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The Dual Role of Crowding in Hedonic Retail Environments: How Human and Spatial Crowding Shape Excitement, Eustress, Satisfaction, and Impulsive Buying

Lailatus Sa'diyah[1], Della Ayu Zonna Lia[1]
[1]Universitas Negeri Malang, East Java, Indonesia

Corresponding author e-mail: della.lia.fe@um.ac.id

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Abstract: The cosmetic retail industry in Indonesia faces intense competition and increasingly crowded store environments. While prior studies predominantly emphasize the negative consequences of crowding, this study offers a different perspective by examining its potential to elicit positive emotional responses. Drawing on the Stimulus-Organism-Response (SOR) framework, this research investigates the effects of human crowding and spatial crowding on consumers' excitement and stress, and their subsequent impact on satisfaction and impulsive buying behavior. A quantitative survey of 276 consumers was analyzed using SEM-PLS. The findings reveal that human crowding significantly increases both excitement and stress, while spatial crowding primarily triggers stress without affecting excitement. Notably, both excitement and stress positively influence satisfaction, suggesting that stress in this context may function as eustress (positive stress) rather than purely negative pressure. Furthermore, satisfaction significantly drives impulsive buying behavior. This study offers a novel perspective that retail crowding extends beyond negative implications and introduces the role of eustress in shaping consumer experiences in hedonic retail settings. Practical insights for managing crowding to enhance emotional engagement and stimulate impulsive purchases are discussed.

Keywords: Hedonic Retail Environment, Impulsive Buying, Role of Crowding

A. Introduction

The retail cosmetics industry in Indonesia is currently facing intense competition with the arrival of several major brands such as Sephora, Guardian, and Sociolla. The Indonesia Retail Market Report by Mordor Intelligence forecasts that the beauty segment will grow substantially, with a compound annual growth rate (CAGR) of 12.8% through 2030. This figure shows that the beauty segment is one of the fastest-growing sectors in the retail industry in Indonesia (Intelligence 2023). This situation requires retail cosmetics companies to have superior strategies in order to maintain and increase their market share. One important strategy for companies is to understand consumer behavior. Consumer behavior plays a very important role in economics and marketing, as it is a crucial part of a person's purchasing decision-

making process (Wahyono 2024).

The phenomenon of crowding or store density is currently often faced by consumers in retail cosmetics stores, whether it be visitor density (Human Crowding) or store layout density (Spatial Crowding). This poses a challenge for retailers to gain a deeper understanding of consumer behavior, especially how consumers react to the store environment. Interestingly, crowding conditions do not always have a negative impact (stress, discomfort) but can also have a positive impact (excitement, enthusiasm). According to Banerjee (2023) notes that elevated crowding levels in retail settings significantly negatively influence consumer behavior. When consumers experience excessive crowding in a store, it reduces their shopping satisfaction because they feel uncomfortable, stressed, and (BPS, 2019)disturbed during the shopping process. On the other hand, crowding also has positive effects. Although crowding is frequently associated with reduced comfort, evidence suggests that a large number of shoppers can have positive effects in the store environment. The presence of crowds has been proven to increase consumer evaluation of stores because it sends a social signal that the store is viral, in high demand, and trusted, thereby creating a perception of higher value for the store. The density of visitors creates a dynamic atmosphere that can increase consumer stimulation, encourage brand loyalty, and open up opportunities for impulsive purchases (Santini et al. 2022).

Amidst these dynamics, the growth of retail cosmetics stores in various major cities in Indonesia, especially those with open store and interactive display concepts, is increasing. This concept reinforces the role of the store atmosphere as one of the main marketing strategies to make the store appear lively and vibrant. According to recent media reports, Guardian has reopened its flagship store with a new concept that includes an experience zone, virtual try-on, and cosmetics playground to make the store appear lively and interactive (Wandira 2025). However, the development of this strategy has also given rise to a new empirical phenomenon whereby busy stores are often associated with indicators of product popularity and credibility. Lee (2017) However, under the same conditions, this also creates psychological pressure for some consumers. Ultimately, crowds can also potentially reduce comfort in the shopping experience. Perceptions of crowds in retail environments generate two types of responses: positive stimulation, such as excitement, or negative stimulation, such as stress, which arise depending on emotional distance.

The gap in this study lies in the fact that most previous researchers on crowding perceptions in retail environments have focused only on restaurants, malls, and tourism, with limited focus on retail cosmetics stores, which have hedonic and lifestyle characteristics. For example, Febi et al., (2024) show that crowding in restaurants can affect restaurant image and customer satisfaction. A study by explains that the perception of crowding in hypermarkets or large retail stores affects consumer emotions. Although the objects are different, this principle can be used as a basis for studying crowding in retail cosmetics stores.

Furthermore, previous studies have mostly highlighted the effects of crowding on negative emotional responses such as stress, which affects consumer satisfaction, while its influence Positive emotional responses such as excitement that influence impulsive buying have rarely been studied. For example, Gogoi (2017) shows that crowding, whether in the form of human density or spatial density, does not always have a negative effect on consumers because crowding affects customers' emotional responses, including arousal, pleasure, and dominance, which impact shopping satisfaction and impulsive purchasing decisions. Even though the context differs, these results provide a basis for assessing how crowding impacts cosmetic retail environments. These findings support the idea that crowding in cosmetic retail environments, which have hedonistic characteristics, has the potential to trigger consumer excitement, which then influences unplanned purchasing decisions, even though most previous literature emphasizes the effects of crowding on stress or decreased satisfaction. Thus, the integration of crowding, positive emotions, and impulsive buying is a relevant avenue for further exploration.

This study is novel in that it examines crowding in retail cosmetics stores in Indonesia, which has been largely overlooked in previous studies. In addition, this study integrates two psychological variables, namely excitement and stress, along with two consumer behavior variables, namely satisfaction and impulsive buying, into a comprehensive analytical framework. An individual's sense of crowding, determined by space density and the presence of others, can lead to varying emotional responses. The new perspective offered is that crowding does not always have a negative impact in the form of discomfort, but can also trigger excitement that has the potential to encourage impulsive buying, especially in the context of cosmetics shopping, which is closely associated with pleasure and lifestyle. Mild stress, or eustress, contributes positively to satisfaction by enhancing individuals' emotional states and behavioral responses.

This study gives several novel contributions. First, it examines crowding in retail cosmetics stores in Indonesia, a context largely overlooked in previous research. Second, it integrates two psychological variables (excitement and stress) and two behavioral variables (satisfaction and impulsive buying) into a comprehensive SOR-based framework. Third, it introduces the concept of eustress (positive stress) as a mechanism through which crowding may enhance satisfaction rather than diminish it. Accordingly, this study aims to examine how human and spatial crowding influence excitement and stress, and how these responses subsequently affect satisfaction and impulsive buying behavior in Indonesian retail cosmetics stores.

Drawing on this perspective, this study aims to explore several key research questions. First, how do human crowding and spatial crowding affect consumers' emotional reactions, particularly excitement and stress, in cosmetic retail stores? Second, in what ways do these emotional responses influence consumer satisfaction and impulsive buying behavior? Third, do excitement and stress act as mediating variables in the

relationship between perceived crowding and consumer behavioral outcomes within cosmetic retail environments?

Human Crowding and Spatial Crowding

Crowding is one of the important stimuli in consumer psychology that describes consumers' opinions about the density of store layout or visitor density in a retail environment. Within marketing studies, crowding is commonly categorized into two dimensions: human crowding and spatial crowding. Crowding is understood as the perception of density, which includes the number of visitors, referred to as human crowding, and the density of store layout, usually referred to as spatial crowding (Suda 2022). These two types of visitors are understood in the Stimulus Organism Response (SOR) framework, where retail conditions trigger internal responses in the form of consumer emotions and perceptions, which then lead to behaviors such as excitement, stress, satisfaction, and impulsive buying. The Stimulus Organism Response (SOR) framework, proposed by (Mehrabian & Russell, 1974) posits that environmental stimuli influence individuals' internal emotional or psychological states, which subsequently shape behavioral outcomes such as attraction and satisfaction. The application of SOR is reinforced by human crowding and spatial crowding, which consistently influence store evaluation and shopping behavior (Blut and Iyer 2020).

Interestingly, the presence of many people does not always have a negative impact. Several studies show that density can also have a positive effect on social effects, such as social proof, store popularity, and increased excitement, especially when consumers consider the situation to be reasonable and appropriate for the product category. In certain situations, overly crowded environments can lead to feelings of unease and stress, ultimately shaping how consumers assess their shopping experience. Seminal research by (Eroglu, Machleit, and Neybert 2020) on perceived retail crowding demonstrates that higher levels of both human and spatial crowding are likely to reduce shopping satisfaction when consumers experience the environment as uncomfortable.

Stress and Excitement

Excitement is a positive emotion that arises when the shopping experience is stimulated by consumers, especially hedonic beauty products. In the context of the consumer shopping experience, positive emotions such as excitement reflect a pleasant experience and arousal that can shape positive attitudes toward the retail environment (Rahmanto and Ratnasari 2023). Conversely, stress arises as a negative response when consumers feel overwhelmed by crowded conditions and limited space, resulting in a loss of shopping comfort due to decreased satisfaction. However, most of the stress experienced by retail store visitors is mild stress, or what is commonly referred to as eustress, which is positive stress with a low to moderate

intensity that can be perceived as a challenge rather than a threat, because when they queue to get the product they want, they will feel satisfaction after successfully obtaining the product. Eustress is still under individual control, so it can increase satisfaction, effort, and strengthen purchase intent or other positive behaviors. Eustress is a form of stress that is perceived positively, where individuals view challenges as opportunities that can increase focus and engagement in certain situations (Anwar et al. 2023).

Satisfaction and Impulsive Purchasing

Customer satisfaction in the retail context is a consumer evaluation that compares expectations with the reality of their shopping experience (Oliver, 2010). Tran (2020) highlights that customer satisfaction is shaped by service quality as well as the overall shopping experience, encompassing consumers' perceptions of value and convenience throughout the purchasing process. Thomas (2014) found that store image and product diversity are the main determinants of customer satisfaction, as both influence consumers' perceptions of value and trust in a store.

Purchases categorized as impulsive are made without prior intention and are driven by immediate emotional responses or environmental cues. Recent research reinforces those positive emotions, such as pleasure or excitement, play a strong role in driving impulsive buying, so that when consumers make impulsive purchases, they generally feel satisfied or are in a more positive mood.

Research shows that positive emotions play a significant role in driving impulsive buying behavior. Saputran and Kuswati (2024) found that positive affect directly influences impulsive buying, indicating that pleasant emotional experiences can increase the urge to make spontaneous purchases. Additionally, Emerald, Rahma, and Utami (2025) stated that positive emotions reinforce impulsive buying tendencies, so consumers who are in a positive mood or feel pleasure are more prone to making unplanned purchases.

Inter-variable influence

Crowding to Stress and Excitement

Crowding is an individual's subjective perception of a room's situation, influenced by human density and a perceived environment that is too crowded, causing psychological pressure or emotional stress (Zhang, Qi, and Zhang 2023). A recent meta-analysis also confirms that both social and spatial crowding generally evoke negative emotions such as anxiety and stress, which then lower consumers' assessment of the shopping environment (Blut and Iyer 2020). However, in the dynamic environment of a cosmetics store, human crowding can actually have the opposite effect, namely, excitement. A high number of shoppers may serve as a cue of

trust and social validation, indicating that a store is popular and reliable, which in turn stimulates positive emotions such as pleasure, arousal, and excitement (Mehta 2013). Thus, although crowding was once perceived as stressful, in hedonistic retail environments such as cosmetics stores, human crowding can function as a social trigger that generates consumer excitement. Therefore, this study proposes several research hypotheses based on the literature review:

H1: The perception of human density has a negative and significant effect on shopping excitement.
H2: Perceptions of human density have a positive and significant effect on consumer stress.
H3: Perceptions of spatial density have a negative and significant effect on shopping excitement.
H4: Perception of spatial density has a positive and significant effect on consumer stress.

Excitement and Satisfaction

Positive emotions that arise during the shopping process, such as excitement, pleasure, and arousal, have been consistently proven to significantly increase consumer satisfaction, because pleasant emotional experiences trigger consumers to evaluate their interactions with products or services more positively (Binantoro 2025; Chandra 2014). Excitement encourages the formation of positive perceptions of stores and products, thereby directly contributing to increased satisfaction. Therefore, this study proposes several research hypotheses based on a review of the literature:
H5: Shopping excitement is positively related to consumer satisfaction. Stress to Satisfaction

Tran (2020) found that assessments of crowding levels contribute to the emergence of emotional stress in consumers, which then affects satisfaction levels in the shopping experience. Although the impact is contextual and influenced by the perceived intensity of crowding, these findings indicate that consumer emotional stress plays a significant role in shaping shopping satisfaction. Pressure or challenges that are assessed positively by consumers can encourage higher levels of engagement and generate positive emotional responses, because such pressure is interpreted as a challenging but controllable stimulus, rather than an obstacle in the consumption experience (Hollebeek and Sprott 2023).

Stress to Satisfaction

Although it is usually seen as a negative response to environmental pressures, psychological literature distinguishes stress into distress and eustress. Eustress is a positive form of stress that occurs when pressure is perceived as a manageable and meaningful challenge (Anjum, 2023). How individuals perceive and interpret stress

determines whether the pressure has a negative impact or actually brings psychological benefits. Based on the findings of Awada (2024) stress that is seen as a challenge within normal, moderate limits is generally associated with a more positive mood and increased motivation. This condition explains that the role of eustress as a positive form of stress can enrich an individual's experience in terms of mood and motivation. Therefore, stress does not always reduce well-being, but can function constructively when interpreted adaptively. These findings confirm that emotional pressure of a certain intensity can serve as a positive trigger, depending on how individuals interpret the stress. Therefore, this study proposes several research hypotheses based on a literature review:
H6: Shopping stress is negatively related to consumer satisfaction

Satisfaction and Impulsive Buying

Empirical evidence suggests that positive emotional states among consumers significantly contribute to the occurrence of impulsive purchasing behavior. Nurhayati (2023) found that the likelihood of impulsive buying increases when consumers experience higher levels of positive emotions, especially when the store environment provides support with an attractive atmosphere. Furthermore, Hadi (2025) highlight that hedonic shopping experiences, mediated by positive emotional responses, increase consumers' likelihood of engaging in impulsive buying. Thus, positive emotional experiences influenced by the environment and hedonistic value become the main determining factor of impulse buying behavior. In other words, satisfaction is not only the end result of the shopping experience, but also acts as a stimulus for impulsive buying behavior. Therefore, this study proposes several research hypotheses based on a literature review:
H7: Consumer satisfaction has a significant effect on impulsive buying behavior.

B. Methods

This study used a quantitative method with a five-point Likert scale questionnaire ranging from 1 (strongly disagree) to 5 (strongly agree) based on references from previous studies. The questionnaire consisted of 31 measurement items. The data were collected through an online survey distributed using a structured questionnaire. The data collection process was conducted over a one-month period. Because the data were collected from a single-source survey, the potential issue of common method bias was considered. Harman's single-factor test was conducted to assess whether a single factor accounted for the majority of the variance. The results showed that no single factor dominated the variance, indicating that common method bias was not a serious concern in this study. The quantitative method was chosen because it allows for systematic and objective measurement of respondents' attitudes, perceptions, and levels of agreement. The purpose of this study is to examine the effect of human crowding and spatial crowding on excitement and stress using a descriptive quantitative research design, as well as the subsequent impact of these two emotional

responses on satisfaction and impulsive buying among consumers of retail cosmetics stores in Indonesia.

The subjects of this study were consumers who had experience shopping at retail cosmetics stores in Indonesia. The sampling technique used was purposive sampling, with the criteria being that respondents had shopped directly at physical cosmetics stores, were at least 18 years old, and were willing to complete the questionnaire. Based on these criteria, the number of respondents who met the requirements and could be analyzed in this study was 276 people.

Data processing was carried out using the Partial Least Squares (PLS)-based Structural Equation Modeling (SEM) method with the help of SmartPLS software. The analysis process included testing the outer model to ensure the validity and reliability of the measurement indicators, as well as testing the inner model to assess the intensity of the relationship between variables in the structural model. The inner model evaluation included the R-square value as an indicator of model explanation, effect size to measure the magnitude of each path's influence, predictive relevance (Q^2) to evaluate the model's predictive ability, and evaluation of the significance of path coefficients through the bootstrapping procedure. This approach provided a comprehensive evaluation of the quality of the research model and the causal relationships between variables.

C. Results and Discussion

The descriptive analysis based on data from 276 respondents is summarized in Table 1. The majority of respondents were female, namely 79.3%, while males accounted for 20.7%. In terms of age, the most dominant group was in the 18–24 age range, accounting for 84.1% of all respondents. In terms of employment status, students constituted the largest group, accounting for 69.6%. Regarding educational attainment, the majority of respondents held a D4/S1 degree, representing 75.4% of the sample. The majority of respondents fell into the income category below IDR 1,000,000 per month. Meanwhile, for monthly expenses, the group with expenses of less than IDR 1,000,000 reached 53.6%. The frequency of respondents' visits to cosmetic stores in a month was dominated by the 1-4 times category, which accounted for 57.2% of the total respondents. Most of the respondents often visited the Sociolla retail cosmetic brand, accounting for 58.3% of the total respondents.

Table 1. Respondent Characteristics

Characteristics	Category	Frequency	Percentage
Gender	Female	219	79.3
	Male	57	20.7
Age	<18	7	2.5
	18-24	232	84.1
	25-34	22	8
	35-44	11	4
	45-54	4	1.4
Occupation	Student/College Student	192	69.6
	Employee	60	21.7
	Entrepreneurs	26	9.4
	Unemployed	6	2.2
Education Level	Junior High	2	0.7
	High School / Vocational School	40	14.5
	D1/D2/D3	13	4.7
	D4/Bachelor's Degree	208	75.4
	Master's Degree	11	4
	Doctoral Degree	2	0.7
Monthly Income	<Rp. 1,000,000	111	40.2
	Rp. 1,000,000 – Rp. 3,000,000	92	33.3
	Rp. 3,000,000– Rp. 5,000,000	28	10.1
	>Rp. 5,000,000	45	16.3
Monthly Expenses	<Rp. 1,000,000	148	53.6%
	Rp. 1,000,000 – Rp. 3,000,000	110	33.3
	Rp. 3,000,000 –Rp. 5,000,000	14	5.1
	>Rp. 5,000,000	4	1.4
Frequency of visits to the Cosmetics store per month	1 time	101	36.6
	1-4 times	158	57.2
	5-8 times	13	4.7
	>8 times	4	1.4
Cosmetics Store that frequently visited	Sociolla	161	58.3
	Guardian	150	54.3
	Sephora	49	17.8
	Queen of Cosmetics	63	22.8
	Mitufaya	99	35.9
	Beauty Spot	34	12.3
	Watsons	82	29.7
	Others	21	9.1

The reliability assessment of each indicator is shown through the standardized loading factor values listed in Table 2. An item is deemed valid when its loading factor reaches or exceeds 0.7. All items were found to meet the established validity standards based on the analytical results. A brief overview of the validity testing outcomes is provided in the following section.

Table 2. Outer Loading

Variable	Item	Item's Outer Loading
Human Crowding ((Tran 2020) (Bandyopadhyay 2020) (Byun and Mann 2011)	I feel that cosmetic retail stores are too busy when I go shopping.	0.874
	There are so many visitors coming in and out of cosmetic retail stores.	0.809
	The cosmetic retail store seems very crowded to me.	0.902
	There are many customers inside the cosmetics store I visited.	0.757
Spatial Crowding (Tran 2020) (Bandyopadhyay 2020) (Eroglu, Machleit, and Neybert 2022) (Ha and Lee 2016)	Retail cosmetics stores appear more crowded due to their design and layout.	0.838
	I feel confined when shopping at a retail cosmetics store.	0.917
	I feel cramped when shopping at a store retail cosmetics store.	0.916
	I feel crowded when I see inside the retail cosmetics store.	0.895
Excitement (Tran 2020) (Eroglu, Machleit, and Neybert 2022) (Sun, Zhang, and Zheng 2023a)	I feel motivated to shop at retail cosmetics store.	0.832
	I feel excited when shopping at retail cosmetics stores.	0.887
	I feel happy when shopping at a retail.	0.880
	I feel energized when shopping at retail cosmetics stores.	0.862
Stress ((Tran 2020) (Eroglu, Machleit, and Neybert 2022)(Sun, Zhang, and Zheng 2023b) (Albrecht, Hattula, and Lehmann 2017)	I feel sad when shopping at a retail cosmetic	0.926
	I felt angry when shopping at a retail cosmetics store.	0.931
	I feel afraid when shopping at a retail cosmetics store.	0.935
	I feel disgusted when shopping at a retail cosmetics store.	0.933
	When shopping at a retail cosmetics store, I feel rushed.	0.841
Satisfaction (Tran 2020) (Gogoi 2017) (Koo 2003)(Thomas 2014)	I am satisfied with the experience shopping experience at the retail cosmetics store.	0.882
	I want to return to the retail cosmetics store to shop.	0.823
	I am satisfied with my decision to purchase the product at the retail cosmetics store.	0.850
	I believe that branded retail cosmetics stores are better than none branded cosmetics stores	0.727
Impulsive Buying (Tran 2020) (Bandyopadhyay 2020) (Gogoi 2017) (Geetha Mohan, Bharadhwaj Sivakumaran 2013)	I bought items that were not on my cosmetic shopping list when seeing a crowded store.	0.848
	When shopping for cosmetics, I tend to buy products that are not on my shopping list.	0.836
	When I find cosmetics that interest to me, I buy it immediately without thinking about the consequences.	0.893
	It's fun to buy cosmetics on impulse	0.804

Table 3 also shows that the Average Variance Extracted (AVE) value for all variables has exceeded the minimum limit of 0.50, so that the construct used has a strong variance explanation ability. In addition, Cronbach's Alpha and Composite Reliability (CR) values consistently above 0.70 further reinforce that this research instrument is not only valid but also reliable overall. Thus, all constructs can be trusted to describe the variables under study.

Table 3. Construct Reliability and Validity

Variable	Cronbach's Alpha	rho A	CR	AVE	Result
HC	0.864	0.929	0.904	0.702	Valid and Reliable
SC	0.914	0.918	0.940	0.796	Valid and Reliable
Ex	0.888	0.888	0.923	0.749	Valid and Reliable
St	0.950	0.952	0.962	0.836	Valid and Reliable
Sf	0.839	0.849	0.893	0.676	Valid and Reliable
IB	0.868	0.878	0.909	0.715	Valid and Reliable

Inner Model testing in this study includes evaluation of R-square values and hypothesis testing. Referring to Hair et al. (2019) the R-square value can be interpreted as an indicator of good or high model quality if the value is above 0.67, moderate if it is in the range of 0.33 to 0.67, and low if the value is below 0.33. This classification helps assess the extent to which the model can explain the variation that occurs in the endogenous variable.

Table 4. R-Square Model

Variable	R-Square	Adjusted R-Square
Et	0.151	0.144
St	0.187	0.184
Sf	0.482	0.478
IB	0.435	0.431

Based on the R-Square test results in Table 4, it can be seen that the Et variable has an R-Square value of 0.151 and an Adjusted R-Square of 0.144. This means that the model is able to explain approximately 15.1% of the variation that occurs in the Et variable, while the rest is influenced by other factors outside the model. The St variable shows an R-Square value of 0.187 and an Adjusted R-Square of 0.184, which means that 18.7% of the variation in St can be explained by the model. These two variables have relatively low R-Square values, so it can be concluded that the model's contribution to the variation in Et and St is still limited.

Meanwhile, the Sf and IB variables show higher R-Square values than the other variables. Sf has an R-Square of 0.482 and an Adjusted value of 0.478, indicating that the model can explain approximately 48.2% of the variation in Sf, which can be considered quite strong. The IB variable also has an R-Square value of 0.435 and an Adjusted value of 0.431, which means that 43.5% of the variation in IB is influenced by the model. The higher R-Square values for Sf and IB indicate that the model has

better predictive power for these two variables than for Et and St.

Inner Model testing in this study includes R-square testing and hypothesis testing. According Hair et al. (2019) to the R-square test is considered good (high) if the value exceeds 0.67, categorized as moderate if it is in the range of 0.33 to 0.67, and low if the value is less than 0.33.

Table 5. Structural Hypothesis Model Test

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
HC ➔ Et	0.436	0.437	0.080	5.482	0.000
HC➔ St	0.270	0.270	0.057	4.754	0.000
SC ➔ Et	-0.079	-0.078	0.073	1.078	0.281
SC ➔ St	0.449	0.450	0.052	8.585	0.000
Et ➔ Sf	0.661	0.662	0.039	16.830	0.000
St ➔ Sf	0.124	0.125	0.041	3.038	0.002
Sf ➔ IB	0.433	0.437	0.050	8.578	0.000

Based on the hypothesis test results shown in Table 5, the relationship between variables was tested using path coefficient values, t-statistics, and p-values. A hypothesis is considered significant if the p-value is < 0.05 and the t-statistic is > 1.96. The results show that human crowding has a positive and significant effect on excitement ($\beta = 0.436$; $p = 0.000$) and stress ($\beta = 0.270$; $p = 0.000$), which means that an increase in the perception of human crowding actually increases both positive and negative emotions in consumers simultaneously. Furthermore, spatial crowding was found to have a positive and significant effect on stress ($\beta = 0.449$; $p = 0.000$), but no significant effect on excitement ($\beta = –0.079$; $p = 0.281$). This shows that spatial density triggers psychological pressure more than feelings of enthusiasm.

In addition, excitement has a positive and significant effect on satisfaction ($\beta = 0.661$; $p = 0.000$), indicating that the higher the feelings of joy and enthusiasm during shopping, the higher the level of consumer satisfaction. Interestingly, stress also shows a positive and significant effect on satisfaction ($\beta = 0.124$; $p = 0.002$), indicating that a certain level of stress can actually increase satisfaction in line with the concept of eustress or positive stress in the context of hedonistic shopping. Eustress is understood as a form of stress that is experienced positively when individuals respond to challenging situations that help improve performance and well-being. Finally, satisfaction significantly encourages impulsive buying ($\beta = 0.433$; $p = 0.000$), so that more satisfied consumers tend to make impulsive purchases.

Human Crowding to Excitement

The finding that human crowding positively influences excitement contradicts the initial hypothesis, which predicted a negative relationship. This finding is significant ($t= 5.482$; $p < 0.001$). However, this unexpected result can be reasonably explained by

considering the contextual nature of crowding perceptions, particularly within hedonic retail environments such as cosmetic stores.

Unlike utilitarian shopping contexts, cosmetic retail settings are inherently experiential and socially driven. In such environments, the presence of many other shoppers may not necessarily be perceived as a source of discomfort, but rather as a signal of store attractiveness, popularity, and social validation. This aligns with the concept of social proof, where individuals tend to interpret crowded environments as an indication of product quality and desirability. As (Lyer 2020) state, instead of triggering avoidance responses, human crowding may enhance emotional arousal and create a more stimulating shopping atmosphere.

More importantly, this finding can also be interpreted through the lens of eustress, which provides a novel perspective in understanding consumer responses to crowding. While crowding has traditionally been associated with negative stress (distress), the results of this study suggest that, in certain contexts, the pressure created by the presence of others can be appraised as a manageable and even enjoyable form of stimulation. This type of positive stress, or eustress, is characterized by increased energy, engagement, and emotional involvement. In a lively cosmetic retail setting, human crowding may create a sense of urgency, competition, or excitement that enhances the overall shopping experience rather than diminishing it. Therefore, the positive relationship between human crowding and excitement observed in this study highlights the importance of contextual and psychological interpretations in shaping consumer responses. It also reinforces the idea that crowding, when aligned with the hedonic nature of the retail environment, can serve as a strategic element in enhancing consumer emotions rather than diminishing them (Lee and Lee 2025).

Human Crowding to Stress

The second hypothesis was supported, with results showing that human crowding significantly increased stress ($t = 4.754$; $p < 0.001$), suggesting that the presence of a large number of shoppers may create psychological pressure during the shopping experience. This result is consistent with prior research Machleit (2008) which shows that high levels of social density tend to increase cognitive load and reduce perceived control, thereby triggering negative emotional responses such as tension and discomfort. This effect is consistent with the literature, which states that the presence of many individuals in a confined space can cause social pressure, decreased self-control, and discomfort.

From a psychological perspective, crowded environments can limit personal space and increase the likelihood of social interference, which may lead consumers to feel rushed or overwhelmed. This aligns with the environmental psychology perspective that excessive social stimuli can act as a stressor when individuals perceive the situation as uncontrollable E. Aguirre Lopez*, A. Roggeveen, D. Grewal (2016) In retail

settings, such conditions may reduce consumers' ability to browse comfortably, thereby increasing emotional strain. However, it is important to note that the level and interpretation of stress may vary depending on context and individual characteristics. In hedonic retail environments such as cosmetic stores, the stress experienced may not always be purely negative, but can coexist with positive emotional arousal, as also reflected in the simultaneous increase in excitement observed in this study.

Spatial Crowding to Excitement

The results show that spatial crowding does not have a significant effect on excitement, indicating that physical space limitations alone are insufficient to generate positive emotional responses ($t = 1.078$; $p = 0.281$). This finding supports prior studies suggesting that spatial constraints tend to reduce perceived comfort without necessarily enhancing emotional stimulation (Eroglu, Machleit, and Feldman 2005)(Blut and Iyer 2020).

Unlike human crowding, which can provide social cues and enhance perceived store popularity, spatial crowding is more closely associated with functional aspects of the shopping environment, such as layout, aisle width, and mobility. When consumers perceive the space as cramped or restrictive, they are more likely to experience a loss of control rather than emotional engagement. As a result, spatial crowding does not contribute to excitement, particularly in environments where consumers expect ease of movement and accessibility. Similarly, Harrell, Hutt, and Anderson (1980) found that the perception of a narrow space reduces customer comfort but does not create emotional stimuli that can increase excitement. This finding reinforces the distinction between social and physical dimensions of crowding, highlighting that only certain types of environmental stimuli are capable of generating positive affective responses.

Spatial Crowding to Stress

The analysis confirms that spatial crowding has a strong positive effect on stress, indicating that limited physical space is a significant source of negative emotional responses in retail environments. This result is consistent with existing literature, which identifies spatial crowding as a primary driver of frustration, anxiety, and perceived discomfort (Blut and Iyer 2020; Harrell, Hutt, and Anderson 1980; Zhang, Qi, and Zhang 2023).

From an environmental psychology perspective, restricted space can reduce individuals' sense of autonomy and increase perceived environmental pressure. When consumers experience difficulty navigating the store or accessing products, they are more likely to feel constrained and stressed. This effect is particularly relevant in cosmetic retail settings, where consumers often require time and space to explore products, test items, and engage with displays. Therefore, unlike human crowding, which may have dual emotional effects, spatial crowding appears to function

predominantly as a negative stimulus that undermines the overall shopping experience.

Excitement to Satisfaction

The findings demonstrate that excitement has a strong positive effect on satisfaction, confirming the critical role of positive emotions in shaping consumer evaluations ($t = 16.830$; $p < 0.001$). This result is consistent with the broader literature on consumer experience, which emphasizes that affective responses significantly influence satisfaction judgments (Zhang, Qi, and Zhang 2023).

Excitement, as a form of high-arousal positive emotion, enhances consumers' engagement and enjoyment during the shopping process. When consumers feel energized and enthusiastic, they are more likely to evaluate their experiences favorably and develop positive attitudes toward the store. This aligns with the SOR framework, where emotional states act as mediators between environmental stimuli and behavioral outcomes.

In the context of cosmetic retail, where products are closely linked to self-expression and hedonic value, excitement plays an even more prominent role in shaping satisfaction. The experiential nature of such environments amplifies the impact of emotional responses on overall consumer evaluations.

Stress to Satisfaction

Interestingly, the results reveal that stress has a positive and significant effect on satisfaction ($t = 3.038$; $p = 0.002$), contradicting the traditional assumption that stress negatively affects consumer evaluations. This finding can be explained through the concept of eustress, which refers to a positive form of stress that enhances engagement, motivation, and emotional involvement (Hollebeek & Sprott, 2023).

To understand why the stress experienced by respondents in this study manifested as eustress rather than distress, it is crucial to consider the hedonic nature of cosmetic retail. Unlike utilitarian shopping, where crowding and tension are strictly perceived as goal hindrances (distress), cosmetic shopping is heavily driven by hedonic motives such as pleasure, trend-seeking, and self-enhancement. In this specific context, the crowding-induced stress is not appraised as a threatening loss of control (distress), but rather as a manageable challenge (eustress).

Furthermore, high human density in a popular cosmetic store often acts as a positive social cue, triggering a "bandwagon effect" and a sense of Fear of Missing Out (FOMO). This creates a competitive atmosphere where shoppers feel a mild, thrilling tension to secure popular or limited products. Situations such as competing for popular products, navigating busy stores, or making quick purchase decisions create

a sense of urgency. This phenomenon aligns with the concept of the "thrill of the hunt"; the stress is experienced as an exciting rush rather than an overwhelming burden.

Because the tension is linked to an anticipated reward, it functions as hedonic stress. When consumers successfully navigate the crowd and complete their purchase under such competitive conditions, the initial tension transforms into a strong sense of accomplishment. This relief and feeling of victory ultimately contribute positively to their overall satisfaction. Tran (2020) highlights that eustress can enhance positive emotions and performance. Therefore, in the context of highly sought-after cosmetic retail, mild situational pressure enriches the shopping experience, proving that not all stress is detrimental, but can rather be a motivating force associated with meaningful experiences and goal achievement (Juliane Kloidt, 2024).

Satisfaction and Impulsive Buying

The results confirm that satisfaction has a significant positive effect on impulsive buying behavior ($t = 8.578$; $p < 0.001$), indicating that consumers who feel satisfied with their shopping experience are more likely to engage in spontaneous purchases. According to Savitri (2025) impulsive buying behavior is strongly influenced by positive emotions, particularly in promotional settings where consumer mood is elevated. Such emotions, when elicited by external stimuli, increase the probability of spontaneous purchasing decisions. In the context of cosmetics, satisfaction can make consumers more impulsive because the products are hedonistic and visual.

Satisfied consumers tend to experience positive moods, which reduce cognitive restraint and increase openness to unplanned purchases. In hedonic product categories such as cosmetics, where purchases are often driven by emotional appeal, satisfaction can further amplify impulsive tendencies. The pleasurable experience associated with shopping may encourage consumers to prolong their time in-store and explore additional products, thereby increasing the probability of impulse buying. This finding reinforces the role of emotional and experiential factors as key drivers of consumer behavior in retail settings.

Implications for Cosmetic Retail Management

From a managerial perspective, the findings of this study suggest that crowding should not be viewed solely as a problem to be minimized, but rather as a strategic element that can be managed to enhance consumer experience. In particular, human crowding can be leveraged to create a lively and attractive store atmosphere that signals popularity and social validation, thereby increasing excitement and engagement. However, retailers must carefully balance this by minimizing excessive spatial crowding, which has been shown to negatively impact consumer comfort and increase stress. Effective store layout design, adequate aisle space, and clear product organization are essential to ensure that consumers can navigate the store

comfortably.

Furthermore, the identification of eustress as a positive driver of satisfaction highlights the importance of designing shopping environments that provide an optimal level of stimulation. Retailers can create such conditions through interactive displays, limited-time promotions, and engaging in-store experiences that generate excitement without overwhelming consumers.

Overall, the findings emphasize that successful retail management requires not only controlling physical conditions but also understanding how consumers psychologically interpret their shopping environment. By strategically managing both social and spatial aspects of crowding, cosmetic retailers can enhance emotional engagement, increase satisfaction, and ultimately stimulate impulsive buying behavior.

D. Conclusion

This study provides insights into how crowding shapes consumer behavior in cosmetic retail environments. The findings indicate that crowding does not function solely as a negative stimulus but can generate complex emotional responses that simultaneously increase excitement and stress. Human crowding was found to enhance both positive and negative emotional arousal, whereas spatial crowding mainly contributes to stress, highlighting the importance of distinguishing between different dimensions of crowding. The results also reveal that stress, which is often perceived as detrimental, may function as eustress in hedonic shopping contexts. This suggests that a certain level of pressure can be interpreted by consumers as stimulating rather than harmful, thereby enhancing satisfaction. Furthermore, satisfaction was found to significantly encourage impulsive buying behavior, emphasizing the important role of emotional experience in retail environments. From a managerial perspective, retailers should not only attempt to minimize crowding but also manage it strategically to create a lively and engaging store atmosphere.

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