

# THE MARKETING OF SCENT: THE EFFECT OF AMBIENT SCENT ON RESTAURANT CUSTOMERS' BEHAVIOR IN ARMENIA

Submitted to

American University of Armenia

Manoogian Simone College of Business and Economics

In partial fulfillment of the requirements for the degree of BA in Business

By: Lusine Apresyan

Supervisor: Dr. Theofanis Varvoglis



Yerevan 2020

## **Abstract**

The research aims to study the effect of ambient scent on customers in restaurants in Armenia, investigating the impact of restaurant olfactory cues on customers' evaluation of restaurants and their experience. By studying whether customers pay attention to ambient scents in the restaurant environment and by analyzing whether customers are aware of the scent present in the restaurant, the study further tests if customers' attention to scent and given importance to it influences customers' overall evaluations of restaurants. In addition to quantitative data collection through online surveys, in-depth interviews were also conducted with the managers of a number of scented restaurants. The results of the study show that ambient scents influence customer evaluations of restaurants, while also affecting their restaurant experience. It was also revealed that the importance attached to scents in restaurant environment has an impact on customers' evaluations, and particularly, females, compared to males, were found to use restaurant olfactory cues more for making evaluations.

**Keywords:** *restaurant atmospherics, ambient scent, customer behavior, restaurant experience*

## **ACKNOWLEDGEMENTS**

I would like to express my sincere gratitude to my supervisor Dr. Theofanis Varvoglis for his guidance and assistance during my research project.

## Table of Contents

<b>Abstract .....</b>	<b>2</b>
<b>1. Introduction .....</b>	<b>5</b>
1.1. Research context .....	5
1.2. Research question .....	6
<b>2. Literature Review .....</b>	<b>6</b>
2.1 Emotions.....	6
2.2. Behavior, perception and evaluation .....	8
2.3. Memory .....	10
2.4. Restaurant atmospherics and customer behavior .....	11
2.5. The perception of flavor .....	12
2.6. Ambient scent and customer behavior in restaurants .....	12
<b>3. Hypothesis Development .....</b>	<b>13</b>
<b>4. Methodology .....</b>	<b>15</b>
4.1. Research design.....	15
4.2. Questionnaire design and measures .....	16
4.3 Data collection .....	18
4.4. Data analysis .....	18
<b>5. Results.....</b>	<b>19</b>
5.1. Sample Profiles.....	19
5.2. Analysis of scent preferences.....	20
5.3. Customer awareness of the scent .....	24
5.4. Analysis of constructs.....	26
5.4.1. Reliability analysis .....	26
5.4.2. Descriptive statistics of constructs .....	26
<b>6. Testing Hypotheses .....</b>	<b>30</b>
<b>8. Qualitative research design and analysis .....</b>	<b>36</b>
<b>9. Conclusion .....</b>	<b>42</b>
<b>10. Managerial implications .....</b>	<b>44</b>
<b>11. Limitations and future research .....</b>	<b>44</b>
<b>References.....</b>	<b>46</b>
<b>Appendix A. Survey Questionnaire .....</b>	<b>49</b>

<b>Appendix B. Demographic profiles according to Segment population .....</b>	<b>57</b>
<b>Appendix C. Interview Questions .....</b>	<b>58</b>

# **1. Introduction**

## *1.1. Research context*

With the aim to constantly enrich customer experience, nowadays many firms are concentrating their efforts more on the improvement of the intangible attributes of the physical environment where purchase or consumption of products and service takes place. Besides having an impact on customer experience, the buying environment, also referred to as atmospherics, can be designed in a way to influence customers' behavior (Kotler, 1974). Being the critical part of the consumption package, the different atmospheric cues present in the environment can serve as a mean of conveying information about quality and a way of drawing customer attention, as well as impact customers' emotions through touching their senses.

The extensive research in the field of sensory marketing emphasizes the importance of engaging customers' senses to influence their decision-making process, perceptions, and behavior (Krishna, 2011). Among all the senses, olfactory dimension of the sensory marketing has been drawn into researchers' attention in recent years. Due to its physiological connection with certain brain regions, the sense of smell can be considered as one of the key elements of the sensory marketing, evoking strong emotional memories and associations with a product, brand, experience, etc. (Krishna).

The ambient scent, also referred to as "scent that is not emanating from a particular object but is present in environment" is an important part of atmospherics (Spangenberg et al., 1996, p.67). The olfactory cue in retail or service environment can serve as environmental stimuli affecting individuals' emotions and cognition and leading to either approach or avoidance behavior (Donovan & Rossiter, 1982).

### *1.2. Research question*

While there is an extensive amount of research studying the impact of olfactory cues of retail atmospherics on customers, limited research is available about the effects of ambient scents on customer behavior in restaurant settings. In addition to the need to address the gaps in the literature, it is also important to take into account the cultural differences when researching about sensory marketing. As stated by Hulten (2017) the perceptions and preferences of scents differ widely across various cultures. Hence, with the aim to contribute to the literature studying the effects of ambient scents on customer behavior in restaurant settings and also considering the need for the research to be done in different cultures, the research question for the current study is the following:

*What is customers' perspective on ambient scents in restaurants in Armenia?*

## **2. Literature Review**

The effect of ambient scents on customer behavior has been widely researched in recent years. A number of studies have shown how critical the presence of ambient scents in the environment can be for influencing customers affective state, decision-making process, perceptions and evaluations of the brand, as well as behavioral intentions, such as the time spent in the store, intentions to revisit it, thus eventually increasing the probability of purchase.

### *2.1 Emotions*

A number of researchers have investigated the impact of olfactory stimuli on customer behavior through the lens of physiology. As stated by Herz and Engen (1996), the olfactory receptors in the human brain are directly linked to the limbic system, a brain area responsible for emotional

responses and experience of emotions. The limbic system, on the other hand, is also critical for the formation and storage of emotional memory. Among the five human senses, such a strong and direct neurological connection with emotions and emotional memory is unique for the sense of smell, thus odor evoked experiences and associations are strongly tied to emotions.

Furthermore, besides providing customers with better experience and forming emotional connection with them, ambient scents can also influence their behavior through emotions, as customers' affective responses are considered to be a mediating factor between the olfactory stimuli in atmospherics and customer behavior (Donovan & Rossiter, 1982). The stimulus-organism-response (S-O-R) model in the environmental psychology suggests that environmental cues (Stimuli) affect individual's emotional state (Organism), which in turn leads to either approach or avoidance behavior (Response) (Donovan & Rossiter). Classifying two general types of response behavior to environment, approach behavior is customer's positive response to the stimuli with the willingness to physically stay in the environment, to explore it, to communicate with others there and lead to improved performance and satisfaction within it, compared to avoidance behavior, where customer intends to move away from the environment (Donovan & Rossiter).

Examples of approach behavior due to olfactory stimuli based on the previously done studies include increased intention to revisit the store, more time and money spent in the retail setting, etc. (Donovan & Rossiter, 1994; Spangenberg et al., 1996). Moreover, the field experiment conducted by Leenders et al. (2016) in the supermarket suggested that ambient scent positively affected customers' moods, which was found to be a mediator for customers' evaluation of the store.

## *2.2. Behavior, perception and evaluation*

Extending the theoretical S-O-R model, a number of studies have been conducted showing the relationship between ambient scents and customers' behavior and attitudes toward a product/service, brand, retail environment, etc. The ambient scent was found to impact customers' time perception, improve evaluations, increase approach behaviors and customer spending (Rimkute et al., 2016).

The research by Spangenberg, Crowley and Henderson (1996) was done in a simulated store environment where participants were observed with regards to the time spent in the store and the number of products examined. Afterwards, when leaving the store, participants were asked to estimate how long they have been in the store. The study also asked participants to fill in the questionnaire to evaluate the store, its environment and a group of products. While the study was conducted with 26 different scent conditions, the results suggested that the particular type of scent was not as important as the presence of scent in the environment. The research found that ambient scent can influence customers' time perception, as participants tended to underestimate their time spent when ambient scent was present in the environment, while overestimating it when no scent was diffused in the store. Similar effects of scent on customer time perception were also recorded by Leenders, Smidts and El-Haji (2016) in the supermarket setting.

Furthermore, the research findings of Spangenberg et al. suggest that ambient scents can lead to more positive evaluations of the store and its environment compared to an unscented condition.

Similar results were derived from the experiment done by Morrin and Ratneshwar (2000), where customers' evaluations for unfamiliar brands improved in a scented environment, as well as from the study of Bosmans (2006), where the presence of ambient scents, congruent with the product category, led to more positive product evaluations. The field study of Chebat and Michon (2003)



also shows that diffusion of scent in a shopping mall positively affects customers' perception of retail environment and product quality.

Alongside improved evaluations and perceptions, the olfactory cues of the atmospherics are found to have an impact on customers purchasing behavior. A number of studies show that the presence of ambient scent in a retail environment can influence customer spending (Fiore et al., 2000; Chebat & Michon, 2003). The study by Fiore, Yah and Yoh proposed that scenting the environment with pleasant scent increased customers' intentions of purchasing the product, as well as had a positive impact on their willingness to pay a higher price for it. Madzharov, Block and Morrin (2015) further introduced the impact of scent on the premium product purchasing behavior, proposing that the presence of warm ambient scent in the store leads to higher spending in the store, in particular increased purchases of premium goods. According to Madzharov et al., the type of the scent (warm vs cool) can impact customers' spatial perceptions of social density, which being reflected on their "power compensatory behavior", impacts customers' shopping patterns of premium products (Madzharov et al., 2015, p.3). The study by Chebat & Michon also suggests that the increased spending in the scented environment is due to consumers' improved perceptions of the shopping center and the products, which are influenced by the scent. Hence, customers' cognition, in particular, perceptions serve as a moderator between ambient scent and customer spending behavior in this context (Chebat & Michon).

Furthermore, the study by Mitchel et al. (1995) suggested that ambient scents congruent with the product class can affect customers' decision making process, lengthening the duration of making purchase decisions and encouraging variety seeking behavior, thus increasing the probability of purchase.

In addition to the studies analyzing the impact of olfactory dimension of atmospherics on customer behavior in retail settings, the research by Hirsch (1995) found that the presence of pleasant ambient scent in casinos led to increased gambling rates, resulting in 45% increase of slot machine revenues.

### *2.3. Memory*

When discussing the relationship between olfactory stimuli and customer behavior, it is particularly important to highlight the physiological link between the sense of smell and memory, which compared to other senses is directly connected to the limbic system (Herz and Engen, 1996). The neural proximity of olfactory nerve and the amygdala- hippocampal complex of the system, which is essential for encoding and retrieval of emotional memories, can explain why odor-evoked memories are more emotional than memories evoked through other senses (Herz, 1998). Moreover, the link between ambient scents and customers' memory of particular scent, brand, product, or experience can be further enhanced by customer approach behavior (Morrin & Ratneshwar, 2003). As the ambient scent in retail/service environment are found to impact customer behavior, for instance, lead to increased time of viewing products, as well as influence their affective state, it could further improve their memory (Morrin & Ratneshwar).

Studies conducted by Morrin and Ratneshwar (2000, 2003) suggest that the presence of ambient scent in the encoding stage of information can improve consumer memory processes and increase their attention to stimuli. The participants of the studies recorded enhanced recall and recognition of unfamiliar brand names when doing the experiment in the scented room compared to unscented environment. Alongside improved memory for information associated with scents, the research by Morrin, Krishna and Lwin (2011) proposed that the presence of olfactory stimulus at the information retrieval stage can serve as a memory cue for customers, aiding them

to recall more information about a particular product and brand, if previously being encountered with the scent. Their findings suggest that scent can be effective for enhancing long term memory, as well as aiding the retrieval of scent associated information in future. Similar findings about scent and its impact of creating associative memories have been suggested by the study of Krishna et al. (2010), where participants recorded increased recall of attributes of the scented products, compared to the control condition with unscented products after two weeks period.

#### *2.4. Restaurant atmospherics and customer behavior*

Restaurants don't merely sell meals, but they also sell the service, the atmosphere and experience (Heung & Gu, 2012). While extensive number of studies have concentrated on the effect of atmospheric cues in retail settings, the creation of positive atmosphere is believed to be particularly important in service settings, as well (Bitner, 1992). As mentioned by Bitner, because of its intangible nature, customers in service settings are more inclined to evaluate service and make judgments about its quality forming their opinion on the physical environment, also referred to as servicescape. The study by Ha and Jang (2012) showed that the perception of atmospherics of restaurants positively affects customers' perception of restaurant food and service quality, showing the importance of environmental cues on customer judgments in restaurant settings. The positive perception of restaurant quality was found to further influence customers' behavior, serving as a mediator between the perceived restaurant atmospherics and customers' behavioral intentions.

As shown in the study of Heung and Gu (2012), restaurant atmospherics are crucial for creating positive experience for customers and improving the level of their dining satisfaction. Moreover, various cues in the environment were found to influence customers' intentions to return the restaurant and spread positive word of mouth, as well as indirectly increase their willingness to

pay more through improved dining satisfaction. As mentioned in their study, among different aspects of atmospherics, ambience, which includes aromas, music, lighting and temperature, was particularly important in determining customers' satisfaction in restaurants.

The research by Ryu and Jang (2007) also suggests that in the restaurant environment ambience is the most essential factor positively influencing customers' pleasure and arousal levels, which, according to Mehrabian-Russel (M-R) model, are the types of emotional states generated through environmental cues (Mehrabian & Russel, 1974).

### *2.5. The perception of flavor*

When discussing the importance of dining atmospherics, and, in particular, the influence of ambient scents on customers' behavior in restaurant environment, the close link between flavor perception and odors should also be considered. The sense of smell is connected to the sense of taste, which together are essential in the formation of flavor perception (Spence, 2015).

### *2.6. Ambient scent and customer behavior in restaurants*

There is limited research investigating the impact of ambient scents on customer behavior in restaurant settings. Among these studies, the field experiment by Guéguen and Petr (2006) was conducted with the aim to study the effects of ambient scents on the length of stay of customers and the money spent in a dining environment, testing the findings from other consumption settings in a restaurant environment. The experiment was conducted in pizzerias with three scent conditions: lavender, lemon and no scent, using electrical scent diffusers. The following scents were chosen considering the relaxing effect of lavender and the arousal effect of lemon scents. The results of the experiment propose that lavender (not lemon) scent affects customer behavior, in particular increasing customers' length of stay and money spent in a restaurant environment.

Research was also done to study the impact of food aromas on customers' emotions, quality perceptions and purchasing behavior in a restaurant setting (Ouyang et al., 2017). The study further aimed to test whether the presence of food aromas (basil, hickory smoke, bacon) would lead to the purchase of meals congruent with the aromas diffused. Results from the field experiment followed by a survey suggest that food-related ambient scents in restaurants enhance customers' perceptions of both food and restaurant quality, while not necessarily lead to purchases of scent-congruent products.

### **3. Hypothesis Development**

The following hypotheses have been developed based on the major findings of previous studies discussing the influence of ambient scent in different consumption settings. As already discussed, a number of studies have shown that the presence of ambient scent has an impact on the way customers tend to evaluate the retail environment, specific products and services (Morrin & Ratneshwar, 2000; Bosmans, 2006; Chebat & Michon, 2003; Spangenberg et al., 1996). Furthermore, some studies suggested that atmospherics in service environment is an important indicator of quality, based on which evaluations are being formed (Bitner, 1992). Also considering the findings of research showing that ambience (i.e. scents, lighting, temperature and music) affect customers judgments about food quality and restaurant quality, the following hypothesis is assumed (Ha & Jang, 2012):

***H0: The ambient scent in restaurants does not affect customers' evaluation of the restaurant.***

***H1: The ambient scent in restaurants affects customers' evaluation of the restaurant.***

As a number of studies proposed that ambient olfactory cues can have an influence on customers experience and particularly taking into account research by Heung and Gu (2012), according to which the presence of atmospheric cues can influence customer's dining experience, while also considering the effects of smell on flavor perception and customers affective state, the following hypothesis is proposed:

***H0: The ambient scent in restaurants does not affect customers' restaurant experience.***

***H2: The ambient scent in restaurants affects customers' restaurant experience.***

With the aim to investigate whether olfactory cues are among the elements of restaurant atmospherics that customers pay attention to, it was assumed that:

***H0: Customers do not pay attention to ambient scents in restaurants.***

***H3: Customers pay attention to ambient scents in restaurants.***

Considering the mediating role of cognition in the relationship between ambient scents and customer behavior, the following two hypotheses (H4, H5) were assumed (Rimkute et al., 2016):

***H0: Customers' attention to ambient scents in restaurants does not influence their evaluation of the restaurant.***

***H4: Customers' attention to ambient scents in restaurants influences their evaluation of the restaurant.***

*H0: The importance given to ambient scents by customers does not influence their evaluation of the restaurant.*

*H5: The importance given to ambient scents by customers influence their evaluation of the restaurant.*

Finally, it was hypothesized that:

*H0: Customers' attention to ambient scent in restaurants does not have an impact on their awareness of the scent.*

*H6: Customers' attention to ambient scent in restaurants has an impact on their awareness of the scent.*

## **4. Methodology**

### *4.1. Research design*

With the aim to investigate the influence of ambient scents on customers' behavior in restaurant settings and to explore their perspective on ambient olfactory cues of restaurant atmospherics, the descriptive study based on quantitative and qualitative data was conducted. The primary quantitative data was collected through questionnaires, which are considered the most common approach of data collection in the previous studies on the effect of scent on customers (Rimkute et al., 2016). For this study a self-administered questionnaire was developed with questions designed to analyze customers' composite attention to scent, as well as the effect of ambient scents on customers' restaurant experience and evaluations. Considering the convenience for respondents, as well as the COVID-19 pandemic situation in the country, surveys were

conducted online and distributed through social media channels. In addition to quantitative data, in-depth interviews with restaurant managers have been conducted to enrich the research with more insights about the effects of ambient scent on customer behavior.

#### *4.2. Questionnaire design and measures*

The questionnaire was comprised of four sections. The first section was designed to measure customers' composite attention to scent, their evaluation of the scented restaurants and their restaurant experience through 5 point Likert-type scale with eight variables (1=strongly disagree and 5=strongly agree). Among the eight variables of the section, two of them were used to measure customers' *composite attention to scent* in restaurants with questions about the attention they pay to ambient scents in restaurant setting and the importance they attach to it. The first section also included two variables to measure customers' *restaurant experience* in scented restaurants including questions about their overall experience, as well as their dining experience in scented restaurants. Customers' *evaluation* of scented restaurants was assessed through 3 Likert variables about evaluations of restaurant food and service quality, and overall restaurant reputation. Furthermore, alongside measuring the research constructs, the first section also included one variable with the aim to understand customers' scent preferences in restaurants as an addition to the second part of the questionnaire. In particular, the variable was asked to see how much respondents agree/disagree to the statement that the scent from kitchen is pleasant for them, with the aim to understand whether respondents enjoy the presence of food scent in restaurants.

The second section of the questionnaire included a multiple choice, multiple response question with the aim to get data about customers' scent preferences in restaurant environment. The types of the scents were classified according to the Fragrance Wheel developed by Michael Edwards,



which is considered to be a common method of scent classifications (Zarzo, 2019). The types of the scents included four general categories of scents: floral, fresh, oriental and wood; while a general “food/pastry/bread” type of the scent was added to the list considering the nature of the topic being researched.

The third section of the questionnaire was developed to test customers’ *awareness* of the presence or absence of ambient scents in restaurants. It aimed to test whether customers are able to correctly recognize if a restaurant they visited was scented or not. This part of the survey was comprised of an open-ended question, asking participants to name up to three restaurants they visit most frequently. The question was followed by a matrix, one answer per row question asking participants to answer if each of their mentioned restaurants is scented or no.

The last part of the questionnaire was designed to collect personal information, such as gender, age and education level.

The survey was anonymous. The complete questionnaire in Armenian, as well as its English version can be found in [Appendix A](#).

To increase the validity of the questionnaire, a pretest was conducted (n=13) before distributing the survey. The goals of the pretest were to detect any possible problems in the survey and ensure the clarity and comprehensiveness of questions, adjusting the ones that might cause misunderstanding. After doing the pretest it was revealed that one of the survey questions was hard for respondents to answer. Participants of the pretest indicated that they faced difficulties to recall restaurant names when trying to answer the following open-ended question “*Among the restaurants I visited, the ones that in my opinion are scented are.....*”, which was designed for measuring customers’ awareness of the scent in restaurants. The question was adjusted and in

order to make it easier for respondents to recall restaurants and also having the goal to test the respondents' awareness of the scent in restaurant, the new question had two parts. At first respondents were asked to name three restaurants that they visit most frequently, which was followed by another question developed for testing their awareness of the scent in those restaurants they have mentioned.

#### *4.3 Data collection*

Data collection was done online, taking into account the limitations created by the COVID-19 pandemic situation in the country. As the survey was distributed through online social media platforms, the convenience sampling was used for data collection. As the respondents taking part in the survey had educational levels of secondary, secondary professional, higher professional and post graduate, while no responses were recorded from people with the other educational levels, it can be assumed that the latter segment of the population has either less presence in social media platforms through which the survey was distributed or lower access to the Internet. Therefore, the research is done on the segment of the Armenian population with secondary, secondary professional, higher professional and post graduate educational levels and within the age range of 15-65, which can be considered the active age for restaurant customers.

The survey was open for 4 weeks during which 297 responses were collected and 262 of them were deemed valid for the research.

#### *4.4. Data analysis*

In order to analyze the quantitative data the IBM SPSS software was used. With the goal to make the survey representative of the particular segment of the Armenian population being researched, a post stratification weighting was performed based on the 2011 Census of the Population in

Armenia before conducting the analysis. The multivariate weighting variables included gender, age and educational level.

Frequencies were used to represent the demographic profiles of the respondents, as well as to analyze their scent preferences in restaurants. The Cronbach's alphas were calculated to assess if Likert measurement variables are reliable for measuring each construct. For the hypothesis testing *one-sample t test*, *independent sample t test* and *chi-square* analysis were conducted.

## 5. Results

### 5.1. Sample Profiles

Descriptive statistics have been conducted to analyze the demographic characteristics of respondents. More females (76.7%) than males (23.3%) have taken part in the survey and the majority of respondents were aged between 15-24 (65.3%) and had higher professional and post graduate education levels (58.8%). Meanwhile, after post stratification weighting (raking) the demographic profiles of respondents were adjusted to the population segment according to 2011 Population Census of Armenia, which can be found in [Appendix B](#). Based on census data, within the segment of the population being researched, 48% of the sample represents males, and 52% females. Furthermore, as people with secondary educational level constitute larger proportion of the segment (53.1%), more weights were given to them.

#### *Demographic profiles of respondents (Unweighted)*

Gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	61	23.3	23.3	23.3
	Female	201	76.7	76.7	100.0
	Total	262	100.0	100.0	

Age					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	15-24	171	65.3	65.3	65.3
	25-34	50	19.1	19.1	84.4
	35-44	15	5.7	5.7	90.1
	45 and older	26	9.9	9.9	100.0
	Total	262	100.0	100.0	

Education					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Secondary	59	22.5	22.5	22.5
	Secondary professional	49	18.7	18.7	41.2
	Higher professional and Post graduate	154	58.8	58.8	100.0
	Total	262	100.0	100.0	

## 5.2. Analysis of scent preferences

Descriptive statistics were performed to present the scent preferences of respondents in restaurants. According to the results, the most preferred scent category in restaurants is Fresh (26.9%), followed by Floral (22.1%), Oriental (17.8%) and Woods (16.5%). Interestingly, the scent of Food/Pastry/Bread (16.8%) is among the least preferred scents in restaurants.

Scent preferences in restaurants				
		Responses		Percent of Cases
		N	Percent	
I prefer the following scents in restaurants	Floral (jasmine, orange blossom)	99	22.1%	40.9%
	Woods (cedar wood, pine)	74	16.5%	30.6%
	Oriental (vanilla, cinnamon)	80	17.8%	32.9%
	Fresh (grapefruit, basil)	121	26.9%	49.8%
	Food/Pastry/Bread	75	16.8%	31.1%
Total		449	100.0%	185.3%
a. Dichotomy group tabulated at value 1.				

In addition to this question one Likert variable from the first part of the questionnaire was also used to collect information about customers' preferences with the goal to see if customers enjoy the food related scents in restaurants. The results of the Likert scale variable at the beginning of the questionnaire suggest that on average customers don't like the scent from kitchen ( $m=2.77$ ,  $sd=1.293$ ). Moreover, results from Point-Biserial Correlation suggested that there is a significant positive correlation between the preference of food/pastry/bread scent and the scent from kitchen ( $r=0.597$ ,  $p<0.05$ ), which can also suggest the validity of the results.

<b>Correlations</b>			
		The scent from kitchen in restaurants is pleasant for me.	Preference for food/bread/pastry scent in restaurant
The scent from kitchen in restaurants is pleasant for me.	Pearson Correlation	1	.597**
	Sig. (2-tailed)		.000
	N	262	262
Preference for food/bread/pastry scent in restaurant	Pearson Correlation	.597**	1
	Sig. (2-tailed)	.000	
	N	262	262
**. Correlation is significant at the 0.01 level (2-tailed).			

While the data suggests that in general customers don't prefer much food related aromas compared to other types of scents in restaurant, interviews with restaurant managers showed that in a number of restaurants food scents, in particular the scent of bread, are used to attract customers or trigger their appetite, overall recording positive effects on customers approach behavior. Therefore, it can be assumed that customers might have associated the particular category of the scent with other unpleasant aromas of food they might have previously encountered in some restaurants when filling the questionnaire.

In addition to conducting frequencies, it can be inferred from the contingency tables that the majority of females prefer fresh scents (61.8%), while males have similar preferences for each category of scent.

Scent Preferences by Gender					
			My gender		Total
			Male	Female	
I prefer the following scents in restaurants: (Select all that apply)	Floral (jasmine, orange blossom)	Count	46	54	99
		% within Gender	38.6%	43.2%	
	Woods (cedar wood, pine)	Count	50	24	74
		% within Gender	42.5%	19.3%	
	Oriental (vanilla, cinnamon)	Count	53	27	80
		% within Gender	44.9%	21.5%	
	Fresh (grapefruit, basil)	Count	44	77	121
		% within Gender	37.2%	61.8%	
	Food/Pastry/Bread	Count	47	28	75
		% within Gender	39.6%	23.0%	
Total		Count	118	124	242
Percentages and totals are based on respondents.					
a. Dichotomy group tabulated at value 1.					

On the other hand, people with secondary (57.2%), higher professional and post graduate educational levels (41.3%) tend to prefer fresh scents, while the majority of secondary professionals preferred floral scents (62.4%).

Scent Preferences by Educational level					
		Education			Total
		Secondary	Secondary professional	Higher professional and Post graduate	
Floral (jasmine, orange blossom)	Count	55	28	16	99
	% within education	39.2%	62.4%	28.3%	
Woods (cedar wood, pine)	Count	44	9	21	74
	% within education	31.6%	20.5%	36.2%	
Oriental (vanilla, cinnamon)	Count	39	23	18	80
	% within education	27.9%	51.7%	30.4%	

Fresh (grapefruit, basil)	Count	80	17	24	121
	% within education	57.2%	37.7%	41.3%	
Food/Pastry/Bread	Count	48	10	18	75
	% within education	34.4%	21.5%	30.6%	
Total	Count	139	45	58	242
Percentages and totals are based on respondents.					
a. Dichotomy group tabulated at value 1.					

Based on the age, the scent preferences also vary. The age group of 15-24 prefer mostly floral scents (52.2%), while people within the age of 35-44 tend to like fresh scents more in restaurants (78.9%). The descriptive statistics assume that people within the age of 25-34 do not tend to prefer only a specific category of scent, but rather have similar preferences for all scent categories specified in the questionnaire. It can also be assumed that the age group of 45 and older don't have a specific preference for a particular scent in restaurants, meanwhile give comparably less preference for woods and food related scents.

Scent Preferences by Age						
		Age				Total
		15-24	25-34	35-44	45 and older	
Floral (jasmine, orange blossom)	Count	33	26	5	34	99
	% within age	52.2%	45.2%	12.2%	44.5%	
Woods (cedar wood, pine)	Count	22	28	1	23	74
	% within age	35.2%	48.1%	2.7%	29.4%	
Oriental (vanilla, cinnamon)	Count	17	27	2	34	80
	% within age	26.8%	46.4%	3.8%	44.2%	
Fresh (grapefruit, basil)	Count	25	27	34	34	121
	% within age	39.1%	47.2%	78.9%	44.2%	
Food/Pastry/Bread	Count	26	27	2	20	75
	% within age	40.1%	47.2%	5.2%	26.0%	
Total	Count	64	58	43	77	242
Percentages and totals are based on respondents.						

### 5.3. Customer awareness of the scent

68.2% of respondents gave answers to the question that aimed to analyze whether customers can correctly recognize the presence or absence of ambient scents in restaurants. The respondents were asked to name up to three restaurants which they visit most frequently and then answer to a matrix, one answer per row question about whether those restaurants are scented. Out of 179 respondents who gave answer to the question, 165 restaurant names were indicated, from which managers of 91 restaurants were communicated to check if actually the mentioned restaurants are scented or no. For 74 restaurants mentioned, respondents answered “I didn’t know” to the question if the restaurant is scented or no, therefore those restaurants were not communicated and automatically the respondent was grouped into the “Not Aware” category. Partially correct answers were also grouped into the “Not Aware” category. Those respondents, who managed to give correct answers to all the restaurant names mentioned, were grouped into “Aware” category. The frequency table shows that 37.8% of the respondents were aware of the presence/absence of ambient scents in restaurants, while 62.2% could not recognize scents.

Awareness of ambient scents in restaurants					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Aware	68	25.8	37.8	37.8
	Not aware	111	42.5	62.2	100.0
	Total	179	68.2	100.0	
Missing	System	83	31.8		
Total		262	100.0		

Furthermore, a chi-square test of independence was conducted to analyze the relationship between gender and the ability to recognize ambient scents in restaurants. The results indicated that there is no statistically significant relationship between gender and awareness of scents,  $\chi^2(1)=1.48$ ,  $p=0.224$ . Therefore, it can be suggested that no significant association between gender and the ability to recognize ambient scents in restaurants exist.



Awareness of ambient scents by Gender						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
My gender * Awareness	180	68.7%	82.000	31.3%	262.000	100.0%

Awareness by Gender (Crosstabulation)					
			Awareness		Total
			Aware	Not aware	
My gender	Male	Count	35	68	103
		% within My gender	34.0%	66.0%	100.0%
	Female	Count	33	44	77
		% within My gender	42.9%	57.1%	100.0%
Total		Count	68	112	180
		% within My gender	37.8%	62.2%	100.0%

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1- sided)
Pearson Chi-Square	1.477 <sup>a</sup>	1	.224		
Continuity Correction <sup>b</sup>	1.123	1	.289		
Likelihood Ratio	1.473	1	.225		
Fisher's Exact Test				.277	.145
Linear-by-Linear Association	1.469	1	.226		
N of Valid Cases	180				
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 29.09.					
b. Computed only for a 2x2 table					

#### *5.4. Analysis of constructs*

##### *5.4.1. Reliability analysis*

In order to test the reliability and internal consistency of the measurement scale used, Cronbach's Alpha was calculated for the variables of each construct. The reliability statistics show that the Cronbach's Alpha is 0.809 for the measurement variables of evaluation, 0.693 for composite attention and, 0.638 for restaurant experience, which, exceeding the acceptable minimum range of 0.6-0.7 indicate an acceptable level of internal consistency between the variables (Hair et al, 2014).

##### *5.4.2. Descriptive statistics of constructs*

Descriptive statistics for all variables of the Likert scale have been conducted. The results suggest that variables measuring customers' composite attention to ambient scents in restaurants have higher mean values (greater than 4) compared to other variables of the scale. Hence it can be inferred that, in general, customers are attentive to olfactory cues present in restaurant environment and they attach high importance to their pleasantness.

The variables measuring customers' restaurant experience also have mean values greater than 3, proposing that customers enjoy the experience of being and dining in a scented restaurant environment.

The means for two of the variables measuring customers' evaluation are greater than 3, meanwhile the mean for the variable measuring the evaluation of scented restaurant based on the perceived food quality has the lowest mean, but still is greater than the neutral score of 3. It can be implied from the results that in general customers tend to think of scented restaurants to have high reputation and provide higher quality of service. However, as the statement that scented

restaurants offer higher quality of food had almost neutral responses, it might be assumed that customers' perceptions of the quality of meals are less affected or not influenced by the ambience of the environment, and customers may be considering other factors when making judgments about the quality of food offered by the restaurant.

Descriptive statistics of Likert variables								
		When visiting a restaurant, I pay attention to the scent present there.	The presence of pleasant scent in restaurants is important for me.	I like being in a scented restaurant.	Scenting has a positive impact on restaurant's reputation.	The scented restaurants provide higher quality services.	The scented restaurants offer higher quality food.	My dining experience is more enjoyable in a scented restaurant.
N	Valid	262	262	262	262	262	262	262
	Missing	0	0	0	0	0	0	0
Mean		4.31	4.28	3.65	3.72	3.32	3.02	3.64
Median		4.00	4.00	4.00	4.00	4.00	3.00	4.00
Mode		4	4	4	4	4	3	4
Std. Deviation		.760	.726	.854	.718	.982	.931	.864

Furthermore, in order to see if there are differences in customers' composite attention, experience and evaluation based on their gender three *independent samples t tests* have been conducted.

Composite Attention variable: The assumption of equal variance was not met with Lavene's test not being statistically significant ( $p=0.009$ ). Hence an independent samples t test with equal variance not assumed was run, the results of which suggest that there is no statistically significant difference between the composite attention to scent of males ( $m=4.26$ ,  $sd=0.594$ ) and females ( $m=4.33$ ,  $sd= 0.697$ ),  $t(258.4)=-0.918$ ,  $p=0.359$  with the mean difference of  $-0.07$ .

Group Statistics					
	My gender	N	Mean	Std. Deviation	Std. Error Mean
Composite Attention	Male	126	4.2564	.59472	.05303
	Female	136	4.3298	.69747	.05976

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2- tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Composite Attention	Equal variances assumed	6.938	.009	-.912	260	.362	-.07336	.08040	-.23169	.08496
	Equal variances not assumed			-.918	258.406	.359	-.07336	.07989	-.23069	.08396

Evaluation variable: With the assumption of equal variance and the Lavene's test not being statistically significant ( $p=0.281$ ), the *independent samples t test* results suggest that there is a statistically significant difference between the restaurant evaluations of males ( $m=3.09$ ,  $sd=0.71$ ) and females ( $m=3.6$ ,  $sd=0.713$ ),  $t(260)=-5.77$ ,  $p<0.05$  with the mean difference of  $-0.506$ .

Group Statistics					
	My gender	N	Mean	Std. Deviation	Std. Error Mean
Evaluation	Male	126	3.0899	.70646	.06300
	Female	136	3.5958	.71255	.06105

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Evaluation	Equal variances assumed	1.168	.281	-5.765	260	.000	-.50590	.08775	-.67870	-.33310
	Equal variances not assumed			-5.767	258.666	.000	-.50590	.08772	-.67864	-.33316

Experience variable: With the assumption of equal variance and the Lavene's test being statistically significant ( $p=0.114$ ), the *independent samples t test* results suggest that there is not a statistically significant difference between the experience of males ( $m=3.58$ ,  $sd=0.75$ ) and females ( $m=3.70$ ,  $sd=0.72$ ),  $t(260)=-1.31$ ,  $p=0.191$  with the mean difference of  $-0.12$ .

Group Statistics					
	My gender	N	Mean	Std. Deviation	Std. Error Mean
Experience	Male	126	3.5848	.74579	.06650
	Female	136	3.7038	.72495	.06211

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Experience	Equal variances assumed	2.516	.114	-1.310	260	.191	-.11904	.09089	-.29802	.05994
	Equal variances not assumed			-1.308	256.966	.192	-.11904	.09100	-.29823	.06016

Discussing the above-mentioned results, there are no gender differences for the attention to the scent in restaurants and the overall experience in the scented restaurant environment. Meanwhile, it can be inferred from the analysis that females tend to consider scents when evaluating restaurants compared to males. It might be assumed that females, take into account the ambient conditions, such as scent, as an important factor when evaluating a restaurant and perceiving its quality compared to males.

## **6. Testing Hypotheses**

For testing the hypotheses H1, H2 and H3, the mean values of variables for each construct have been calculated. With the aim to test the hypotheses *one-sample t tests* were conducted.

Before conducting the analysis, the main assumptions were tested to ensure the accuracy of the parametric test. As the dependent measures for three constructs are continuous the first assumption required for the test was approved. Furthermore, the approximate normality distribution for all three constructs was also tested considering the skewness and kurtosis of composite attention (skewness=-0.488, kurtosis=-0.613), restaurant experience (skewness=-0.935, kurtosis=1.586), and evaluation variables (skewness=-0.598, kurtosis=-0.254). Hence the results suggest that skewness and kurtosis are within the acceptable range for the data to be considered approximately normally distributed, also taking into account the sample size of 262. Analysis to detect and adjust for any outliers of the dependent variable was also performed.

Taking into account that all the assumptions were met, the *one sample t test* was run to test the null hypothesis for H<sub>1</sub>. According to the null hypothesis, H<sub>0</sub>: *Ambient scent in restaurants does not affect customers' evaluations of the restaurant*. Testing the sample mean against the neutral value of 3, it can be suggested that there is a significant difference between the means with

$t(261) = 7.6$ ,  $p < 0.05$ . Sample mean ( $m=3.35$ ,  $sd=0.75$ ) was found to be statistically significantly higher than the neutral score of 3 with the mean difference of 0.35. Thus, based on the results of the test the null hypothesis is rejected and the alternative  $H_1$  is accepted, which states that ambient scent in restaurants affect customer evaluations of the restaurant.

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
Evaluation	262	3.3529	.75218	.04647

One-Sample Test						
	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Evaluation	7.595	261	.000	.35292	.2614	.4444

The null hypothesis for  $H_2$  states that  $H_0$ : *The ambient scent in restaurants does not affect customers' restaurant experience*. The one-sample  $t$  test comparing the sample means against the neutral value of 3 was conducted to test the null hypothesis. The results of the test indicate that there is a statistically significant difference between the means,  $t(261)=14.22$ ,  $p < 0.05$ . The sample mean dispersion score ( $m=3.65$ ,  $sd=0.74$ ) is significantly higher than the neutral score of 3 with the mean difference 0.65. Thus, the null hypothesis is rejected and alternative  $H_2$  hypothesis is accepted, according to which ambient scents in restaurants affects customer restaurant experience.

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
Experience	262	3.6467	.73603	.04547

One-Sample Test						
	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Experience	14.221	261	.000	.64667	.5571	.7362

The *one-sample t test* was run to test the null hypothesis for H<sub>3</sub>, according to which, H<sub>0</sub>:

*Customers don't pay attention to ambient scents in restaurants.* The sample mean was compared against the hypothesized, neutral (3) value. The results suggested that the mean depression score was statistically significantly higher than the neutral score of 3,  $t(261)=32.24$ ,  $p<0.05$ , with the mean difference of 1.29, thus rejecting the null hypothesis and accepting the alternative H<sub>3</sub>, stating that customers pay attention to ambient scents in restaurants.

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
Composite Attention	262	4.2946	.64999	.04016

One-Sample Test						
	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Composite Attention	32.238	261	.000	1.29456	1.2155	1.3736

With the aim to test the null hypothesis for H<sub>4</sub>, which states that H<sub>0</sub>: *Customers' attention to ambient scent in restaurants does not influence their evaluation of the restaurant*, independent samples t test was conducted. In order to reveal the effect of attention on evaluation, the attention variable was grouped into “high attention” and “low attention or neutral”, being considered an



independent variable. The results from the t test, analyzing the influence of customers attention to scent on their evaluations, suggest that there is no statistically significant difference between customers who pay high attention to ambient scents in restaurants ( $m=3.32$ ,  $sd=0.74$ ) and customers who are neutral to the presence of the scent or pay lower attention to them ( $m=3.63$ ,  $sd=0.78$ ) with  $t(260)= 1.94$ ,  $p=0.053$ .

Hence, we fail to reject the null hypothesis, and the alternative hypothesis is not accepted, proposing that customers' attention to ambient scents in restaurants does not influence their evaluations of restaurants.

Group Statistics					
	When visiting a restaurant I pay attention to the scent present there.	N	Mean	Std. Deviation	Std. Error Mean
Evaluation	Low attention or neutral	25	3.6296	.77959	.15616
	High attention	237	3.3238	.74498	.04838

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Evaluation	Equal variances assumed	.454	.501	1.940	260	.053	.30572	.15756	-.00453	.61597
	Equal variances not assumed			1.870	28.711	.072	.30572	.16348	-.02878	.64022

Independent sample t test was also conducted to test the null hypothesis for  $H_5$ , which states that  $H_0$ : *The importance given to ambient scents by customers does not influence their evaluation of the restaurant.*

The results of the independent sample t test analyzing the effect of importance given to scents in restaurant setting on the customers' evaluation of the restaurant suggest that there is a significant difference between the two groups with the mean difference of -0.74,  $t(260)=-5.44$ ,  $p<0.05$ .

According to the analysis, customers' giving more importance to ambient scent in restaurants ( $m=3.44$ ,  $sd=0.7$ ) provide with more favorable restaurant evaluations than people who don't pay attention to or are neutral to olfactory cues of the restaurant atmospherics ( $m=2.7$ ,  $sd=0.84$ ).

Group Statistics					
	The presence of pleasant scent in restaurants is important for me.	N	Mean	Std. Deviation	Std. Error Mean
Evaluation	Not important or neutral	31	2.6966	.83742	.15064
	Important	231	3.4407	.69645	.04581

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Evaluation	Equal variances assumed	1.087	.298	-5.440	260	.000	-.74407	.13677	-1.01339	-.47475
	Equal variances not assumed			-4.726	35.652	.000	-.74407	.15745	-1.06351	-.42464

To test the null hypothesis for  $H_6$ , which state that  $H_0$ : *Customers' attention to ambient scents in restaurants has an impact on their awareness of the scent*. To analyze the relationship between customers' attention to scents and their awareness of them in restaurants, a chi-square analysis was run. The results propose that there is significant association between customers' attention to scent and their awareness of scent in restaurants.

Case Processing Summary						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Composite attention* Awareness	180	68.7%	82.000	31.3%	262.000	100.0%

Composite attention* Awareness (Crosstabulation)					
			Awareness		Total
			Aware	Not aware	
Composite attention	Low attention or neutral	Count	11	6	17
		% within Composite attention	64.7%	35.3%	100.0%
	High attention	Count	57	106	163
		% within Composite attention	35.0%	65.0%	100.0%
Total		Count	68	112	180
		% within Composite attention	37.8%	62.2%	100.0%

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	5.791 <sup>a</sup>	1	.016		
Continuity Correction <sup>b</sup>	4.595	1	.032		
Likelihood Ratio	5.588	1	.018		
Fisher's Exact Test				.032	.017
Linear-by-Linear Association	5.759	1	.016		
N of Valid Cases	180				
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 6.42.					
b. Computed only for a 2x2 table					

## **8. Qualitative research design and analysis**

In addition to the quantitative primary data collection, qualitative research was implemented to enrich the study with insights and perspectives about the influence of ambient scents on customer behavior in restaurants. Qualitative data was collected through in-depth interviews with the managers of restaurants where ambient scents are diffused. Information about restaurants was provided by an aroma-marketing agency based in Armenia. Using the purposive sampling approach, in total 17 in-depth interviews have been conducted and restaurant managers were selected as interviewees, considering the nature of their job and assuming they would be able to provide more details about the effects of olfactory cues on customers through their frequent interactions with them and based on general observations they have made. The restaurants, the managers of which were communicated, are located in the center, as well as in the neighborhoods of the capital, Yerevan and can be considered as mid-scale restaurants.

Considering the limitations caused by the pandemic situation in the country, the in-depth interviews were conducted over phone with an average duration of 25 minutes. A semi-structured questionnaire with major thematic areas for discussion was prepared, including questions about the installation, implementation and effectiveness of scent diffusers, as well as discussing the major purposes of scenting the restaurants and, particularly, focusing on the effects of ambient scents on customer behavior and sales. The questions about customer behavior were developed based on the findings of the previous studies conducted in the field of scent marketing. To ensure a relaxed environment the participants were first asked to tell about the restaurants they work at, after which the questions were narrowing down to the topic of interest.

[\(See Appendix C\)](#)

Thematic analysis was done based on the field notes and common ideas and concepts were identified and grouped into codes for each theme discussed. The interviews aimed to research two major themes: the goals for diffusing ambient scents in restaurants and their effects on customer behavior.

### ***1. Goals for scenting restaurants***

After analyzing the written notes for all the interviews conducted, ideas about the goals for diffusing scents in restaurants were grouped into 5 major categories: customer experience, brand image, attracting customers, triggering customer appetite, and improving employee's mood.

#### **Customer experience**

Among the major reasons for diffusing pleasant ambient scents in the dining environment was to neutralize unpleasant odors of cooking from kitchens or the smoke of cigarettes, thus ensuring a pleasant experience for customers. Furthermore, some of the interviewees also mentioned that pleasant atmosphere is an essential factor making customers to stay longer in restaurants.

According to some of the observations done by the managers interviewed, ambient scents have a relaxing impact on customers' mood, which, as pointed out by Interviewee 11 is particularly important when customer is looking through menu and makes a choice on what to order.

#### **Brand image**

The interview results further suggest that ambient scents in restaurants are also used as an element of the brand's image. Some of the interviewed managers described specific examples of their restaurants that use scents which are associated with the restaurant name or matched with the brand concept, with the objective of creating an enhanced brand experience for customers.

For instance, as mentioned by Interviewee 2, in the restaurant, offering exotic dishes with meat and seafood, a fresh green scent is diffused, which can be associated with the wild nature associated with the branding of the restaurant. In this way, according to the managers, ambient scent in the restaurant environment create strong emotional bond with the brand, particularly through scent evoked associations with it.

### Attracting customers

Diffusing ambient scents in restaurants is also a way of attracting customers to enter the restaurant, again serving as an example of nonverbal communication with potential customers' passing by it. Placing the scent diffusers at the entrance of the restaurant and using food scents, such as the scent of freshly baked bread, some of the restaurants have recorded positive results, succeeding in increasing customer flow to the restaurants.

### Triggering customer appetite

Moreover, for some of the restaurants, the use ambient scents, in particular food related scents are a method of increasing customer appetite. General observations done by some of the managers show the effectiveness of the scent for triggering customer appetite, with increased willingness to consume bread or croissant, as mentioned by Interviewees 8 and 9.

Meanwhile it is also interesting to note that no significant effect on sales due to ambient scents was recorded by the managers. The majority of them had difficulties in answering the question, while making assumptions that the use of ambient scents probably had a positive contribution to the total sales. As mentioned by Interviewee 14, "It is hard to separate an effect of scent on sales, as sales are affected by the overall environment of the restaurant, comprised of multiple

elements”. None of the managers could explain any direct effect of olfactory cues on restaurant sales.

### Employees' mood

During the interviews an interesting, yet less common perspective to ambient scents was also proposed by a few managers. When discussing the reasons behind scenting the restaurants, some managers highlighted their goal of improving employee's moods and performance with the help of pleasant ambient scents alongside providing a better experience to customers. With the literature mostly comprised of studies investigating customers responses to scents, this was an unexpected finding. Hence, future research might be useful to test whether employees are more productive or record better performance when working in a scented environment.

## ***2. Effects on customer behavior***

The interviews also aimed to collect managers' opinions about whether they have noticed changes in customer behavior after introducing ambient scents to the restaurant environment, asking them to bring examples from their own observations. In general, two major subtopics were discussed during the interviews: customers' attention and mood, customers' memory of scents and their loyalty.

### Customers' attention and mood

Interviewees were asked whether they have received direct feedbacks from customers about the ambient scent in the restaurant and whether in general customers notice scents. All the managers who were interviewed were certain that customers pay attention to scents, bringing examples

from their general observations. As mentioned by Interviewee 1, “I remember cases when customers entered the restaurant and talked to each other about how nice the restaurant smells”. As discussed by the manager, scent positively affects customer emotions starting from the first moment of entering the restaurant, thus creating a positive mood during the whole restaurant experience.

Some of the managers also told that they frequently receive direct feedbacks from customers about the pleasant smell in the restaurant. Interestingly, some of the managers indicated that they mostly receive such direct feedbacks from females, suggesting that they pay more attention to scents than males.

#### *Customers' recall of scents and loyalty*

Discussions with restaurant managers also revealed that customers have high recall of scents and they are very sensitive to changes of scents in restaurants. Some managers brought specific examples about changing the scent in the restaurant for a certain period of time and afterwards immediately receiving complaints from customers. In particular, Interviewee 10 gave details about the case of their restaurant when after years of using the same scent, the management decided to diffuse a new scent in the environment with the goal to “refresh” the atmosphere. Meanwhile, after the change of the scent they received a number of feedbacks complaining about the new scent and asking them to change it to the previous one. As the Interviewee pointed out, “The customers were saying that they miss the scent of the restaurant”. From this it can be inferred that customers not only have high recall for scents, but they also associate it with a restaurant. Interestingly, the restaurant manager also saw a connection between the ambient scent



of the restaurant and customer loyalty, mentioning that “Some people come to the restaurant for the smell”.

In addition to the major topics already presented, questions about installation, implementation and overall satisfaction with the results were discussed.

There were varying perspectives about where to put scent diffusers and what type of scents are more suitable for the dining atmosphere. Some of the managers argued that placing the diffusers near the entrance is more effective and, in that case, customers notice the pleasant scent immediately after entering the restaurant, which also affects their mood and future restaurant experience. While being exposed to scents for a longer period of time in the dining environment, customers pay less attention to it and start “ignoring” the olfactory cue. Meanwhile, others argue that for ensuring a pleasant experience for customers, ambient scents should be diffused in the whole restaurant, neutralizing other unpleasant scents.

All the interviewed managers told that they are not changing the intensities of diffusers for any other marketing purposes and the stable mode was preferred by them.

Overall the managers of the restaurants being interviewed provided positive opinions about the use of ambient scents in restaurants, considering it as an important marketing tool as the other elements of the atmospherics, like music, physical environment, etc. Meanwhile, the majority of interviewees highlighted the difficulty of choosing an appropriate scent for a restaurant and mainly preferred fresh scents, which would not interfere with other scents present in the restaurant environment such as the smell of the meat, etc.

## 9. Conclusion

Growing literature suggests that ambient scents are a vital component of atmospherics, not only creating a pleasant atmosphere, but also having the power to influence customers' behavior.

While many researchers have focused on the research of scents in retail setting, the intangible attributes, including ambient scent present in the environment, are especially important for service sectors, where customers rely on extrinsic cues when making judgments about quality.

Considering the limited research on the effects of ambient scents in restaurant setting, the following study was conducted to investigate the influence of ambient olfactory cues of restaurant atmospherics on customers' behavior. In particular, the paper tested whether scents can affect customers' restaurant experience and have an impact on their evaluation of restaurants. The study further explored whether customers in restaurants pay attention to ambient scents present in the environment and if they can correctly recognize them, also testing whether attention to scent affects customers' awareness of it. In addition, paper studied if customers' attention to scent and the importance attached to it affects their evaluations.

The results of quantitative data analysis suggested that ambient scents in restaurants affect customers' restaurant experience, while also influence their evaluation of restaurants.

Furthermore, according to the results customers overall pay attention to ambient olfactory cues in restaurant. The analysis also showed that while only customers' attention to scent does not influence their evaluations of restaurant, the importance that customers attach to scent in restaurant environment has an impact on their evaluation. This might suggest that people who give more importance to the presence of scent in restaurant could have higher expectations and thus it might affect their overall evaluations. Interestingly, the data analysis indicate that females consider olfactory elements when making evaluations of the restaurant compared to males.

Moreover, customer composite attention to scents was found to have significant association with customer awareness of scents in restaurants. However, data suggests that, in general, customers fail to correctly recognize the presence or absence of scent.

In addition to analyzing the effects of ambient scents on customer behavior, data about general scent preferences of the segment being researched was collected, according to which the most preferred category of scents in restaurants is fresh. Interestingly, similar results have been recorded from qualitative data analysis. During interviews restaurant managers indicated fresh scent as the most suitable scent for restaurants, which, according to them, does not strongly interfere with other food aromas present in the dining environment. The analysis of the qualitative data also suggest that goals of scenting restaurants can be providing customers with better experience, communicating a brand concept and ensuring emotional connection with the brand, as well as attracting customers to enter a restaurant and triggering their appetite. The major customer behavioral reactions to scent, according to the interviewed managers, were customers' attention to scent and its impact on their mood, customers' memories of scents and their sensitivity to changes of ambient scents in a restaurant, as well as customers' loyalty to scent based on the odor evoked associations. In general, the use of qualitative and quantitative data created a more complete picture about the effects of ambient scents on customers' behavior in restaurant environment, highlighting the power of ambient scents in marketing.

## **10. Managerial implications**

In addition to the contribution to literature, the study also provides important practical implications for restaurant managers. Constantly improving intangible attributes of atmospherics and touching to customers' senses can be specifically useful for restaurants. In particular, as the sense of smell is considered to be strongly connected to emotions, creating strong, long term emotional memories and associations, ambient scent in restaurants can contribute to the development of emotional ties with customers, and hence increase their chances of return. The following study suggests that, besides providing customers with better experience, ambient scents can be an important factor affecting customers' evaluation of the restaurant, including the perceived quality of food and service. Furthermore, olfactory cues in restaurants can be specifically designed to match the goals and objectives of restaurants and be used as an effective marketing tool for reaching desired customers responses, such as approach responses of willingness to stay for a longer time, pay more money or visit the restaurant again.

## **11. Limitations and future research**

The paper has these limitations need to be taken into account when interpreting the results. As the convenience sampling method was used for quantitative data collection and, despite implementing the post stratification weighting of data according to 2011 Population Census of Armenia, the generalizability of the study can still be considered limited. Furthermore, because of the sampling approach and the platforms used for data collection, only a segment of the population has been researched, not representing the whole population of Armenia.

As quantitative data analysis was based on self-reported measures, the results might not correctly identify the true effects of ambient scents on customer behavior (Rimkute et al., 2016). As stated by Luca and Botelho (2019), the olfactory stimuli are sometimes processed unconsciously, affecting customers behavior without their perception and awareness. Moreover, the author claims that the unconscious effects of olfactory stimuli on customer behavior is believed to be stronger compared to situations where individuals are aware of the scent, as in that case they tend to correct the external factor. Interestingly, similar conclusions can be drawn from the data analysis of the current paper, according to which the majority of respondents failed to correctly recognize ambient scents in restaurants.

On the other hand, taking into account the fact that customers were asked about scented restaurants, while not being exposed to the scent at the particular time of filling the questionnaire and also as they had to recall their experience, results might not fully reflect the underlying impacts of ambient scents on customer behavior. Therefore, a field study might be needed to have a better understanding of the impact of scents on customer behavior in the given setting.

## References

- Armstat. (2011). Educational Level of De Jure Population.
- Armstat. (2011). Population Census 2011.
- Bitner, M. (1992). Servicescapes: the impact of physical surroundings on customers and employees. *Journal of Marketing*, 56, 57-71.
- Bosmans, A. (2006). Scents and Sensibility: When Do (In)Congruent Ambient Scents Influence Product Evaluations? *Journal of Marketing*, 70. doi:10.1509/jmkg.70.3.032
- Chebat, J.-C., & Michon, R. (2003). Impact of ambient odors on mall shoppers' emotions, cognition, and spending. *Journal of Business Research*, 56. doi:10.1016/s0148-2963(01)00247-8
- Donovan, R., & Rossiter, J. (1982). Store Atmosphere: An Environmental Psychology Approach. *Journal of Retailing*, 58.
- Donovan, R., Rossiter, J., Marcoolyn, G., & Nesdale, A. (1994, 11 30). Store atmosphere and purchasing behavior. *Journal of Retailing*, 70. doi:10.1016/0022-4359(94)90037-X
- Fiore, A. M., Yah, X., & Yoh, E. (2000). Effects of a Product Display and Environmental Fragrancing on Approach Responses and Pleasurable Experiences. *Journal of Psychology & Marketing*, 17. doi:10.1002/(SICI)1520-6793(200001)17:13.0.CO;2-C
- Guéguen, N., & Petr, C. (2006). Odors and consumer behavior in a restaurant. *International Journal of Hospitality Management*, 25, 335-339. doi:10.1016/j.ijhm.2005.04.007
- Ha, J., & Jang, S. (2012). The effects of dining atmospherics on behavioral intentions through quality perception. *Journal of Services Marketing*, 26, 204-215. doi:10.1108/08876041211224004
- Hair, J., Black, W., Babin, B., & Anderson, R. (2014). *Multivariate Data Analysis (7th ed. /)*. Pearson New International Edition .
- Herz, R. (1998). Are Odors the Best Cues to Memory? A Cross-Modal Comparison of Associative Memory Stimulia. *Annals of The New York Academy of Sciences - ANN N Y ACAD SCI*, 855. doi:10.1111/j.1749-6632.1998.tb10643.x
- Herz, R., & Engen, T. (1996). Odor memory: Review and analysis. *Psychonomic bulletin & review*, 3, 300-313. doi:10.3758/BF03210754
- Heung, V. C., & Gu, T. (2012). Influence of restaurant atmospherics on patron satisfaction and behavioral intentions. *International Journal of Hospitality Management*, 31, 1167-1177. doi:10.1016/j.ijhm.2012.02.004

- Hirsch, A. (1995). Effects of ambient odors on slot-machine usage in a Las Vegas casino. *Psychology and Marketing*, 12, 585-594. doi:doi:10.1002/mar.4220120703
- Hulten, B. (2017). Branding by the five senses: A sensory branding framework. *Journal of Brand Strategy*, 6, 1-12.
- Kotler, P. (1974). Atmospherics as a Marketing Tool. *Journal of Retailing*, 49.
- Krishna, A. (2011). An integrative review of sensory marketing: Engaging the senses to affect perception, judgment and behavior. *Journal of Consumer Psychology*. doi:10.1016/j.jcps.2011.08.003
- Krishna, A., Lwin, M., & Morrin, M. (2010). Product Scent and Memory. *Journal of Consumer Research*, 37, 57-68. doi:10.1086/649909
- Leenders, M., Smidts, A., & El Haji, A. (2016). Ambient scent as a mood inducer in supermarkets: The role of scent intensity and time-pressure of shoppers. *Journal of Retailing and Consumer Services*. doi:10.1016/j.jretconser.2016.05.007
- Luca, R. D., & Botelho, D. (2019). The unconscious perception of smells as a driver of consumer responses: a framework integrating the emotion-cognition approach to scent marketing. *AMS Review*. doi:10.1007/s13162-019-00154-8
- Madzharov, A. V., Block, L. G., & Morrin, M. (2015). The Cool Scent of Power: Effects of Ambient Scent on Consumer Preferences and Choice Behavior. *Journal of Marketing*, 79, 83-96. doi:10.1509/jm.13.0263
- Mehrabian, A., & Russell, J. A. (1974). An approach to environmental psychology. *MIT Press*.
- Mitchell, D., Kahn, B., & Knasko, S. (1995). There's Something in the Air: Effects of Congruent or Incongruent Ambient Odor on Consumer Decision Making. *Journal of Consumer Research*, 22. doi:10.1086/209447
- Morrin, M., & Ratneshwar, S. (2000). The Impact of Ambient Scent on Evaluation, Attention, and Memory for Familiar and Unfamiliar Brands. *Journal of Business Research*. doi:2000:49:157-165
- Morrin, M., & Ratneshwar, S. (2003). Does It Make Sense to Use Scents to Enhance Brand Memory? *Journal of Marketing Research*, 40, 10-25. doi:10.1509/jmkr.40.1.10.19128
- Morrin, M., Krishna, A., & Lwin, M. O. (2011). Is scent-enhanced memory immune to retroactive interference? *Journal of Consumer Psychology*, 21, 354-361. doi:10.1016/j.jcps.2011.02.008

- Ouyang, Y., Behnke, C., Almanza, B., & Ghiselli, R. (2017). The Influence of Food Aromas on Restaurant Consumer Emotions, Perceptions, and Purchases. *Journal of Hospitality Marketing & Management*, 27. doi:10.1080/19368623.2017.1374225
- Rimkute, J., Moraes, C., & Ferreira, C. (2016). The effects of scent on consumer behaviour. *International Journal of Consumer Studies*, 40. doi:10.1111/ijcs.12206
- Ryu, K., & Jang, S. S. (2007). The Effect of Environmental Perceptions on Behavioral Intentions Through Emotions: The Case of Upscale Restaurants. *Journal of Hospitality & Tourism*, 31. doi:10.1177/1096348006295506
- Spangenberg, E., Crowley, A., & Henderson, P. (1996, 04). Improving the Store Environment: Do Olfactory Cues Affect Evaluations and Behaviors? *Journal of Marketing*, 60. doi:10.2307/1251931
- Spence, C. (2015). Multisensory Flavor Perception. 161. doi:10.1016/j.cell.2015.03.007
- Zarzo, M. (2019). Understanding the Perceptual Spectrum of Commercial Perfumes as a Basis for a Standard Sensory Wheel of Fragrances. *Manuel Zarzo*, 7.



## Appendix A. Survey Questionnaire

### Ambient Scents in Restaurants

#### Introduction

The survey is conducted for educational purposes in the context of the capstone project at AUA and the results will not be publicized or used in any other matter. The results are anonymous and confidential.

Hi, I am Lusine, an AUA student. In the scope of my capstone thesis project I am doing research to see customers' attitudes towards scenting in restaurants. The survey will take about 4 minutes to complete and there are no right or wrong answers.

1) Please indicate how much do you disagree or agree with the following statements.

a) When visiting a restaurant I pay attention to the scent present there. \*

<i>Strongly disagree</i>	<i>Disagree</i>	<i>Neutral</i>	<i>Agree</i>	<i>Strongly agree</i>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

b) The presence of pleasant scent in restaurants is important for me. \*

<i>Strongly disagree</i>	<i>Disagree</i>	<i>Neutral</i>	<i>Agree</i>	<i>Strongly agree</i>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

c) The scent from kitchen in restaurants is pleasant for me. \*

<i>Strongly disagree</i>	<i>Disagree</i>	<i>Neutral</i>	<i>Agree</i>	<i>Strongly agree</i>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

d) I like being in a scented restaurant. \*

<i>Strongly disagree</i>	<i>Disagree</i>	<i>Neutral</i>	<i>Agree</i>	<i>Strongly agree</i>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

e) Scenting has a positive impact on restaurant's reputation. \*

<i>Strongly disagree</i>	<i>Disagree</i>	<i>Neutral</i>	<i>Agree</i>	<i>Strongly agree</i>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

f) The scented restaurants provide higher quality services. \*

<i>Strongly disagree</i>	<i>Disagree</i>	<i>Neutral</i>	<i>Agree</i>	<i>Strongly agree</i>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

g) The scented restaurants offer higher quality food. \*

<i>Strongly disagree</i>	<i>Disagree</i>	<i>Neutral</i>	<i>Agree</i>	<i>Strongly agree</i>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

h) My dining experience is more enjoyable in scented restaurants. \*

<i>Strongly disagree</i>	<i>Disagree</i>	<i>Neutral</i>	<i>Agree</i>	<i>Strongly agree</i>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2) I prefer the following scents in restaurants: (Select all that apply) \*

☐ Floral (jasmine, orange blossom)

☐ Woods (cedar wood, pine)

☐ Oriental (vanilla, cinnamon)

☐ Fresh (grapefruit, basil)

☐ Food/Pastry/Bread

☐ Other \_\_\_\_\_

☐ I don't prefer being in a scented place.

3) The three restaurants that I visit most frequently are the following:

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4) Are those restaurants scented?

	Yes	No	I don't know
1.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5) My gender \*

☐ Male

☐ Female

6) My age\*

☐ Under 15

☐ 15-19

☐ 20-24

☐ 25-29

☐ 30-34

☐ 35-39

☐ 40-44

☐ 45-49

☐ 50-54

☐ 55-59

☐ 60 or older

7) My education \*

☐ Secondary

☐ Secondary professional

☐ Higher professional

☐ Post-graduate professional

☐ Other (Please explain) \_\_\_\_\_

### **Closing**

Thank you for participation. To finish the survey please press the “submit” button.

## Survey Questionnaire in Armenian

Հարցումը կատարվում է կրթական նպատակներով՝ Հայաստանի ամերիկյան համալսարանի ավարտական թեզի շրջանակներում: Արդյունքները չեն հրապարակվելու կամ օգտագործվելու այլ նպատակներով: Հարցման արդյունքները գաղտնի են և անանուն:

Ողջույն: Ես Լուսինեն եմ՝ Հայաստանի ամերիկյան համալսարանի ուսանողուհի: Ավարտական թեզիս շրջանակում կատարում եմ հետազոտություն՝ պարզելու հանախորդների վերաբերմունքը արոմատիզացված ռեստորանների նկատմամբ: Հարցումը լրացնելու համար կպահանջվի 4-5 րոպե, և չկան ճիշտ կամ սխալ պատասխաններ:

1) Խնդրում եմ նշել՝ որքանով եք դեմ կամ համաձայն հետևյալ պնդումների հետ:

Ռեստորան այցելելիս ուշադրություն եմ դարձնում այնտեղ տիրող բույրին \*

*Բոլորովին համաձայն չեմ*   *Համաձայն չեմ*   *Չեզոք*   *Համաձայն եմ*   *Լիովին համաձայն եմ*

☐

☐

☐

☐

☐

Կարևոր նշանակություն եմ տալիս ռեստորաններում հաճելի բույրի առկայությանը \*

*Բոլորովին համաձայն չեմ*   *Համաձայն չեմ*   *Չեզոք*   *Համաձայն եմ*   *Լիովին համաձայն եմ*

☐

☐

☐

☐

☐

Ռեստորաններում խոհանոցից տարածվող բույրը հաճելի է ինձ համար \*

*Բոլորովին համաձայն չեմ*   *Համաձայն չեմ*   *Չեզոք*   *Համաձայն եմ*   *Լիովին համաձայն եմ*

☐

☐

☐

☐

☐

Ինձ համար հաճելի է գտնվել արոմատիզացված ռեստորանում \*

*Բոլորովին համաձայն չեմ*   *Համաձայն չեմ*   *Չեզոք*   *Համաձայն եմ*   *Լիովին համաձայն եմ*

☐

☐

☐

☐

☐

Արոմատիզացիան դրական ազդեցություն ունի ռեստորանի հեղինակության վրա \*

<i>Բոլորովին համաձայն չեմ</i>	<i>Համաձայն չեմ</i>	<i>Չեզոք</i>	<i>Համաձայն եմ</i>	<i>Լիովին համաձայն եմ</i>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Արոմատիզացված ռեստորանները տրամադրում են ավելի բարձրորակ սպասարկում \*

<i>Բոլորովին համաձայն չեմ</i>	<i>Համաձայն չեմ</i>	<i>Չեզոք</i>	<i>Համաձայն եմ</i>	<i>Լիովին համաձայն եմ</i>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Արոմատիզացված ռեստորանները տրամադրում են ավելի բարձրորակ սնունդ \*

<i>Բոլորովին համաձայն չեմ</i>	<i>Համաձայն չեմ</i>	<i>Չեզոք</i>	<i>Համաձայն եմ</i>	<i>Լիովին համաձայն եմ</i>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Ինձ համար ավելի հաճելի է ճաշել արոմատիզացված ռեստորանում \*

<i>Բոլորովին համաձայն չեմ</i>	<i>Համաձայն չեմ</i>	<i>Չեզոք</i>	<i>Համաձայն եմ</i>	<i>Լիովին համաձայն եմ</i>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2) Ռեստորաններում նախընտրում եմ հետևյալ բույրերը՝ (Նշեք բոլոր հնարավոր տարբերակները) \*

☐ Ծաղկային (հասմիկ, ծաղկող նարինջ)

☐ Փայտային (մայրի, սոճի)

☐ Արևելյան (վանիլ, դարչին)

☐ Թարմ (լոռիինջ, ռեհան)

☐ Սննդի/ Հացաբուլկեղենի

☐ Այլ՝ \_\_\_\_\_

☐ Ես չեմ նախընտրում գտնվել արոմատիզացված միջավայրում:

3) Ավելի հաճախ այցելում եմ հետևյալ երեք ռեստորանները՝

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4) Արդյո՞ք այդ ռեստորանները արոմատիզացված են:

	Այո	Ոչ	Չգիտեմ
1.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5) Իմ սեռը՝ \*

☐ Արական

☐ Իգական

6) Իմ տարիքը՝ \*

☐ Մինչև 15

☐ 15-19

☐ 20-24

☐ 25-29

☐ 30-34

☐ 35-39

☐ 40-44

☐ 45-49

O 50-54

O 55-59

O 60 կամ ավելի

7) Իմ կրթությունը՝ \*

O Միջնակարգ

O Միջին մասնագիտական

O Բարձրագույն մասնագիտական

O Հետբուհական մասնագիտական

O Այլ՝ (խնդրում եմ մեկնաբանել) \_\_\_\_\_

Շնորհակալություն հարցմանը մասնակցելու համար: Հարցումը ավարտելու համար սեղմեք "ուղարկել" կոճակը:



## Appendix B. Demographic profiles according to Segment population

Gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	126	48.0	48.0	48.0
	Female	136	52.0	52.0	100.0
	Total	262	100.0	100.0	

Age					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	15-24	64	24.6	24.6	24.6
	25-34	61	23.2	23.2	47.8
	35-44	45	17.0	17.0	64.8
	45 and older	92	35.2	35.2	100.0
	Total	262	100.0	100.0	

Education					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Secondary	139	53.1	53.1	53.1
	Secondary professional	53	20.4	20.4	73.5
	Higher professional and Post graduate	69	26.5	26.5	100.0
	Total	262	100.0	100.0	

## **Appendix C. Interview Questions**

The interview is done for educational purposes in the context of the capstone thesis project in AUA and the results will not be publicized or used in any other matter.

I'm Lusine, an AUA student. For my capstone thesis project at AUA I am conducting a research to see customer attitude towards scented restaurants in Armenia. The results of the interview are going to be confidential and anonymous. It will take about 20 -25 minutes. I will share the survey results and my thesis project with you after completion.

### **In depth Interview**

- **Intro questions**

- i) How long has the restaurant been around?
- ii) How long do you work here?
- iii) When did you start using scents?

- **Questions about the process of installation**

- 1) Why have you decided to scent the restaurant? What was your initial goal when deciding to add some pleasant scents to the environment?
- 2) Please tell about the process of installation of scent diffusers in the restaurant.  
In your opinion, how easy or difficult it was to install.
- 3) How long do you use scent diffusers and how satisfied are you with the results?

- **The process of implementation**

- 4) What scents do you use in the restaurant?
- 5) How have you decided which exact scent to put?
- 6) Do you change the intensity of scent during certain periods of the year or during a day?
- 7) Do you turn off the scent diffusers during a day?
- 8) Do you use different scents during a day, or have you changed the type of scent ... if yes, why?

- **Question about the change in customer's behavior**

9) Have you noticed any change in customer's behavior after adding scents to the restaurant?

If yes, can you bring examples?

10) Have you received any direct feedback from consumers about the scents?

11) In your opinion, has the consumer loyalty increased after installing the scent diffusers in the restaurant.

12) Have you noticed a change in time that consumers tend to spend in restaurant with the presence of the pleasant scent in the environment?

13) Have you noticed any other such patterns or changes in consumer behavior that could have been the result of the present aromas?

- **Questions about sales**

14) Have you noticed a gradual increase in the total sales of the restaurant after installing the scent diffusers?

15) Do you think that the increase was due to the pleasant scents dispersed?

16) In your opinion, has the scents affected the sales of a particular category of products.

- **Concluding questions**

17) Overall, in your opinion, have you reached your initial goal or to what extent have you reached it?

18) Is there anything more you would like to add?

Thank you for your participation in my research. I will share the results of the survey and my thesis with you afterwards.