 2016) (31.6).

Regarding the country of study, we observed that most of the studies were from the United States (20). However, Asian countries are quickly catching up, representing 18 studies, with South Korea appearing as the new Asian hub green restaurant research (9). Countries that have been addressed in at least two studies are listed in Figure 3 below, revealing that green restaurant research has grown to be quite balanced among both "western" and "eastern" countries with varying cultures. We had four studies in our sample that investigated a multi-country setting. Upon deeper inspection, we found that studies from Asia are relatively recent, with the majority of the studies being published after 2015. This indicates a shift in trend to include eastern countries and a growing opportunity for hospitality researchers in these geographies.

Regarding the restaurant context, the literature has addressed a variety of restaurant types, including upscale (DiPietro, Cao, & Partlow, 2013; Kwok et al., 2016; Xu & Jeong, 2019), café (Atzori



Other journals include Anatolia, Business Strategy and Environment, Cornell Hospitality Quarterly, Geographical Review, International Journal of Hospitality and Tourism Administration, Journal of Cleaner Production, Journal of Hospitality and Tourism Research, Journal of Hospitality Marketing & Management, Journal of Quality Assurance in Hospitality & Tourism, Journal of Sustainable Tourism, Service Business, Social Responsibility Journal, South, Asian Journal of Business and Management Cases, Sustainable Production and Consumption, Tourism and Hospitality Research, Tourism Review.



**FIGURE 2** The trend of publications across the years

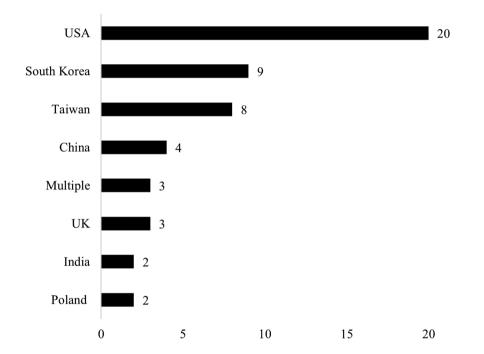


FIGURE 3 Country of interest in the studies. Multi-country studies have also been counted in both countries studied

et al., 2018; Jeong et al., 2014), casual (Kwok et al., 2016; Tan et al., 2018), quick service (DiPietro, Gregory, & Jackson, 2013; Kwok et al., 2016), mall (Y.-M. Teng & Wu, 2019), vegetarian (Liu et al., 2015), family restaurant (Nandini & Kumar, 2019), and edible insect restaurant (Choe et al., 2020; J. Hwang et al., 2020).

In terms of the studies' methodological perspectives, scholars mostly used quantitative methods. Particularly, we encountered structural equation modeling (SEM) as the most commonly used method to test the hypotheses. Furthermore, 27 of the 50 studies used SEM either exclusively or as part of a mixed-method design. Other quantitative methods included ANOVA, MANOVA, experiment, and *t* test, among others. Only six studies in the sample utilized a qualitative design. It is also interesting to note that online survey platforms like Amazon Mechanical Turk (MTurk) (Lang & Lemmerer, 2019; Shapoval et al., 2018; Shin et al., 2018) and Qualtrics (Kwok & Huang, 2019; Lang & Lemmerer, 2019) are becoming exceedingly

popular as they make it possible to easily find and administer a survey to participants from multiple countries (Shin et al., 2019). Moreover, most studies in the sample utilized an online data collection mode, showing that it is now becoming increasingly acceptable to do so. Given the current social distancing norms due to the COVID-19 pandemic, online survey-based studies are expected to grow this year (2021) until a significant proportion of the population is vaccinated. However, collecting data from online platforms can lead to sampling biases as the sampling is less likely to be representative and may be skewed toward users who frequent these platforms. Thus, more studies are needed with other data collection methods like restaurant surveys. Furthermore, the over-dependence on quantitative methods of inquiry means that the theoretical perspectives of studying green restaurant patronage are largely borrowed from the consumer behavior literature with very little customization for the restaurant context.

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#### 3.5 | The theories used in published articles

The *Theory of Planned Behavior (TPB)* (Ajzen, 1985, 1991) and the *Theory of Reasoned Action (TRA)* (Fishbein, 1980) have dominated the world of studies addressing behavioral intention. TRA, originally introduced in 1980, modeled behavioral intention as a function of two factors, (1) attitude toward behavior and (2) the subjective norms toward it (Fishbein, 1980). Furthermore, the intention of this behavior represents the motivation of a person to engage in actual behavior. The TPB was developed to augment the TRA, explaining behavior through behavioral intention and perceived behavioral controls (PBCs) (Madden et al., 1992). The widespread use of these two theories is equally true for research addressing green restaurants (Choe et al., 2020; Y. J. Kim et al., 2013; Moon, 2021).

Another theory used in studying green restaurant consumer behavior is the Expectancy-Value Theory (EVT) (Ajzen & Fishbein, 2000; Eccles et al., 1983). EVT states that a person's intention to engage in a behavior or their attitude to engage in it is prompted by two primary factors, the expectancy of their confidence to complete the work and their evaluation of the task as useful, enjoyable, and important. In addition to these three theories, studies have also adopted the Self-Completion Theory (Wicklund & Gollwitzer, 1981), wherein restaurant consumers showed greater green behavior after they were reminded about their impact on the environment (Hu et al., 2014). This is also augmented with the use of Information Processing Theory (Chaiken, 1987) and Construal Level Theories (Liberman & Trope, 1998), which look into how different consumers perceive different external marketing messages differently (Line et al., 2016). This is particularly important as it can help managers decide to target their marketing communications based on how different consumers perceive different messages.

Thus, a consumer's intention to dine in a green restaurant can be summarized into internal and external factors, with attitudes, expectations, value, and PBCs identified as internal factors for consumers, and subjective norms and self-completion prompts identified as external factors. Furthermore, the extant literature also showed that these relationships were influenced by a variety of moderating and mediating variables, including demographic variables (e.g., gender, age, and income). These will be discussed in detail in the thematic foci below.

#### 4 | THEMATIC FOCI

After profiling the research sample, we proceeded to the thematic analysis. To do so, three researchers independently read and coded each of the research articles as per the review protocol. Each of the articles was first open coded and then axially coded to arrive at the themes. The authors then pooled the results and discussed the findings to arrive at the final set of themes. The final set of themes were (a) consumer behavioral variables studied, (b) antecedents internal to the consumer, (c) antecedents due to the perception of external factors, (d) moderators of green restaurant adoption. Figure 4 presents an overview of the thematic foci.

#### 4.1 | Consumer behavior variables studied

The study variables are classified into two major categories—first, consumers' willingness to pay more for eating at a green restaurant, and second, consumers' patronage and intention to revisit. Other behavior variables are discussed further in this section. Prior studies show that setting up and operating a green restaurant is financially taxing for the restaurant (Baloglu et al., 2020), meaning that green restaurants have to charge a price premium to ensure that they can compete with their non-green counterparts (Choi & Parsa, 2006). Moreover, consumer willingness to pay this premium has received much attention in recent years (Dutta et al., 2008; Hu et al., 2014; Namkung & Jang, 2017; Nicolau et al., 2020; Shin et al., 2019). However, managers and employees may be over-optimistic about consumers' willingness to pay (Kwok & Huang, 2019). Therefore, studies investigating consumer behavior variables from a restaurant perspective may be biased and. thus, may be better executed if studied directly from the perspective of the consumer.

Other behavior variables addressed in the literature mainly concern consumers' visit intention, referred to variously as visit intention (Nicolau et al., 2020; Shin et al., 2017, 2019), patronage intention (Tan et al., 2018; Yu et al., 2018), preference (Y.M. Teng & Wu, 2019), proenvironmental consumption intention (Han et al., 2019), or just behavioral intention toward green restaurants (Y.-M. Teng & Wu, 2019). Furthermore, willingness to wait longer and travel further for green

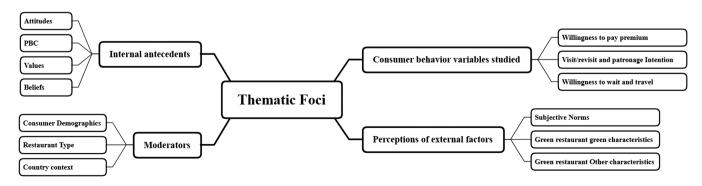


FIGURE 4 Thematic foci

restaurants (Kwok et al., 2016) and consumer loyalty and satisfaction were also investigated (Kim & Hall, 2020).

## 4.2 | Internal antecedents—Attitudes, values, and expectancies

#### 4.2.1 | Attitudes

Attitude refers to a consumer's latent predisposition that encourages them to behave in a particular way (Ajzen, 1987). It is one of the core components of TRA and TPB. As a consequence, consumers' attitudes toward the green restaurant and subsequently their visit intentions have received increasing attention (Chan & Hon, 2020; Dewald et al., 2014; Han, 2020; S. Y. Jang et al., 2015; Y. J. Kim et al., 2013; Moon, 2021; Tan et al., 2018). The literature has highlighted three main attitudes that impact green restaurant behavior: (1) proenvironmental attitudes, (2) pro-health attitudes, and (3) others.

A pro-environmental attitude may be defined as the consumer's perception of pro-environmental behavior as good or bad. Several studies have investigated the role of pro-environmental attitude toward the adoption of green restaurants and have consistently found that pro-environmental attitude has a positive relationship with the adoption of green restaurant services (Han et al., 2019; Sarmiento & El Hanandeh, 2018; Tan et al., 2018). Other pro-environmental attitudes discussed in the literature include green purchase attitude (Tan et al., 2018), green consumerism (Nicolau et al., 2020; Tan et al., 2018), attitude toward green restaurant practices (Filimonau, Matute, et al., 2020; Namkung & Jang, 2017; Tan et al., 2018), and attitude toward waste reduction (Kim et al., 2020). All three factors were found to have a significant relationship with green adoption behavior. Particularly, attitude toward green restaurant practices was found to significantly influence patronage intention (Tan et al., 2018).

The second most-discussed attitude responsible for green behavior was health consciousness. A health-conscious attitude refers to a person's willingness to undertake behavior that safeguards their health (Becker et al., 1977). A simple example of this may be preferring a salad over steak. Health-conscious behavior has been linked to the consumption of green and organic foods (Chen, 2009; DiPietro, Gregory, & Jackson, 2013). We see similar trends regarding restaurant adoption as well. A health-conscious attitude has been linked to both consumers' willingness to pay and their intentions to visit green restaurants (Dutta et al., 2008; Shin et al., 2019). Since labeling foods is a common practice in green restaurants (Bacig & Young, 2019), healthconscious consumers have been known to prefer green restaurants over others (Shin et al., 2019). A clustered data analysis by Jang et al. (2011), for example, showed that health-conscious consumers were more willing to pay a premium for the green restaurant than non-health-conscious consumers. In addition, restaurants with green labels enjoyed a "halo effect," whereby sourcing local foods gained them an environmentally sustainable brand image (Bacig & Young, 2019).

It is interesting to note that both these attitudes are often studied together (Dutta et al., 2008; Nicolau et al., 2020; Schubert et al., 2010; Shin et al., 2019). As observed before, health-conscious consumers are more likely to consume organic food. The literature has also shown that health consciousness can lead to proenvironmental behavior in other settings, such as the healthcare industry (Shimoda et al., 2020). We argue that this interrelationship between environmental attitude and health consciousness constitutes a gap in the green restaurant literature that needs further examination.

#### 4.2.2 | Values, expectations, and PBC

However, it is also suggested by the *Value-Attitude-Behavior* model (Homer & Kahle, 1988) that these attitudes may be influenced by an individual's personal values (Kim et al., 2020). Here, a value may be defined as a prepositioned belief that transcends a particular action (Bergman, 1998), or, in this case, a consumer's attitude toward green restaurants (Y. M. Teng et al., 2014). Furthermore, environmental values have been studied in the literature as a basis for adopting a variety of green products and services (e.g., Khan & Mohsin, 2017; Lin & Huang, 2012). Similar trends have also been observed in green restaurant adoption (Homer & Kahle, 1988; Jang et al., 2015). Sustainability values may also encourage environmentally friendly eating behavior (Kim et al., 2020).

In addition to environmental and sustainability values, Teng and Wu (2019) observed that Taiwanese consumers' preference for green restaurants was influenced by both their hedonic and utilitarian values. Thus, it is likely that their intention to adopt green restaurants was driven by different attitudes based on the value they used to make decisions (Kim & Hall, 2020). Studies have shown that the value of environmental concern and the attitudes arising out of it toward restaurants also drive consumers' willingness to pay more for green restaurant services (Chan & Hon, 2020; Shin et al., 2017, 2019; Tan et al., 2018) and engage in the waste reduction in restaurants (Filimonau, Matute, et al., 2020). Furthermore, Teng et al. (2014) noted that attitudes moderate the relationship between personal values and green restaurant behavior intention. They also observed that value has a significant direct relationship with green restaurant visit intention, thus highlighting the complex nature of the relationship between values, attitudes, and green restaurant visits (Jang et al., 2015).

The next most-discussed internal factor was the formation of green behaviors and attitudes based on the expectations of green restaurants. These studies drew from the EVT discussed earlier (Ajzen & Fishbein, 2000). For example, Jeong et al. (2014) investigated café consumers and concluded that green image perception mediated the relationship between the perception of green practices and attitudes. Expectations of a green restaurant's practices could thus reinforce or weaken consumers' attitude to visit there, which, as discussed earlier, can influence visiting intention.

Other consumer-level internal antecedents included individuals' PBC (Ajzen, 1991), while their awareness and ability to select a green restaurant indirectly played a role in their selection process (S. Y. Jang et al., 2015; Y. J. Kim et al., 2013; Neff et al., 2015; Shin et al., 2018). Consumers' knowledge about their impact on the generation of food waste has also been shown to significantly reduce food waste in green restaurants (Dhir et al., 2020; Filimonau, Matute, et al., 2020). Furthermore, younger customers and customers without children were likely to show higher PBC to find and dine at a green restaurant (Kwok et al., 2016).

#### 4.2.3 | Other internal factors

In addition to the above discussed dimensions, the published literature also discussed the cognitive, emotional (Kim et al., 2013), and moral dimensions as antecedents of pro-environmental consumption intention (Han et al., 2019). Mainly, regret was explored as a motivator of green restaurant adoption (Kim et al., 2013). Furthermore, trait variables were found to impact attitude. For instance, Jeong et al. (2014) showed that the green image and perceived green practices affected the attitudes of consumers in a café setting. Moreover, the consumer's pride and mindfulness were linked to self-awareness, which further led to green consumption behavior (K. Hwang & Lee, 2019). A consumer's awareness of their impact on the environment was also a significant predictor of green restaurant visit intention (Hu et al., 2010).

## 4.3 | Perception of external factors—Subjective norms, marketing communications, and restaurant performance

As social beings, all humans desire to be part of a social group. Subjective norms may be defined as how important it is that an individual's behavior is considered acceptable in their social group (Ajzen, 1991). In the case of green restaurants, social norms (SN) played a major role in adopting a green restaurant by consumers (Han, 2020; Jang et al., 2015; Kim et al., 2013). For instance, for US consumers, word of mouth played a major role in their decision to dine at green restaurants (Dewald et al., 2014). However, values, particularly perceived social values, significantly affected individuals' perceived SN in many cultures (Han, 2020; Shin et al., 2019). The expectancy theory indicates that subjective norms and expectancy can influence attitude to engage in green behavior, further strengthening the argument on the complex relationships between the antecedents of green restaurant adoption.

In addition to subjective norms, the marketing messages about green restaurants significantly influenced the adoption intention of green restaurant services. Line et al. (2016), for example, showed that marketing messages impacted green restaurant consumer perception. However, the message was filtered through the consumers' internal perceptions or expectations of sustainable practices at a

restaurant and constituted a mediated effect. Similar results were also observed by Xu and Jeong (2019), who found that messages communicating green practices affected consumers' attitudes. Consumer perception of the restaurant's green image also led to adoption intentions regarding the willingness to pay a premium price, use intention, and Word of Mouth (WOM) (J. Hwang et al., 2020). The perceived green image is also driven by green certification (Park, Kim, & Kwon, 2020).

Consumers' intention to adopt was also influenced by restaurant operators' performance (Chen et al., 2017; Park, Chae, et al., 2020). In addition to green practices, green restaurants were also expected to provide quality food, service (Nandini & Kumar, 2019; Shapoval et al., 2018: Trafialek et al., 2019), and ambiance to ensure consumers' patronage (Chen et al., 2015; Kwok et al., 2016; Wu et al., 2019; Yu et al., 2018). Together, these three factors constitute the restaurant's experiential quality and can impact consumer attitude and behavioral intention to dine in a green restaurant (Wu et al., 2019), implying that consumers notice green restaurant measures adopted by the restaurants and are willing to change their attitude and give their patronage if they find it satisfactory (Jeng & Yeh, 2016; Schubert et al., 2010). Furthermore, they are also likely to share a positive or negative review online about the restaurant based on its performance (Park, Chae, et al., 2020). However, this can be a double-edged sword as consumers may only notice some of the green initiatives over others (Shapoval et al., 2018). For instance, Baloglu et al. (2020) showed that consumers noticed only the dining area initiatives to generate a green image and attitude toward the restaurant. Thus, restaurants may "window-dress" green initiatives just to create a green attitude among consumers. This phenomenon was also observed by Atzori et al. (2018) in the context of Starbucks, when the company implemented green initiatives to make consumers think that it was implementing several others when, in reality, it was not implementing practices not visible to the consumer. However, this problem requires further examination.

#### 4.4 | Moderators

The literature has suggested that the impact of attitude can be significant based on a variety of consumer-centric confounding variables (Hu et al., 2010). One of the ways to classify consumers is based on their age (Hu et al., 2010). For instance, millennial and younger consumers are more likely to visit and spend more at green restaurants (Nicolau et al., 2020). Studies based on generational cohorts (e.g., millennial, Gen X, and Gen Y) have also been identified (Jang et al., 2011); however, age was often relegated to a control variable in these studies (Jang et al., 2015). As such, interesting marketing implications may have gone overlooked by not studying age as a primary variable instead. It is noteworthy that conflicting results exist in the literature regarding the age of the consumer and their intention to visit a green restaurant. While some studies argued that older people were more environmentally responsible (H. H. Hu et al., 2010; M. Wiernik et al., 2013; Moon, 2021), others argued that the younger

consumers and those without children are likely to exhibit the effort required to find and dine at a green restaurant (Kwok et al., 2016; Okumus, 2020). Several implications arise in addressing this contention, including how to effectively communicate marketing messages to different age groups or consumer segments.

In another instance, a culture-wise difference was observed by Dutta et al. (2008) while studying the cultural differences of proenvironmental versus health-conscious attitudes in the United States and India. The researchers found that Indians were more health-conscious, whereas Americans were more environmentally conscious. However, this result is partially contested by Jang et al. (2015), who observed that collectivist culture strengthened the values and attitudes regarding visit intentions toward green restaurants. This is interesting as India is a collectivist culture, and the United States is individualistic (Hofstede & Hofstede, 2005). However, a study from China by Liu et al. (2015) found that restaurant preferences mimicked the staple diet preferences, which, in the case of India, is primarily vegetarian (Dutta et al., 2008) and, thus, greener than meat consumption. However, this novel line of inquiry was not studied further, and we did not find any other crosscultural studies in our sample.

In the case of gender, Shapoval et al. (2018) noted that women were less likely to engage with green practices. This is in contradiction to the literature on sustainability and green practices, which shows that women are generally more environmentally conscious than men (Galbreath, 2019; Warren, 1987). Similar to age, gender is often studied as a control variable. Consequently, more studies are needed to explicitly understand the role of gender in green restaurant adoption.

Regarding the income background of green restaurant consumers, we observed that several studies linked income level to green eating behavior. Liu et al. (2015) conducted a study on Chinese ethical eaters in green vegetarian restaurants and found that green restaurant eating is a function of culture. They stated that the green eating practices of a vegetarian diet are normally adopted by upper-middle-class consumers, groups who are also the most likely to be patrons of green restaurants in China. However, this also implies that the type of restaurant and the typical staple diet of the consumer plays a major role in deciding green restaurant patronage. However, no other study in our sample put forth this observation. Education level has also been linked to responsible green behavior in multiple fields and in the context of green restaurants. Higher education level, in particular, is the strongest influencer on behavioral intention to visit green restaurants (Filimonau, Matute, et al., 2020).

Another set of moderators can be based on consumer characteristics. For example, Lo et al. (2020) divided customers into types based on their degree of health and environmental consciousness. They showed that there is a difference in how these consumers perceive restaurant menus. Healthy and environmentally conscious consumers perceived menus more favorably. Such studies have paved the way for future research to segment customers and use these segments as possible moderators of the relationship between customer-level and adoption factors.

## 5 | GAPS AND FUTURE RESEARCH AGENDA

The research area presents some limitations/gaps which were observed during our content analysis. A summary of the same has been presented in Table 1 below, along with potential future research questions.

## 6 | CONSUMER ADOPTION OF GREEN RESTAURANTS—A UNIFYING FRAMEWORK

The review of consumer adoption of green restaurants resulted in four key themes: (1) consumer behavior variables studied, (2) antecedents internal to the consumer, (3) antecedents due to the perception of external factors, and (4) moderators. The theories summarized in the above sections increased the understanding of patrons' intentions to revisit green restaurants. However, after observing all the studies, it is now clear that no single theoretical perspective can completely answer the question of why consumers opt to dine at green restaurants. Therefore, to address this gap, we advance the "green restaurant adoption research framework" shown in Figure 5. It briefly summarizes the entirety of the review into an easy to comprehend, bird's eye view of all the results expressed by the studies in the sample. The framework consists primarily of three components: (1) the antecedents, (2) behaviors and behavioral intention, and (3) contextual factors.

#### 6.1 | Behavior and behavioral intention

Different kinds of behavior and behavioral intentions were discussed in detail in Theme 1. Y.M. Teng and Wu (2019) show that a green restaurant's preference can act as a mediator to the relationship between antecedent factors and behavioral intentions. As mentioned in Figure 5, several behavioral intentions have been studied in the literature. However, research on the intention behavior gap shows that intention to behave does not always lead to the actual behavior (Sheeran, 2002). Therefore, we argue that new research needs to address the presence of this gap and how it can be bridged. Further, repeat behavior is also not been addressed adequately. Thus, we propose that satisfaction from dining at the restaurant should also be added as a construct of interest as it has received limited interest in the past.

#### 6.2 Antecedents of green restaurant adoptions

As summarized by Themes 2 and 3, we identified both internal to consumer and external to consumer antecedents to green restaurant adoption. As can be easily inferred from the figure, the antecedent block is an amalgamation of all four theoretical perspectives mentioned earlier. Attitude, PBC, and SN are adopted from TPB and TRA.

 TABLE 1
 Research gaps and potential research questions for future research

Theme	Gaps	Suggested future research questions
Consumer behavior variables addressed	<ol> <li>Several consumer-level adoption variables were studied. However, factors like satisfaction have received limited attention.</li> </ol>	RQ1. What are the factors influencing service satisfaction in green restaurants? RQ2. What is the role of variables like the value of money and affordability in green restaurant adoption?
Antecedents internal to the consumer	<ol> <li>Consumers expect green practices.         Restaurants may engage in "window-dressing."</li> <li>Religiosity has been known to impact hotel visitor green behavior (Agag &amp; Colmekcioglu, 2020). More studies are needed to see if such relationships exist in restaurants.</li> <li>Emotional factors have received limited attention (K. Hwang &amp; Lee, 2019).</li> </ol>	RQ1.What are the green initiatives consumers most expect when deciding their adoption of a restaurant?  RQ2.What is the impact on adoption when a consumer realizes that the restaurant has engaged in window-dressing?  RQ3.What is the role of religiosity in green behavior?  RQ4.What is the role of emotions like shame, embarrassment, and morals in adopting green restaurants?
Antecedents due to the perception of external factors	<ol> <li>The role of the internet and social media in influencing green restaurant behavior has received limited attention.</li> <li>Consumers expect green practices.</li> <li>External stimuli can trigger the intention to be a patron of a green restaurant.</li> <li>The role of restaurant employee perception and characteristics of the behavioral intention of consumers has not received adequate attention.</li> </ol>	RQ1.How can social media marketing help green restaurants?  RQ2.Are the internet and social media effective channels for marketing and promotions for green restaurants?  RQ3.Which external green stimuli can trigger a visit from a consumer?  RQ4.What are the different ways of communicating the triggers?  RQ5.What is the role of employee personal characteristics on the service quality of the restaurant?  RQ6.How do restaurant characteristics mediate the relationship between employee actions and consumer's intention to adopt?
Moderators	<ol> <li>Demographic variables like age and gender are often relegated to controls.</li> <li>Literature shows that older people and women are likely to showcase more sustainable behavior.</li> <li>The staple diet of locals influences green restaurant adoption. More cross-cultural studies are needed to further clarify this relationship.</li> <li>Vegetarians have been documented to have a higher attitude toward green restaurant adoption.</li> </ol>	RQ1.Does the age of the consumer influence green restaurant adoption? RQ2.Does the gender of the consumer influence green restaurant adoption? RQ3.What is the interplay between age, gender, and any other demographic characteristic in deciding green behavior? RQ4.Are these relationships consistent across cultural contexts? RQ5.What is the role of the local staple diet on green restaurant preferences? RQ6.Are vegetarians and vegans more likely to be green restaurant patrons as compared with non-vegetarian food eaters? RQ7.What is the role of non-food-related green practices in their decision to adopt green restaurants? RQ8.What is the role of vegetarianism in deciding green restaurant patronage?
Methodological gaps	<ol> <li>Quantitative inquiries dominate the discussion. More qualitative studies are needed to better understand the individual behavior of green restaurant adoption.</li> <li>Factors like personal choice and religiosity are complex and require a</li> </ol>	RQ1.Do the quantitative results hold if the same research questions are addressed qualitatively?  RQ2.What are the limitations of the online survey method that is becoming popular in hospitality research?  RQ3.How should these limitations be addressed?

TABLE 1 (Continued)

Theme	Gaps	Suggested future research questions
	qualitative design to capture them properly.  3. Online surveys are becoming popular. However, they carry the inherent risk of self-selection bias, whereby only the well-off may participate in the survey.	RQ4.Do the results change when a question is addressed with an online survey versus when it is addressed with an offline survey?
Contextual factors	<ol> <li>Several restaurant types have been discussed. However, a comparison between green adoption in different restaurants is lacking.</li> <li>More comparative studies are needed.</li> <li>Menus, food, and restaurant types are influenced by country context—more country comparative studies.</li> </ol>	RQ1.Do the results of the analysis hold across restaurant contexts?  RQ2.How does one type of restaurant compare with another in green restaurant adoption?  RQ3.What is the role of difference in restaurant-level factors like menu and ambiance in green adoption?  RQ4.What is the role of the country/ regional culture in adoption?  RQ5. How does the relationship vary across various cultural parameters like individualism, collectivism, masculinity, femininity, and others?

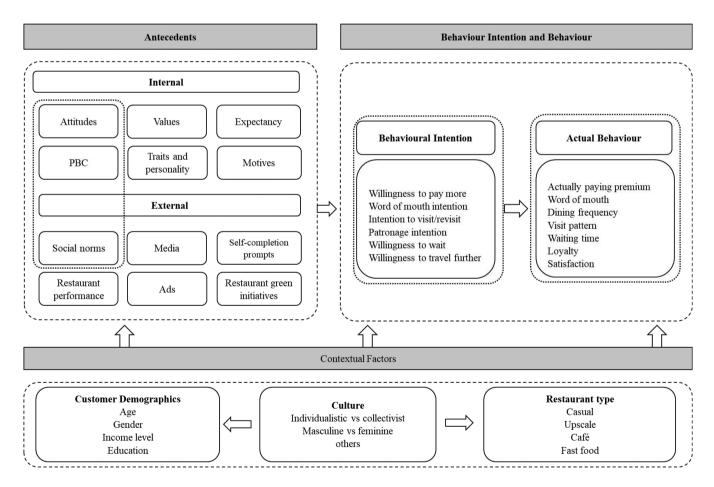


FIGURE 5 Consumer adoption of green restaurant services framework

Expectation-value theory, meanwhile, contributes consumer expectations from a restaurant and the internal values of the consumer to the framework. We also included consumer traits, which we believe

requires more attention in this context. Furthermore, consumers' restaurant perception and self-completion prompt at the restaurant constitute the external factors and SN. Here, self-completion

prompts may be any kind of trigger for green behavior, like a well-placed marketing message. Self-completion prompts also bring us to the importance of the presence of green consumerism culture. It is important to understand how green restaurant adoption can result from green messages and prompts from other green initiatives like advertisements and media communications calling for sustainable consumption.

We also discussed that each of these factors is complexly interrelated and thus requires a deeper investigation. For instance, PBC and SN have been known to influence attitude (Ajzen, 1991), while a person's internal values and traits have been known to impact attitudes about a particular action (Ajzen & Fishbein, 2000; Eccles et al., 1983). Similarly, several such interrelations were discussed in the thematic analysis, implying that antecedents can become mediators or antecedents of other antecedent factors. Future researchers can exploit this to design and test a new relationship between these factors and green buying behavior.

#### 6.3 | Contextual factors

Contextual factors were discussed at three different levels in the current review; individual consumer level, restaurant level, and country or region level. The extant literature discussed several demographic variables, including age, gender, income level, and education, as influencers of green adoption. At the restaurant level, we saw that numerous restaurant types were discussed in the studies, including casual, upscale, café, and fast food. At the cultural and national level, differences in adoption behavior were noticed in studies comparing eastern and western cultures (Dutta et al., 2008). However, most of these factors at the restaurant and cultural level have received little or no attention. This is primarily because the majority of studies in the sample have been conducted in a single country context and a single type of restaurant without much effort to bring in a variety of both. In our future research agenda, we propose that more comparative studies are needed to advance our understanding of why consumers adopt green restaurant services as these factors may act as antecedents and moderators in the model.

#### 7 | IMPLICATIONS OF THE STUDY

#### 7.1 | Theoretical implications

The current study presents three key theoretical implications. First, although there have been SLRs on green practices in hospitality (Higgins-Desbiolles et al., 2019), our review is the first to our knowledge to examine the factors influencing the adoption of green restaurants. We thus contribute to the area of possible future research questions that may be of use to future researchers. We also extend Kim et al.'s (2017) argument, which presented a review of green practices in hospitality and observed that the research is in the nascent stages. However, the trend analysis presented in the research profile

shows that the area is growing considerably and holds promise for future development.

Second, our systematic analysis shows that the number of published research articles on green restaurants is scarce. Furthermore, their methodologies and data analyses, which predominantly used SEM and ANOVA with limited qualitative research, were too narrow, and the antecedents and themes were notably similar. The thematic analysis and the research questions presented will, therefore, help future researchers further develop the research area. The research profile analysis presented by us can also be used to identify optimum outlets for future research on the consumer adoption of green restaurant services.

Third, the emerging trend of results seems to indicate that consumer perception of green initiatives is largely driven by their health and environmental awareness. Accordingly, consumers can differentiate between the green initiatives implemented before forming favorable or unfavorable adoption intentions. Future researchers can thus open the black box of "green restaurants" and compare the consumer perception of green initiatives between green restaurants, rather than just comparing between green and non-green restaurants. As such, future studies should consider the "degree of perceived greenness" rather than simply comparing green to non-green restaurants.

Last but not least, this study combines various theoretical positions, including (1) TPB (Ajzen, 1991), (2) TRA (Fishbein, 1980), (3) Expectancy-Value Theory (Ajzen & Fishbein, 2000; Eccles et al., 1983), and (4) Self-Completion Theory (Wicklund & Gollwitzer, 1981), to present a theoretical model that may be also be used in other areas to understand the adoption of green services and products. It may also be used by green restaurant researchers to select the appropriate theoretical foundation to ground their work.

#### 7.2 | Practical implications

It is evident from increasing green consumerism trends in the green restaurant industry that the world is changing toward sustainable restaurant consumption behavior. As such, the change has to be driven by three main stakeholders: (a) the restaurants, (b) the consumers, and (c) the government and policymakers who would like to encourage this trend.

The published articles analyzed provide three key implications. First, restaurant managers need to understand that consumer's internal decision-making heuristics guide their decision to adopt green restaurant products and services. Furthermore, the green initiatives implemented by the restaurants can mold these decision-making heuristics. As such, managers should focus on shaping these internal heuristics to nudge consumers toward making a responsible green choice. Particularly, several external factors, like marketing messages and service quality, were found to influence consumers' positive attitudes toward green issues and restaurants. These factors are usually in the control of a restaurant manager and can be used to mold the consumers' attitudes to elicit favorable behavioral outcomes.

Second, the willingness to pay premium prices stated that consumers who are health-conscious and environmentally conscious pay more attention to green practices in the hospitality and restaurant industry. The studies similarly suggested that restaurant managers can use this information to decide proper marketing channels (for example, a Facebook group on health and wellness). Recent studies have also suggested that consumers can now perceive the difference between green initiatives in restaurants rather than simply comparing green restaurants with non-green restaurants. This finding calls for a greater examination into the better placement of green initiatives that consumers perceive favorably. However, policymakers need to standardize green practices as restaurants may engage in greenwashing to implement only those practices that consumers deem important. Thus, a policy and practice system of checks and balances is essential to ensure the optimal greening of restaurants and the corresponding favorable perception of the consumers

Third, we provide a framework that managers can use to better understand the consumer through answering the following questions: "What the factors under the restaurant's control (for example, restaurant characteristics)? What are the factors that may be influenced?" Results from the same can be used to conduct better market research and, ultimately, to enhance the communication of green restaurant initiatives.

Our study results further highlighted the crucial role of green restaurants for both the environmental and unique gastronomy experiences of customers. Given that this is a hot topic for the hospitality industry and academia, the study also emphasized the necessity of teamwork between both sectors in designing novel gastronomic experiences and recognizing the right segments for sustainable and green practices. Scholars have heavily focused their research and theory at the individual level, paying less attention to the industry goals as a result (Joubert, 2018). Therefore, future green restaurant studies should be grounded in business innovation themes to give practitioners unique sustainable and regenerative initiatives as well as various research directions to future scholars.

## 8 | LIMITATIONS, FUTURE RESEARCH DIRECTIONS, AND CONCLUSION

The current review has two limitations. First, we developed a strict review protocol wherein we decided to eliminate all gray literature, reviews, books, and book chapters. There may have been relevant literature in these sources. Second, despite the rigor of the protocol and multiple rounds of checks and balances using a panel of researchers and practitioners, some inadvertent error may still have crept into the analysis.

The study also presents several interesting avenues for future research. First, our study focuses on the restaurant part of hospitality firms. Future reviews may examine hotels and the adoption of green adoption within them. It would be interesting to see if similar theoretical perspectives and models persist in hotels, given that the nature of

service is different from restaurants. Second, similar reviews may be carried out for other green services and practices adoption.

The purpose of the current review was to analyze and synthesize the extant literature on consumers' adoption of green restaurants. We were guided by four research questions during this process, the conclusions for which we provide below.

RQ1 sought to identify the research profile of the published literature. In response, we analyzed the time, source, method, context, and author trends. We identified that the number of studies in the area is rising rapidly, with the majority of the studies being published in the last five years (2015-2020). We also observed that most of the studies have come from only a few journals. We thus call for more journals to consider raising special issues on the topic to aid its growth. The research profile also summarized what the key theories used in the literature were. We identified an over-dependence on TPB, which has resulted in consumer attitudes, SN, and PBC getting the most attention, while factors like values and beliefs have received considerably less. RQ2 sought to understand the key themes in literature. We extrapolated four key themes, as presented in Sections 3.1 to 3.4. RQ3, meanwhile, focused on extracting research gaps and future research questions. We delved into the limitations of the existing research and have suggested future research questions for the area in Section 4. Finally, RQ4 sought to synthesize a unified framework to understand the consumer motivations for adopting green restaurant products and services. Using a multi-theoretic approach, we have thus constructed a unified green restaurant adoption research framework in Section 5, which can be used by future researchers and managers to better understand green restaurant consumers.

#### **CONFLICT OF INTEREST**

The authors do not have any competing interests to declare.

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