

## **Atmospherics Driving Customers' Satisfaction and Behavioral Intentions in Restaurants : A Systematic Literature Review**

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### **Abstract**

The purpose of this research paper is to scrutinize the synthesis of 42 studies in the past years on the effects of atmospherics on customer satisfaction and behavioral intentions. The analysis of these studies provides useful information about which attributes of atmosphere in a restaurant industry strongly influence customer satisfaction and behavior. Findings revealed that there are six variables of atmospherics that strongly influence customer satisfaction and behavior. The variables are table setting, layout, interior design, employees, lighting and music.

### **Key Words**

Atmospherics, Physical Environment, Customer Satisfaction, Behavioral Intentions, Restaurants, Atmosphere

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### **INTRODUCTION**

A restaurant is something where people visit to satisfy their hunger. In other words, eating food is the basic purpose of dining( Ha & Jang, 2012). However, customers now are not only confined to food. Equal importance is given to other factors such as interior design, layout, music, ambience, etc.Oftentimes, in favor of other elements, the physical environment of a restaurant is overlooked. Many restaurateurs think that food is enough to provide a good dining experience but the inability to provide great service

along with an enjoyable or pleasant environment is a recipe for failure (Rubright, 2019). In fact, (Milliman, 1986) is of the view that sometimes the physical environment or the interior is more influential on customers' purchase decisions than the product itself. The term atmospherics was first coined by (Kotler, 1973) and he defined atmospherics as the recognition that people, in their purchase decision making, respond to more than simply the tangible product or the service being offered. This statement clearly goes in today's business world, especially in the hospitality industry that customers' attention has now been diverted from price to more a pleasant, soothing and exciting atmosphere (Kotler, Bowen, and Makens, 2006); (Baker, Grewal, & Levy, 1992); (Sherman & Smith, 1986).

Previous studies have identified various dimensions of atmospherics such as layout, furnishings, ambience, table settings and service staff (Countryman & Jang, 2006); (Ryu & Jang, 2008); (Liu & Jang, 2009); (Ryu & Han, 2011); (C.S. Heung & Gu, 2012). The ambience of a restaurant includes elements such as scent, music, temperature, and lighting which affect mainly the non-visual senses. Spatial layout refers to the facility, furnishings and equipment are arranged, the size and shape of these items and the spatial relationship between them. Three dimensions of atmospherics / SERVICESCAPE have been identified by (Bitner, 1992) : spatial layout, ambient conditions and signs, symbols and artifacts. (Ryu & Jang, 2008) has also developed a scale named DINESCAPE to measure the dining environment of a restaurant. The scale incorporates six elements namely, ambience, facility aesthetics, table setting, lighting, service staff and spatial layout. Some researchers were of the view that exterior elements should also be included in the atmospherics dimension. (Berman & Evans, 1995) talked about four elements namely, the general interior, store exterior, point of purchase and decoration variables, and layout and design variables. Further (Turley & Milliman, 2000) stated that human elements should also be considered like consumer crowding, density, etc. and employee uniform or other characteristics. The link between the physical environment and the quality of a restaurant has been identified in several studies (Parasuraman, Zeithaml, & Berry, 1988); (Baker, Grewal, & Parasuraman, 1994). According to the above mentioned studies, the physical environment provides details that can underline our judgments and shape our expectations regarding the restaurant quality, thus making it an important factor in influencing the perception of customers regarding restaurant quality. Additionally, (Mattila & Wirtz, 2001); (Namasivayam & Mattila, 2007) in their studies revealed that the physical environment/atmospherics plays a role in

creating the pre-consumption mood of customers before the delivery of actual service, suggesting that the atmospheric/ physical environment can negatively or positively pose an impact on customers' mood. If we investigate some other studies, the physical environment of a restaurant also affects the ratings of meals by customers (Meiselman, 2003). According to (Milliman, 1986); (Wansink, 2004), the music and lighting affect the purchase, ordering, and length of stay. Also, the restaurant interior is considered as one of the main factors in determining the experience of meals by customers. Another important research has been conducted by (Mehrabian & Russell, 1974) in which they proposed a SOR (Stimulus-Organism-Response) model. This model posits that the relationship between human behavior and environmental stimuli is mediated by an emotional response. The emotional state of an individual is affected by the physical environment, which in turn elicit approach or avoidance behavior among individuals towards the environment. Also, this model has been widely used for research purposes mainly in the field of marketing (including hotels and retail stores) and environmental psychology to explain an individual's affective, cognitive and behavioral responses (El Sayed, Farrag, & Belk, 2003); (Baker & Cameron, 1996); (Turley & Milliman, 2000). Adding to this (Riley, 1994) states that the satisfaction of customers is positively influenced by the physical environment which in turn influences the behavioral intentions of customers. So (Chishti, 2013) is of the view that to maximize satisfaction, restaurateurs need to improve their standards of the physical environment and service quality. Also, some studies have shown the direct effect of restaurant-quality attributes on the behavioral intentions of customers (Ryu & Han, 2010). Some studies suggested that the relationship between quality attributes and behavioral intentions (i.e., word-of-mouth and return intentions) of customers are linear and positive (DiPietro, Parsa & Gregory, 2011). While according to some studies, the increase in quality attributes (food, service and ambience quality) of a restaurant may not always lead to an increase in the behavioral intentions of customers. In other words, there is a non-linear relationship between restaurant quality attributes and behavioral intentions (Bowen & Shoemaker, 1998). Based on these grounds, it is not only important but crucial for restaurateurs or restaurant managers to know which factors of physical environment influence customers' satisfaction and behavior.

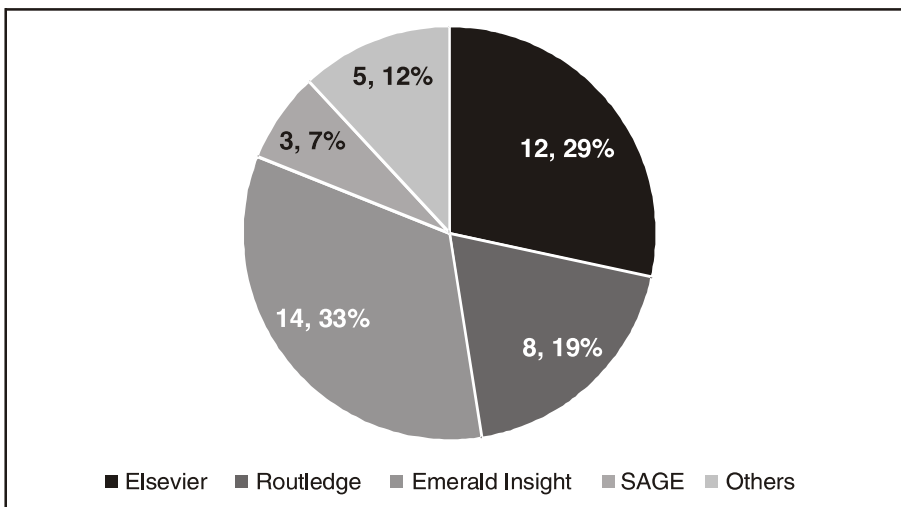
Although many researchers have published papers on the impact of atmospherics/physical environment on consumer behavior and satisfaction, but they are mostly confined to one or a few dimensions (e.g. music, aroma, interior design) (Mattila & Wirtz, 2001); (Wardono, Hibino & Koyama, 2012); (Robson

& Kimes, 2007); (Sun, 2013). Since, the physical environment of a restaurant is one of the crucial elements depicting consumer satisfaction and behavior, there is a need to understand all the attributes (dimensions) to unveil the research question: which important attributes are considered by customers while dining out?

## RESEARCH METHODOLOGY

The authors have conducted a systematic literature review on atmospherics driving customers' satisfaction and behavioral intentions in restaurants. The first step for the review was to recognize keywords and for this, the online databases were searched with expressions such as restaurant atmospherics, physical environment, ambience, restaurant atmosphere, physical surroundings, customer satisfaction and behavioral intentions. These keywords were then searched within research articles, author keywords and abstracts. Among the plethora of studies, the authors have collected 315 articles from different databases. After those 200 articles were rejected on the ground of having undefined journals or low-quality journals and some proceeding papers have been eliminated. Only 42 research articles were selected from the remaining and the rest were rejected as those studies were not pertinent to this review paper.

**Figure 1**  
**Different Type of Database Used for Collection of Articles**



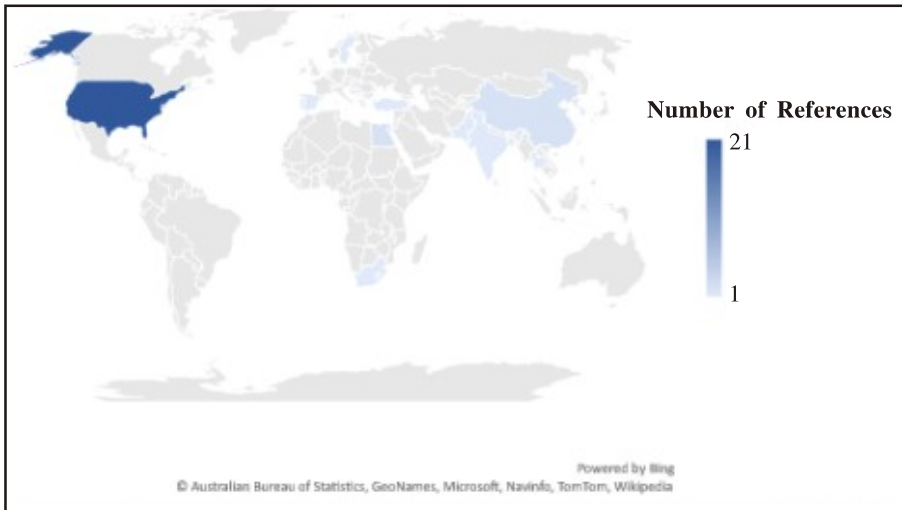
Source(s) : Personal Elaboration by Authors



Well-known publication databases were focused to extract research articles such as Elsevier, Emerald Insight, Routledge, SAGE. These databases have been selected as they provide standard quality or high-quality publications and have wide coverage of journals. Most of the articles used in this study are published under Emerald Insight (14 articles) followed by Elsevier, Routledge, SAGE, and others.

Figure 2 shows that the highest percentage of contribution involving restaurant atmospherics is in the U. S (21 articles) specifically in Pennsylvania, Florida and Las Vegas. Other studies have been conducted in countries namely, Hong Kong, Indiana, Spain, Egypt, Turkey, Korea, China, Sweden, India, Serbia, South Africa, Taiwan, Pakistan and Thailand to analyse atmospherics driving customers' satisfaction and behavioral intentions in restaurants. Authors are able to collect many quality research articles from U.S (Weiss, Feinstein, & Dalbor, 2004); (Andaleeb & Conway, 2006); (Countryman & Jang, 2006); (Ryu & Jang, 2007); (Namkung & Jang, 2008); (Ryu & Jang, 2008); (Jang & Namkung, 2009); (Liu & Jang, 2009); (Liu & Jang, 2009); (Ryu, Han, & Jang, 2010); (Barber, Goodman, & Goh, 2011); (Jang, Liu, & Namkung, 2011); (Ha & Jang, 2012); (Harrington, Ottenbacher, Staggs, & Powell, 2012); (Ryu, Lee, & Kim, 2012); (Bujisic, Hutchinson, & Parsa, 2014); (Chua, Jin, Lee, & Goh, 2014); (Hyun & Kang, 2014); (Bufquin, Partlow, & DiPietro, 2015); (Liu & Tse, 2018); (Wu, He,

**Figure 2**  
**Geographical Areas Investigated by Selected Publications**

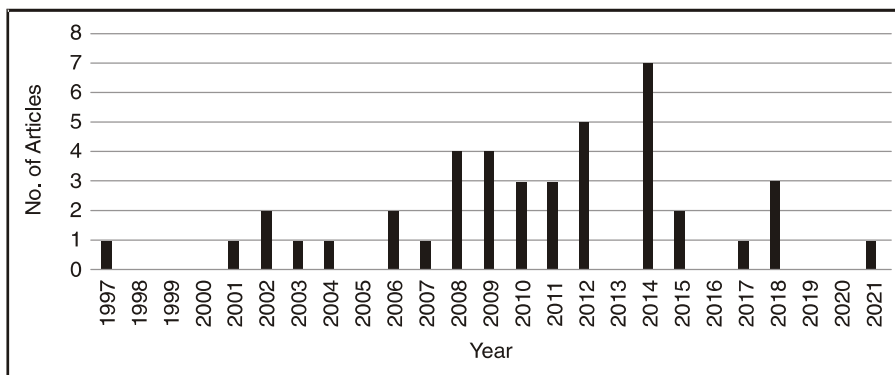


Source(s) : Personal Elaboration by Authors

King & Mattila, 2021). Two articles each were found to be conducted in Egypt and China. The data itself shows that a significant number of studies have been conducted in a foreign context and there is a dearth of research related to restaurant atmospherics from India.

Figure 3, shows the publication timeline of articles, unveiling that majority of the articles were published in the years 2008, 2009, 2012, and 2014. Out of these, the year 2014 recorded the highest number of articles. Though the publications investigated in this study range from 1997 to 2021, there were some publications published before 1997 on physical environment or atmospherics (Kotler, 1973); (Booms & Bitner, 1982); ( Bitner, 1992);. In the past few years, various new elements of atmospherics have been added to the restaurants like menu design, dining equipment, so these studies (published before 2000) have been excluded from this research so that the present-day scenario regarding the effect of atmospherics on customer satisfaction and behavioral intentions can be judged.

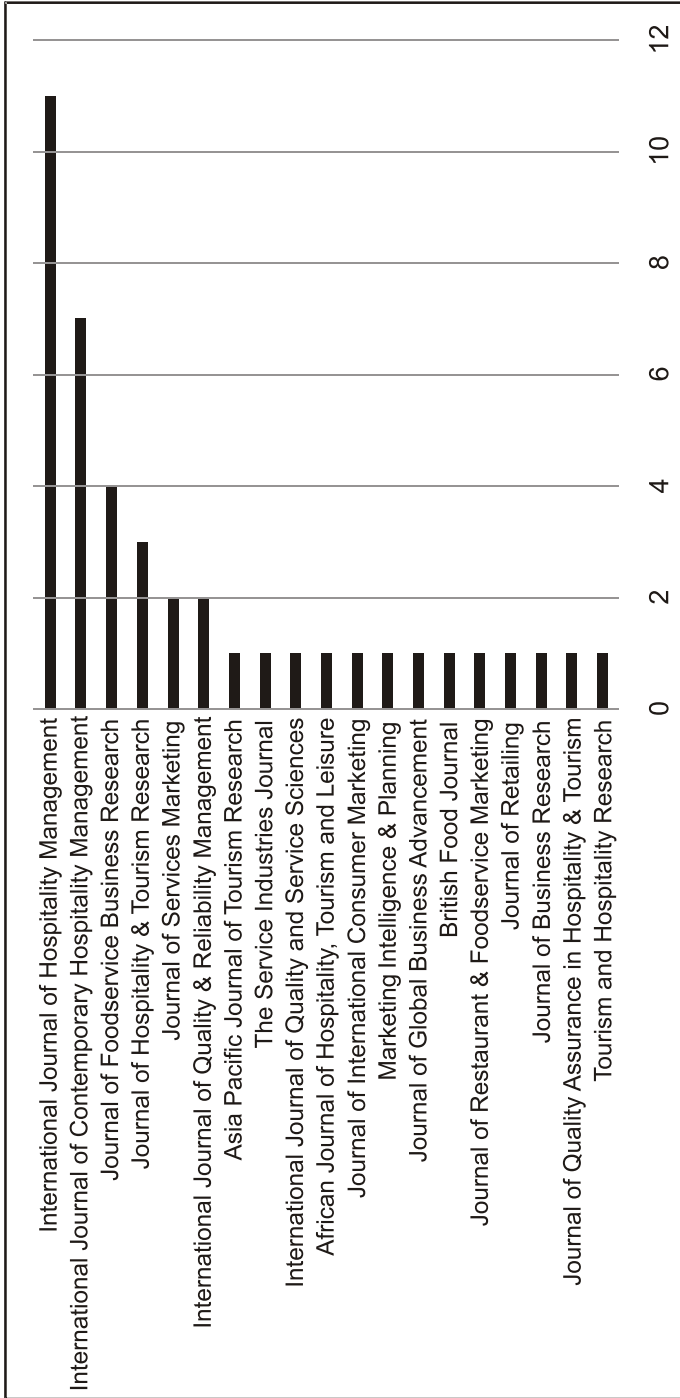
**Figure 3**  
**Publication Timeline**



Source(s) : Personal Elaboration by Authors

In the selection of articles for systematic review, the basic consideration for authors was to select quality publications. The articles were not included in this study which does not confine to the standard of quality. Many articles were accumulated from *International Journal of Hospitality Management* (11 articles, 29%); *International Journal of Contemporary Hospitality Management* (7 articles, 17%); *Journal of Foodservice Business Research* (4 articles, 10%); *Journal of Hospitality & Tourism Research* (3 articles, 7%).

**Figure 4**  
**Publishing Journals**



Source(s) : Personal Elaboration by Authors

Summary Table of Key Atmospheric Studies

S. No.	Author	Country	Sample	Research Methodology	Independent Variables	Dependent Variables	Mediating Variables	Moderating Variables	Findings
1.	Qu, 1997	U.S.	124 Customers	Systematic Sampling Factor and Multiple Regression Analysis	Food and Environment, Price and value, Service and courtesy, location and advertising and promotion	Return Intention	—	—	'Food and Environment' put a major influence on customers' return intention.
2.	Mattila & Wirtz, 2001	—	270 Customers	ANOVA	Scent and Music	Pleasure, Store Environment, Approach, Satisfaction, and Impulse Buying	—	—	When arousal levels of music and scent are matched with each other, consumers react more positively with enhanced satisfaction and impulse buying behaviour.
3.	Heung, 2002	Hong Kong	180 Respondents	Systematic Sampling Independent t-Tests One-Way ANOVA	Food, Price, Service, Attraction and Environment	Selection of American Theme Restaurants	—	—	Restaurant dimensions that are taken into consideration by customers for selection are food quality, value for money, word-of-mouth, atmosphere, and servers' attitude.

4.	Soriano, 2002	Spain	3872 Customers	Multiple Range Tests	Quality of Food, Quality of Service, Place/ Ambience, and Value/Cost of the Meal	Customers' Decision to Return	—	—	The most important attribute rated by customers is food quality, followed by service quality, value/cost of the meal, and ambience/place.
5.	Sayed, Farrag, & Belk, 2003	Alexandria and Cairo, Egypt	308 Respondents	Convenience Sampling ANOVA ANCOVA T-test	Background Music, Crowdedness, Interior Design, Lighting, and Location	Behavioral Intentions	—	Transient Market-place Emotions	The amount of customer pleasure, arousal, and dominance (PAD) experienced are affected by background music, crowd, lighting, and location.
6.	Weiss, Feinstein, & Dalbor, 2004	Las Vegas, U.S.	172 Restaurant Patrons	Convenience Sampling General Linear Model Analysis	Food Quality, Atmosphere, Service Quality, and Novelty	Return Intention	—	—	The atmosphere and food quality found to be the two significant attributes influencing the return intention of customers.
7.	Andaleeb & Conway, 2006	Pennsylvania, U.S.	119 Respondents	Random Sampling Judgement Sampling Multiple Regression Analysis Factor Analysis	Physical Design, Price, Food Quality / Reliability, and Responsiveness	Customer Satisfaction	—	—	Satisfaction of customers is influenced by responsiveness, afterward price, and then food quality.  Appearance and physical design have no significant effect on customer satisfaction.

8.	Countryman & Jang, 2006	U.S.	102 Research Participants	Convenience Sampling Structural Equation Modeling	Layout, Style, Lighting, Color, and Furnishings	First Impression	—	—	Three atmospheric elements (lighting, style, and color) found to be significantly related to the overall impression.
9.	Ryu & Jang, 2007	U.S.	253 Customers	Convenience Sampling Structural Equation Modeling	Facility aesthetics, ambience, lighting, employees, layout, and dining equipment	Behavioral Intentions	Pleasure and Arousal	—	The level of customer pleasure is influenced by employees, ambience, and facility aesthetics while customer arousal is only influenced by employees and ambience. Also, arousal and pleasure have a significant influence on behavioral intentions.
10.	Ladhari, Brun, & Morales, 2008	—	338 Students	Convenience Sampling Structural Equation Modeling	Perceived Service Quality (Tangibles, Assurance, Reliability, and Responsiveness)	Customer Satisfaction (Loyalty, Recommendation, and Willingness to Pay More)	Emotions (Positive and Negative)	—	The results unveil three key sources of customer satisfaction namely, perceived service quality, positive and negative emotions.
11.	Namkung & Jang, 2008	U.S.	287 Respondents	Logistic Regression	Food, Service, and Atmospherics	Highly Satisfied Customers	—	—	Attributes such as appealing food presentation, spatial seating arrangement, tasty food, pleasing background music, fascinating interior design, competent employees,

									reliable and responsive service found to be important in increasing the satisfaction level of customers.			
12.	Ryu & Jang, 2008	U.S.				319 Respondents	Exploratory Factor Analysis	Facility Aesthetics, Ambience, Layout Service Staff, Lighting, and Table Settings	Behavioral Intention	Pleasure and Arousal	—	From the customer viewpoint, DINESCAPE is a reliable and valid scale for human and physical surroundings in upscale restaurants situation.
13.	Ryu & Jang, 2008	—				3 Upscale Restaurants 253 Customers	Convenience Sampling Structural Equation Modeling	Facility Aesthetics, Lighting, Ambience, Dining Equipment, Layout, and Employees	Behavioral Intention	Pleasure and arousal	—	Customer pleasure is significantly affected by layout, ambience, and facility aesthetics while the level of arousal is affected by facility aesthetics and employees.  In addition, the Direct influence of employees and facility aesthetics is found on Behavioral intentions.
14.	Jang & Namkung, 2009	U.S.				290 Respondents	Structural Equation Modeling	Product, Service, and Atmospherics	Behavioral Intentions	Customer Emotions (Positive and Negative)	—	Service and atmospherics exhibit a higher level of positive emotions in customers whereas product attributes relieve them from negative emotional responses.

15.	Kim, Ng, & Kim, 2009	—	770 Respondents	Stratified Sampling Factor Analysis Correlation Analysis ANOVA and Multiple Regression Analysis	Food Quality, Service Quality, Atmosphere, Convenience and Value, and Price	Customer Satisfaction, Word-of-Mouth, and Return Intention	—	—	A significant and positive effect of all institutional DINESERV factors is found on customers' revisit intentions and overall satisfaction.
16.	Liu & Jang, 2009	U.S.	3 Casual Dining Chinese Restaurants 348 Customers	Convenience Sampling Structural Equation Modeling	Interior Design, Ambience, Human Elements and Spatial Layout	Behavioral Intention	Perceived Value, Positive and Negative Emotions	—	Customers' perceived value, positive and negative emotions are significantly influenced by dining atmospherics. Further negative and positive emotions and perceived value influence post dining behavioral intentions of customers.
17.	Liu & Jang, 2009	U.S.	3 Casual-Dining Chinese Restaurants 284 Respondents	Importance-Performance Analysis Multiple Regression	Food, Atmospherics, Service, and Other Attributes	Customer Satisfaction and Behavioral Intentions	—	—	To create customer satisfaction and positive behavioral intentions towards dining three attributes namely, environmental cleanliness, service reliability, and food quality are



18.	Kincaid, Baloglu, Mao, & Busser, 2010	Turkey	150 Students	Convenience Sampling Path Analysis	Food and Service, Ambience and Social, Staff, Accessibility and Cleanliness	Repatronage Intentions	Restaurant Patrons' Affect	—	The accessibility and food and service construct exhibit a positive relationship with affect, which in turn impact the Repatronage intentions of customers.
19.	Ryu & Han, 2010	—	341 Respondents	Convenience Sampling Hierarchical Multiple Regression Analysis	Quality of Service, Food, and Physical Environment	Customer Satisfaction and Behavioral Intentions	—	Perceived Price	Physical environment and quality of service and food are determining factors of customer satisfaction. Adding to this, in the satisfaction formation process, perceived price acts as a moderator.
20.	Ryu, Han, & Jang, 2010	U.S.	395 Respondents	Structural Equation Modeling	Hedonic and Utilitarian Value	Behavioral Intention	Customer Satisfaction	—	The influence of utilitarian value is more on behavioral intentions and customer satisfaction in comparison to hedonic value. Also, customer satisfaction shows an influence on behavioral intentions and acts as a mediator between utilitarian/hedonic value and behavioral intentions.
21.	Barber, Goodman, & Goh, 2011	U.S.	280 Respondents	Exploratory Factor Analysis	Restaurant Interior, Employees, Restrooms, and	Repeat Patronage	—	—	Return/repeat intentions of customers are based on cleanliness attributes.

			t-tests	Building Exterior						
22.	Jang, Liu, & Namkung, 2011	U.S.	3 Casual Dining Chinese Restaurants 348 Respondents	Convenience Sampling Structural Equation Modeling Regression Analysis	Chinese-style Furnishings, Chinese Music, Painting, Table Setting, and Menu Presentation	Behavioral Intentions	Positive and Negative Emotions	—	Both emotions act as mediators between behavioral intentions and authentic atmospherics. Furnishings influence positive emotions whereas music and menu presentation elicits both positive and negative emotions.	
23.	Ryu & Han, 2011	Seoul, Korea	3 Upscale Restaurants 300 Respondents	Convenience Sampling Structural Equation Modeling	Facility Aesthetics, Layout, Lighting, Ambience, Service Staff, and Table Settings	Customer Loyalty and Customer Satisfaction	Disconfirmation	First-Timers and Repeat Customers	Facility aesthetics, service staff, and lighting are significant determinants of both repeat visitors' and first-timers' perceived disconfirmation. While Table settings and layout are significant predictors of repeaters' perceived disconfirmation.	
24.	C.S. Heung & Gu, 2012	Hong Kong, China	10 Upscale and Middle Full-service Restaurants	Convenience Sampling Multiple	Facility Aesthetics, Spatial Layout, Ambience, View from	Behavioral Intentions and Dining Satisfaction	—	—	Patrons' Behavioral intentions and dining satisfaction are significantly influenced by restaurant atmospherics.	

					the Window, and Employee Factors	Regression Analysis Factor Analysis	118 Respondents					
25.	Ha & Jang, 2012	U.S.	607 Respondents		Interior Design, Layout, and Music	Multiple Regression Analysis Structural Equation Modeling			Behavioral Intentions	Service Quality and Food Quality	—	Atmospherics can influence behavioral intentions through quality perception in both direct and indirect ways.
26.	Harrington, Ottenbacher, Staggs, & Powell, 2012	U.S.	459 Respondents		—	Convenience Sampling Non-parametric Tests			Positive and Negative Experiences	—	—	Based on the results of the descriptive survey, quality of service, quality of food/drink, friendliness of staff, speed of service, and atmosphere are the main drivers of positive experience in restaurants. Whereas, speed and quality of service, cleanliness, friendliness of staff and quality of food/drink are main drivers of negative experience.
27.	Ryu, Lee,	U.S.	300 Res-		Service, Food,	Structural			Behavioral	Customer	—	Quality of food, service,

	& Kim, 2012		pondents	Equation Modeling	and Physical Environment	Intentions	satisfaction restaurant image, and customer perceived value	and physical environment are found to be significant predictors of restaurant image. Also, the quality of the physical environment and food are significant determinants of customer perceived value.
28.	Walter & Edvardsson, 2012	Sweden	122 Interviews (195 Narratives)	Critical Incident Technique Constant Comparative Principles	Physical and Intangible Artefacts and Customer Placement	Customer Service Experience	—	For customers, the physical environment is found to be an important driver affecting their restaurant service experience.
29.	Ali & Amin, 2014	China	170 Customers	Convenience Sampling Structural Equation Modeling	Physical Environment	Behavioral Intentions	Emotions and Customer Satisfaction	The strongest and positive influence of the physical environment is found on customer emotions and the weakest influence is found on behavioral intentions. Furthermore, behavioral intentions and customer satisfaction are significantly influenced by customer emotions.

30.	Bujisic, Hutchinson, & Parsa, 2014	Florida, U.S.	540 Students ANOVA MANOVA	Experimental Design	Food, Ambience, and Service	Behavioral Intentions (Word-of-mouth and Return Intentions)	—	Restaurant Type (Upscale and Quick Service)	The results unveil that the relationship between ambience quality, restaurant service, and behavioral intentions are moderated by the type of restaurant.
31.	Chua, Jin, Lee, & Goh, 2014	U.S.	368 Full-service Restaurant Customers	Structural Equation Modeling	Mechanic Clues	Behavioral Intentions	Functional Clues, Humanic Clues, and Experiential Value	—	Humanic and functional clues are positively and significantly affected by mechanic clues. Also, customers' experiential values are positively and significantly influenced by humanic and functional clues. Lastly, the results unveil a positive relationship between customers' behavioral intentions and functional clues.
32.	Dutta, Parsa, & Bujisic, 2014	New Delhi and NCR, India	308 Respondents	ANOVA	Food Quality, Ambience, and Service	Willingness to Pay and Consumer Patronage	Type of Restaurant and Level of Service Attributes	—	In high-end restaurants, preference is given to quality over service whereas service takes advantage over ambience in quick-service establishments.

33.	Hyun & Kang, 2014	U.S.	379 Luxury Restaurant Patrons	Structural Equation Modeling	Environmental Cues (Décor and Artifacts, Ambient Conditions and Spatial Layout) and Non-environmental Cues (Service Quality, Food Quality, Location and Price)	Behavioral Intentions	Arousal and Pleasure	Motivational Orientation and Hedonism	Environmental cues have a more stronger effect on patrons' arousal. Further among environmental cues, ambient conditions are most influential which drives patrons' arousal.
34	Marinkovic, Senic, Ivkov, Dimitrovski & Bjelic, 2014	Kragujevac, Serbia	218 Respondents	Structural Equation Modeling	Atmosphere, Price, and Quality of Interaction	Revisit Intention	Customer Satisfaction	—	Guest satisfaction is significantly impacted by the quality of interaction and atmosphere. Perceived price does not impact the satisfaction level of customers. In addition, perceived price and atmosphere along with satisfaction emerged as important triggers of revisit intentions.
35.	Petzer & Mackay, 2014	South Africa	250 Restaurant Diners Hierarchical	Convenience Sampling	Service and Food Quality and Dining Atmospherics	Customer Satisfaction	—	—	Customer satisfaction is significantly influenced by food quality followed by quality of service and dining

									atmospherics respectively.	
36.	Bufquin, Partlow, & DiPietro, 2015	U.S.	Multiple Regression Analysis	209 Respondents	Importance-Performance Analysis	Food, Service, Social, Atmosphere, and Health	Customers' Expectations and Perceptions	—	—	Service, atmosphere, and food are found to be vital attributes for consumers while social and health attributes are not.
37.	Tsaur, Luoh, & Syue, 2015	Taiwan		320 Customers	Convenience Sampling Structural Equation Modeling	Aesthetic Labor, Food Quality, Service Quality, and Atmospherics	Behavioral Intention	Positive Emotion	—	Aesthetic labor significantly and positively influences behavioral intentions and positive emotions but only in the absence of control variables. (Service, food, and atmospherics) In addition, the relationship between behavioral intentions and aesthetic labor is not mediated by positive emotions.
38.	Baiomy, Jones, & Goode, 2017	Egypt		312 Customers	Convenience Sampling Multiple Regression	Menu Item Descriptions, Menu Variety, and Menu Design	Customer Satisfaction	—	—	All three variables namely, menu design, menu item descriptions, and menu variety help to predict the overall satisfaction of customers with the menu.
39.	Liu & Tse, 2018	U.S.		413 Respondents	Path Analysis	Food, Price and Value, Service, Atmosphere, and Convenience	Behavioral Intention	Customer Satisfaction	—	For customers, prompt service, accurate guest check, lighting, and dining experience are very important.

40.	Shahzadi, Malik, Ahmad & Shabbir, 2018	Pakistan	296 Customers	Non-probability Sampling Regression Analysis Gap Analysis	Food-related, Atmospherics-related, Service-related, and Other Attributes	Behavioral Intentions	Customer Satisfaction	—	Based on path analysis, service, food and price, and value are directly and positively related to customer satisfaction except for the convenience dimension. The positive impact of restaurant attributes especially service quality is found on customers' behavioral intentions leading to positive word of mouth. Also, the relationship between key restaurant attributes and behavioral intentions is mediated by customer satisfaction.
41.	Tantanatewin & Inkarojrit, 2018	Thailand	496 Respondents	Convenience Sampling Logistic Regression Analysis	Interior Color	Restaurant Entry Decision	PAD Emotional Response		Pleasure is foremost in predicting the behavioral response. Also, restaurants with warm or high-value colors increase the amount of pleasure among customers.
42.	Wu, He, King, & Mattila, 2021	U.S.	576 Respondents	Moderated-moderated Mediation Analysis	Focal Lighting	Approach Intentions (Perceived Attractiveness and Visit Intention)	Ambient Intimacy	General Lighting and Relational Intimacy	When focal lighting is added to the overall dim lighting condition, it enhances the customers' perception of ambient intimacy.

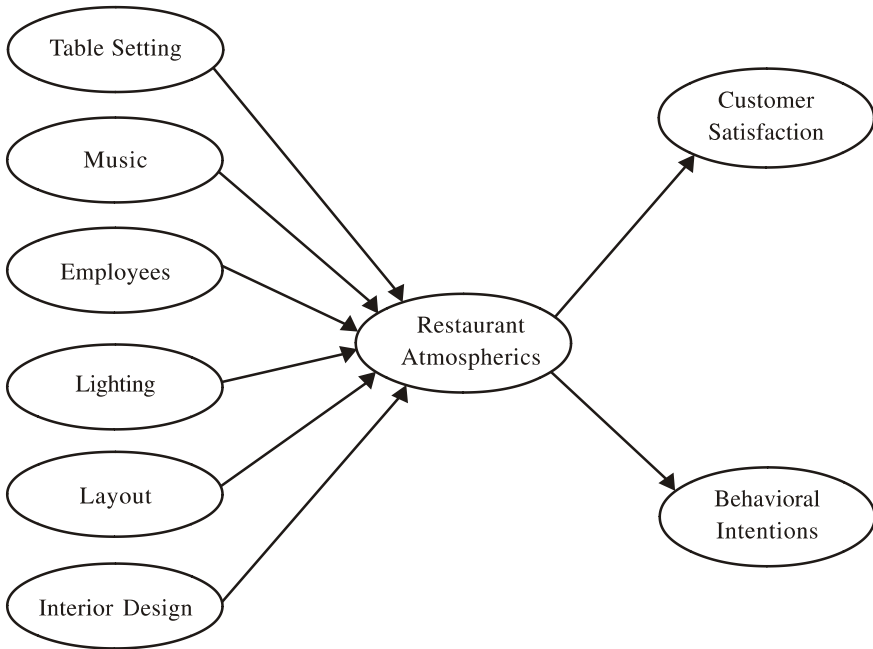


With the help of literature analysis, the authors explored six atmospherics variables from the past 42 studies that affect customers' behaviour and satisfaction. The variables are Table setting, music, employees, layout, lighting and interior design as shown in Table below :

**Table 1**  
**Atmospheric Variables Strongly Influencing Customer Behavior**

Atmospheric Variable	Authors	Effect
Table Setting	Ryu & Jang, 2007; Ryu & Jang, 2008; Ryu & Jang, 2008; Jang, Liu, & Namkung, 2011; Ryu & Han, 2011	<ul style="list-style-type: none"> <li>• Behavioral Intentions</li> <li>• Customer Loyalty</li> <li>• Customer Satisfaction</li> <li>• Pleasure and Arousal</li> <li>• Positive and Negative Emotions</li> <li>• Disconfirmation</li> </ul>
Music	Mattila & Wirtz, 2001; Sayed, Farrag, & Belk, 2003; Namkung & Jang, 2008; Jang & Namkung, 2009; Jang, Liu, & Namkung, 2011; Ha & Jang, 2012; Ryu, Lee, & Kim, 2012; Tsaur, Luoh, & Syue, 2015	<ul style="list-style-type: none"> <li>• Pleasure</li> <li>• Approach</li> <li>• Environment</li> <li>• Impulse Buying</li> <li>• Customer Satisfaction</li> <li>• Positive and Negative Emotions</li> <li>• Service Quality</li> <li>• Food Quality</li> <li>• Restaurant Image</li> <li>• Customer Perceived Value</li> <li>• Behavioral Intention</li> </ul>
Employees	Ryu & Jang, 2007; Ryu & Jang, 2008; Ryu & Jang, 2008; Liu & Jang, 2009; Kincaid, Baloglu, Mao, & Busser, 2010; Barber, Goodman, & Goh, 2011; Ryu & Han, 2011; C.S. Heung & Gu, 2012; Ryu, Lee, & Kim, 2012; Bufquin, Partlow, & DiPietro, 2015; Tsaur, Luoh, & Syue, 2015	<ul style="list-style-type: none"> <li>• Behavioral Intentions</li> <li>• Pleasure and Arousal</li> <li>• Perceived Value</li> <li>• Positive and Negative Emotions</li> <li>• Repatronage Intentions</li> <li>• Restaurant Patrons' Affect</li> <li>• Customer Loyalty</li> <li>• Customer Satisfaction</li> <li>• Disconfirmation</li> <li>• Restaurant Image</li> <li>• Customers' Expectations and Perceptions</li> </ul>

Lighting	Sayed, Farrag, & Belk, 2003; Countryman & Jang, 2006; Ryu & Jang, 2007; Ryu & Jang, 2008; Ryu & Jang, 2008; Jang & Namkung, 2009; Ryu & Han, 2011; Petzer & Mackay, 2014; Bufquin, Partlow, & DiPietro, 2015; Tsaur, Luoh, & Syue, 2015; Wu, He, King, & Mattila, 2021	<ul style="list-style-type: none"> <li>• Behavioral Intentions</li> <li>• First Impressions</li> <li>• Pleasure and Arousal</li> <li>• Positive and Negative Emotions</li> <li>• Customer Loyalty</li> <li>• Customer Satisfaction</li> <li>• Disconfirmation</li> <li>• Customers' Expectations and Perceptions</li> <li>• Perceived Attractiveness</li> <li>• Visit Intention</li> <li>• Ambient Intimacy</li> </ul>
Layout	Countryman & Jang, 2006; Ryu & Jang, 2007; Namkung & Jang, 2008; Ryu & Jang, 2008; Ryu & Jang, 2008; Jang & Namkung, 2009; Liu & Jang, 2009; Ryu & Han, 2011; C.S. Heung & Gu, 2012; Ha & Jang, 2012; Hyun & Kang, 2014; Petzer & Mackay, 2014; Tsaur, Luoh, & Syue, 2015	<ul style="list-style-type: none"> <li>• First Impression</li> <li>• Behavioral Intentions</li> <li>• Pleasure and Arousal</li> <li>• Customer Satisfaction</li> <li>• Positive and Negative Emotions</li> <li>• Perceived Value</li> <li>• Customer Loyalty</li> <li>• Disconfirmation</li> <li>• Service Quality</li> <li>• Food Quality</li> </ul>
Interior Design	Heung, 2002; Sayed, Farrag, & Belk, 2003; Andaleeb & Conway, 2006; Namkung & Jang, 2008; Jang & Namkung, 2009; Liu & Jang, 2009; Barber, Goodman, & Goh, 2011; Jang, Liu, & Namkung, 2011; Ryu & Han, 2011; Ha & Jang, 2012; Ryu, Lee, & Kim, 2012; Walter & Edvardsson, 2012; Ali & Amin, 2014; Hyun & Kang, 2014; Petzer & Mackay, 2014; Tsaur, Luoh, & Syue, 2015; Tantanatewin & Inkarojrit, 2018	<ul style="list-style-type: none"> <li>• Selection of Restaurants</li> <li>• Behavioral Intentions</li> <li>• Customer Satisfaction</li> <li>• Positive and Negative Emotions</li> <li>• Perceived Value</li> <li>• Repeat Patronage</li> <li>• Disconfirmation</li> <li>• Customer Loyalty</li> <li>• Food Quality</li> <li>• Restaurant Image</li> <li>• Customer Service Experience</li> <li>• Arousal and Pleasure</li> <li>• Restaurant Entry Decision</li> <li>• PAD Emotional Response</li> </ul>



## RESEARCH MODEL

### Managerial Implications

The results of the present study offer some insights to restaurateurs/ restaurant managers. Making a business successful especially restaurant, requires a tireless efforts, meticulous planning, creativity and timely execution. Now, the quality of food is not the only element influencing the dining experience of customers, there's a lot of other things to keep in mind for making a restaurant business successful. With the help of this study, the restaurateurs will understand the importance of restaurant atmospherics in retaining and approaching more customers. Also, it is stated by (Liu & Tse, 2018) that prompt service, accurate guest check, lighting and dining experience are very important for customers. To be more precise, tangible restaurant atmospherics such as employees, table setting and layout have more influence on customers whereas, temperature and scent are less effective in influencing customers (Walter & Edvardsson, 2012). Moreover, the customers of a restaurant not only use the physical environment/atmospherics but also create one. Like for example, some customers may get irritated by the loud volume of the music, leading to unfavourable dining experience, but for some it could be a favourable experience

if the volume and genre fits their taste. So, the managers apart from functional dimension, must consider the emotional and social dimension, as it is difficult to design. Therefore, both unfavourable and favourable experience of customers must be kept in mind while designing restaurant services. Also, based on extensive literature, music is found to be a significant element influencing pleasure, satisfaction and behavioral intentions. The results from the present study states that apart from better services being offered to restaurant customers, the atmospherics of a restaurant occupies a vital position in facilitating customer feelings. An aesthetically comfortable and pleasing atmospherics plays an important role in satisfying hedonic needs of customers, influencing post-dining behavioral intentions and improving overall value of restaurant. Furthermore, it is not enough for restaurateurs/managers to know that atmospherics affects the customer experience but which elements of atmospherics are important should be their main concern. Thus, with the help of this paper, the restaurateurs will be able to create a perfect atmosphere for their customers focusing more on the elements which affects their satisfaction and behavioral intentions. Further this would surely lead to walking in and retaining of more customers and would also increase the profitability of the restaurant.

## RESULT / CONCLUSION

In meta-analysis, the purpose of effect size is to combine all different studies in single analysis. In this study, **Critical** value of chi square with  $df = 41$  is 56.942. The value of  $Q$  (total variance) is = 56.22, which is less than 56.942, so we fail to reject the null hypothesis of homogeneity. Further, the random effect model is applied which assumes that the population drawn differ from each other. The value of effect size in random effect model is 0.4442 (95% CI = 0.345,0.542,  $df = 41$ ).

Through a systematic literature review, this research paper highlights the importance of restaurant atmospherics influencing the satisfaction and behavioral intentions of customers. The authors have identified some important attributes of restaurant atmospherics which could help restaurateur's or academicians. Many studies have been conducted and focused on various attributes of restaurant's physical environment/atmospherics that have a significant influence on emotions, satisfaction and behavioral intentions of customers e.g., (C.S. Heung and Gu, 2012). Facility aesthetics, service staff and lighting are main determinants of repeat visitors and first timers' perceived disconfirmation (Ryu & Han, 2011). Further, Furnishings of a restaurant can separate a restaurant from its competitors making it an important attribute.

During this coronavirus pandemic, this importance has taken a step ahead as customers now want proper spacing. Furnishings also influence positive emotions which acts as mediator between behavioral intentions and atmospherics ( Jang, Liu, & Namkung, 2011). Another important element which would attract or retain more customers is music. Right genre of music will evoke emotions in customers which in turn would affect their ordering as well as time spending in the restaurants. Further, if we talk about lighting, it has various aspects such as general lighting, focal lighting. The lighting can be a powerful tool to attract more customers and influence the customers perception regarding ambient intimacy ( Wu, He, King, & Mattila, 2021). Adding to this, it is said that interior design of a restaurant impacts the psychology of customers. It can make them eat fast, stay more, order less or vice-versa. One of the main components of interior design is color. It should be chosen with care and should match with the theme and concept of the restaurant. ( Tantanatewin & Inkarojrit, 2018) stated that the pleasure among customers increases if the restaurant has warm (e.g., cream) or high-value colors. Lastly, one of the essential tangible elements which has been overlooked by many academicians is table setting. The way everything is presented or set up on table can make customers happy or give them a feeling that they are in a prestigious or an elegant environment (Ryu & Jang, 2008). So, through this extensive literature review, we can conclude that the main attributes influencing customer satisfaction and behavioral intentions are table setting, music, employees, lighting, layout and interior design.

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