

Van Dat Tran

**Article**

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## MARKETING | RESEARCH ARTICLE

# Assessing the relationship between perceived crowding, excitement, stress, satisfaction, and impulse purchase at the retails in Vietnam

Van Dat Tran<sup>1\*</sup>

**Abstract:** This study aims to examine the relationship between perceived crowding, excitement, stress on satisfaction, and impulse purchase at the retails in Vietnam. This study performed structural equation modelling (SEM). A total of 264 valid respondents were used in this research. Besides, this study systematized the concept, defined, and test the component scales of the relationship model among perceived crowding, excitement, stress, satisfaction, and impulse purchase from the collected data, which helps to identify the relationship among factors in the model as well as impact. The findings indicate that the perceptions of human and spatial crowding have a negative influence on customer satisfaction leading to their impulse purchase decision. This belief is advocated by the existence of human emotional reactions to customer satisfaction. In detail, exciting reactions positively impact on shoppers' satisfied feelings; by contrast, stress is negatively related to customers' satisfaction. In other words, shoppers intend to be more excited and less stressed in retail who could facilitate a low level of spatial crowding and appropriate physical arrangements of fixtures.

**Subjects:** Business, Management and Accounting; Management of Technology & Innovation; Marketing

**Keywords:** spatial crowding; human crowding; excitement; stress; impulse purchase

**Subjects:** M30; M31; M37

### 1. Introduction

The perception of perceived crowding in retail has increasingly played a vital part in customer shopping orientation. Retailers may create either excitement or stress experiences to customers via providing a satisfying physical shopping environment or a favorable image of the store in the

#### ABOUT THE AUTHOR

Van Dat Tran is a lecturer in marketing and currently Heads the Department of Marketing, Faculty of Business Administration, Banking University of Hochiminh City, Vietnam, is also a PHD scholar at Business Management, National Taipei University of Technology, Taipei, Taiwan. Presently, his research interests are in the areas of consumer behaviors, consumer psychology, brand management, marketing management and digital marketing.

#### PUBLIC INTEREST STATEMENT

A crowded atmosphere has a tendency to excite the shopper. Human crowding increases the emotions of pleasure. Whereas it doesn't excite the shopper has the feeling of discomfort of the crowded atmosphere. In the other hand, spatial crowding increases the arousal of the shopper due to the feeling of availability of more products in a limited space. This study, therefore, suggests that retail store physical arrangements of fixtures need to be allocated conveniently to alleviate the perceptions of spatial crowding from spatial density

customers' minds. With a conservative estimated increase in demographic, inadequate store space allotment in a retail environment for trading may cause an uncomfortable feeling of crowding due to limited space for shoppers' physical movements and shopping activities.

The effects of perceived crowding on customer behaviors have been discussed by several previous researchers; meanwhile, it is recognized a limitation in detailed studies regarding the influences of perceived crowding on customer shopping orientation. Additionally, shoppers' behaviors have been altered dramatically by the social distancing restriction due to Covid-19 crisis. Extension of such exploration from customer emotional responses towards perceived crowding and the impacts of physical environments to the retail domain could result in insightful practical and theoretical implications in customer shopping orientation, especially in a hustle and bustle retail industry in Vietnam.

A crowded atmosphere has a tendency to excite the shopper. Human crowding increases the emotions of pleasure. Whereas it doesn't excite the shopper has the feeling of discomfort of the crowded atmosphere. In the other hand, spatial crowding increases the arousal of the shopper due to the feeling of availability of more products in a limited space. A few studies show the retail context may determine how people perceive density. For example, Evans et al. (1996) found that crowding relates to human behavior and affects of layout design on perceived crowding and shopping behavior in the retail (Machleit et al., 2000). In addition, Grewal et al. (2003) showed that crowding effects in stimulus overload and consumer responses under varying density conditions (Harrell & Hutt, 1976). However, Bandyopadhyay (2020) found that human crowding does not have a significant relationships impulsive, urge to buy, and in-store browsing. In addition, Hussain and Siddiqui (2019) found that instinctive buyer insignificant effects to store environment and impulsive trails of the consumer directly lead to impulse buying and self-checkouts can help create shopping value (Nguyen et al., 2020; Verhagen et al., 2019). Shoppers' gender and perceived retail crowding moderate the influence of shopping value on satisfaction.

The following paper synthesizes and builds on the efforts to both test and propose an integrative model of human crowding, spatial crowding, excitement, stress, satisfaction, and impulse purchase. In particular, this study extends the current literature on the interaction effects of perceived crowding on behavioral intentions at the retails from Vietnam. This can, in turn, contribute insightful information to managers to plan better strategies and policies. This paper contributes by examining the notion of perceived crowding and how it relates to impulse buying through excitement, and stress at the retails.

This paper is divided into five additional sections. Initially, the theoretical background and a review of previous studies are discussed. The second section presents the data and methodology. The empirical results are summarized in the third. Next, a discussion of results is presented. The research limitations and the conclusion are outlined in the final section.

## **2. Literature review**

### **2.1. Human crowding and spatial crowding**

McGrew (1970) supposed that human density and spatial density are the two main determinants of the perception of crowding. Human density refers to the actual number of people in a given space (Stokols, 1972). According to Ladhari et al. (2017) showed that perceived human crowding accelerates shopping confusion which is inclined to lessen store loyalty. Spatial density refers to the amount of space occupied per person. Spatial density is related to the number of people in the environment, amount of space, and interpersonal distance. Similar, Harrell et al. (1980) also supposed that there are two dimensions of crowding, human crowding, and spatial crowding. Human crowding refers to the presence of a high density of humans as well as the extent of social interaction (Machleit et al., 1994). Spatial crowding is the restrictiveness of physical body movement of customer while they are shopping at a store. Hussain and Siddiqui (2019) found that the

insignificant effect of store environment on consumers that are instinctive buyers. According to Eroglu and Harrell (1986) as well as Harrell et al. (1980), the physical environment evokes feelings of crowding. The physical environment consists of the layout in the store, which is the arrangement of the amount and the size of merchandise and fixtures. The assertions about crowding perception in the work by Machleit et al. (1994) were: “The store seems very crowded,” “There is a lot of movement in this store,” and “There are a lot of customers in this store”.

## 2.2. Excitement

Emotional response is one of the variables which is the most common survey. A crowded atmosphere has a tendency to excite the shopper. Human crowding increases the emotions of pleasure. Whereas it doesn't excite the shopper has the feeling of discomfort of the crowded atmosphere. In the other hand, spatial crowding increases the arousal of the shopper due to the feeling of availability of more products in a limited space. Whereas, some the shopper doesn't feel pleasure in shopping due to feeling of congestion. Machleit et al. (2000) claimed that higher levels of perceived crowding hinder positive emotions (e.g., joy or interest). In the studies by Li et al. (2009) as well as Pan and Siemens (2011), the perception of crowding is related to positive emotions. Furthermore, according to Baker and Wakefield (2012), positive emotions is the result of the perception of human agglomeration. Finally, Mehrabian and Russell (1974) supposed that emotional responses in the shoppers are pleasure and arousal. Pleasure is a feeling of happiness, joy, and satisfaction by an individual. Arousal is the stimulation, due to excitement generated in any environmental situation.

## 2.3. Stress

In the circumplex model of affect (Russell & Pratt, 1980; Russell et al., 1981), high levels of arousal combined with low levels of pleasure equate to feelings of stress. Lazarus (1993) referred that the perception of crowding may be accompanied by stress expressive behaviors. Such reactions may manifest with discomfort, aggression, and motivation to eliminate the causes of discomfort or reduce their importance (Stokols, 1972). Hui and Bateson (1991), as well as Machleit et al. (2000) found a negative effect of crowding when visiting a store. Crowding has been often recognized as the result of a negative emotional reaction to a dense environment (Eroglu & Harrell, 1986; Hui & Bateson, 1991; Machleit et al., 2000; Pons & Laroche, 2007). For Dion (2004), discomfort and being in a hurry was the most influenced by the perception of crowding when visiting a store. And for Eroglu et al. (2005), anger and heartbreak were the emotions that were the most influenced by the perception of crowding when visiting a store. According to Mohan et al. (2013), cluttered shelves, narrow and irregular aisles were found to increase customer's perception of crowding, which may lead to negative emotions.

## 2.4. Satisfaction

According to Woodruff et al. (1983), consumer satisfaction is important because it has been shown that satisfaction with a previous experience influences future shopping choices. In the studies on perceived crowding of Mehta (2013) and Mohan et al. (2013), one of the most relevant and frequently used criterion variables is consumer's satisfaction. Perceived crowding is an important determinant of consumer's satisfaction due to it is considered part of the environment of stores (Machleit et al., 1994; Zehrer & Raich, 2016). Besides, Tran and Le (2020) showed that perceived value directly influences customer satisfaction and behavioral intentions and satisfaction is an antecedent of behavioral intentions. In the research by Oliver (1993) as well as Machleit et al. (1994), customer satisfaction has been defined as an evaluative judgment regarding a shopping experience and perceived satisfaction influenced purchase intentions (Tran, 2020). Li et al. (2009) referred that pleasure is the most significant positive emotion to achieve satisfaction when shoppers purchase in the store. In another study, Jones et al. (2010) evidenced a relationship between different emotions caused by the perceived crowding and satisfaction. Emotion set (frustrated, angry, irritated, feeling disgusting, unfulfilled, unhappy and disgusted) was the only one that had a direct influence on satisfaction with the purchase. The assertions about satisfaction in the study by Jones et al. (2010) including, “I would be satisfied with my shopping experience at this store”, “Having a choice, I would probably go back to that store”, and “I choose this store because I like to come to shop regularly here.

### **2.5. Impulse purchase**

Over time, the definition of impulse buying has evolved. In prior research, Rook (1987) defined impulse buying as a persistent and strong urge or temptation to buy products or services immediately. Another definition to impulse buy of Beatty and Ferrell (1998) is an “at-the-moment on-spot decisions” which are mostly influenced by the store space and the customer’s feeling at the moment. In the study of Gardner and Rook (1988) as well as Youn (2000), impulse buying is defined as an unplanned purchase decision, occurring along with positive emotions and reflecting the buyer’s quick reaction to a stimulus. More recently, Sharma et al. (2010) supposed that impulse buying has been defined as an abrupt and hedonic complex buying behavior that due to its quickness does not give time to search for alternatives or measure possible future consequences. In addition, Simanjuntaka et al. (2019) also found a direct effect of perceived crowding and store image on repurchase intention.

In summary, it is possible to define impulse buying based on three topics: First, the unplanned purchase decision and deliberation regarding the purchase occurred along with positive emotions (Beatty & Ferrell, 1998; Rook, 1987; Rook & Gardner, 1993; Wood, 1998). Second, the decreased concern regarding any consequences or costs. Third, the involvement of persistent and strong urge or temptation that needs to be fulfilled immediately through purchasing (Amos et al., 2014; Sharma et al., 2010; Verhagen & van Dolen, 2011).

### **2.6. Hypothesis**

In this study, perceived crowding consists of two dimensions, human crowding and spatial crowding. The perceived crowding may influence emotions and may have different effects on different people. Most researchers proposed that perceived crowding may reduce the effects of excitement level of the shopper in a store environment, such as Saegert et al. (1975), Hui and Bateson (1991), Wakefield and Blodgett (1994), Gaumer and LaFief (2005), Baker and Wakefield (2012), and Ferreira et al. (2017). And thus this study hypothesizes that:

H1a: Human crowding is negatively related to excitement.

H2a: Spatial crowding is negatively related to excitement.

Research of Harrell and Hutt (1976) on crowding has examined responses of customer under varying density conditions, finding that relatively higher human density results in negative responses. Grewal et al. (2003), Grossbart et al. (1990), Harrell et al. (1980), Machleit et al. (2000), and Menz and Mullen (1981) are also similar. Research of Poon and Grohmann (2014) mentioned the negative consumers’ responses while perceiving spatial crowding under high spatial density. Alawadhi and Youn (2016) showed that a significant mediating role for perceived crowding in the relationship between the effects of store layout on shopping intention. In addition to that, some studies have demonstrated perceived crowding increases feelings of stress, the greater perceived the crowding, the greater the stress (Baker et al., 1992; Gaumer & LaFief, 2005; Saegert et al., 1975; Stokols, 1972). According to Hui and Bateson (1991), crowding creates a state of stress. Baker and Wakefield (2012) supposed that under crowded circumstances, feelings of stress are catalyzed. The following hypotheses were developed:

H1b: Human crowding is positively related to stress.

H2b: Spatial crowding is positively related to stress.

Lucia-Palacios et al. (2020) indicated that frontline employees’ task competence on customer satisfaction increases when the store is crowded. According to Grossbart et al. (1990); the feeling of excitement generated from the crowding may increase the satisfaction level of the shopper (Baker et al. (1994); Rook & Fisher, 1995). A positive relationship may exist between the emotions of pleasure, arousal, and the satisfaction level of the shoppers (Li et al., 2009). In study of Ferreira

et al. (2017), the more positive the emotions, the better the satisfaction with purchases. And thus this study hypothesizes that:

H3: Excitement is positively related to satisfaction of the shopper.

According to Liu et al. (2020) showed that the affect of crowding on individuals' emotion and behavior. Machleit et al. (2000) supposed negative emotions will lead to a bad appreciation of the shopping experience and therefore, it hinders consumer's shopping satisfaction. Negative emotional responses influence consumer's shopping behaviors, such as avoidance. And thus this study hypothesizes that:

H4: Stress is negatively related to satisfaction of the shoppers.

Woodruff et al. (1983) showed that consumer satisfaction is important to the retailer because satisfaction with a previous experience influences future shopping choices. According to Li et al. (2009), the satisfaction level of the customer increase in impulse purchase. The study of Gogoi (2017) proposed that customer satisfaction not only becomes a loyal customer but also recommends the store to other customers. Customer satisfaction leads to increase impulse purchases. I hypothesize as follows:

H5: Satisfaction of shoppers is positively related to impulse purchase.

### 3. Methodology

#### 3.1. Research framework

The purpose of this study is to investigate the relationship between human crowding, spatial crowding, excitement, stress, satisfaction, and impulse purchase through literature review and related study (Figure 1).

#### 3.2. Questionnaires design

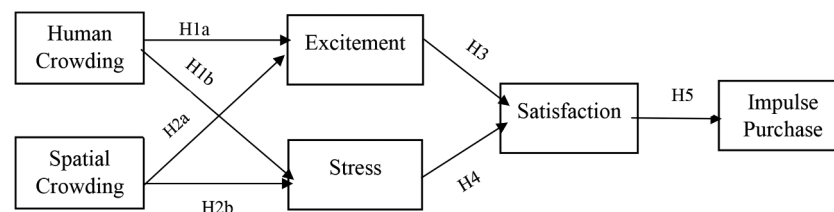
Questionnaires were used in the present study. Excitement and stress were drawn from Russell and Pratt (1980) work on environment related affect. Perceived crowding was measured with items based on Hui and Bateson (1991). In order to measure perceived satisfaction, modified 3 items of scale developed by (Jones et al. (2010)) was used. Finally, to measure impulse purchase, we adopt 3 items from Jarvenpaa et al., (2000)

Impulse buying behavior was assessed by using three items modified from Beatty and Ferrell (1998). Aisle table buying behavior was measured by two items developed for this study based on observations and interviews: "I enjoyed shuffling through the mixed items on the aisle tables," and "I bought things at the aisle tables even though I did not plan to purchase."

#### 3.3. Demographic statistics

The paper questionnaires were distributed to 301 respondents. Among which, there have been 264 responses are valid. Thus, the valid response rate of this survey is 88%. There have been 37 invalid

Figure 1. Research framework.



**Table 1. Respondent profile**

Category	Number of respondents	Percentage
<b>Gender</b>		
Male	156	59.%
Female	108	41%
<b>Age</b>		
Less than 20 years old	23	9%
20–30 years old	101	38%
30–40 years old	70	27%
40–50 years old	35	13%
50–60 years old	30	11%
Above 60 years old	5	2%
<b>Occupation</b>		
Student	110	42%
Banking/financial/insurance	80	30%
Education/culture	40	15%
Government	10	4%
Media/publishing	15	6%
Others	9	3%
<b>Education</b>		
Senior High Diploma or Below	15	6%
Associate Bachelor Degree	79	30%
Bachelor Degree	130	49%
Master Degree	30	11%
PhD Degree	10	4%

responses because the respondents have not answered correctly the reversed scale questions or left the answers blank (see [table 1](#)).

## 4. Results and discussion

### 4.1. Reliability analysis

In order to test the reliability of a measurement scale, item-to-total correlations (Churchill, 1979) and Cronbach’s Alpha (Cronbach, 1951) are considered to be the testing elements. The scale is considered to be good enough for conducting research if it has item-to total correlation not lower than 0.4 and Cronbach’s Alpha value above 0.6 (Hair et al., 1998). Human crowding = 0.907, spatial crowding = 0.894, excitement = 0.914, stress = 0.901, satisfaction = 0.887 and impulse purchase = 0.836. Comparing the current fit indices to the threshold level, the fit indices of Cronbach’s Alpha are great.

### 4.2. Testing measurement model with CFA

Confirmatory Factory Analysis (CFA) is a better method to assess the validity and reliability of measures (Bagozzi & Foxall, 1996). The goodness-of-fit of CFA is used to further assess the convergent validity among the constructs. CFA is applied with the following important indexes: Chi-square, Chi-square/df, Comparative Fit Index (CFI), Index (TLI), Root Mean Square Error Approximation (RMSEA). The goodness-of-fit for each model was assessed by examining the chi-square statistic, the comparative fit index (CFI), and the root-mean-square error of approximation (RMSEA), NFI, IFI, and CFI are greater than 0.90 (Hair et al., 1998). GFI and AGFI index exceeds 0.8. Chi-square/df is equal or lower 2 (Chisquare/df  $\leq$  3 can be accepted in some cases), and RMSEA is equal or lower 0.08 (RMSEA  $\leq$  0.05 is excellent) (Hair et al., 1998).



Those estimates are the precedents for the reliability of all factors for the next analyzing steps in this research. Comparing the current fit indices to the threshold level, the fit indices of CMIN, AGFI, and RMSEA are great. The CMIN/DF, AGFI and RMSEA satisfy the fit indices criteria perfectly. Therefore, the model fits of Confirmatory Factor Analysis is good overall. These evidences which are GFI = 0.910, TLI = 0.98, CFI = 0.98 (> 0.9), Chi-square/df = 1.297 (< 2), RMSEA = 0.31 (< 0.08) prove the validity and reliability of measurements. Moreover, as shown in [Table 2](#), the convergent validity among the constructs, which standardized regression weights are higher than 0.5 with the significant lower than 0.05 (Gerbing & Anderson, 1988). Therefore, no item of factors in this model needs to be deleted. In other words, all the items of factors should be kept in this research for the next step of the data analysis process.

#### **4.3. Convergent validity**

According to Hair et al. (1998), Composite reliabilities (CR) must be larger than 0.7, which should be more reliable. In this study, ranged from 0.887 to 0.919, Convergent validity was assessed in terms of factor loadings and average variance extracted. In CFA, the standardized factor loadings and the Average Variance Extracted (AVE) are utilized to test the convergent validity of constructs. The standardized factors should load above 0.5 and AVEs should exceed 0.5 (AVEs of 0.4 can be accepted) (Gerbing & Anderson, 1988). Definitely, AVE is a strict measure of convergent validity (Malhotra & Dash, 2011). As shown in [Table 3](#), all items had significant factor loadings higher than 0.50. Average variances extracted ranged from 0.63 to 0.68, suggesting adequate convergent validity. Thus, all factors in the measurement model had adequate reliability.

#### **4.4. Discriminant validity**

In order to ensure that one construct is dissimilar from others, discriminant validity should be evaluated. Both Average Variance Extracted (AVE) of two constructs should be greater than the correlation between two constructs squared ( $r^2$ ):  $AVEs > r^2$  (Fornell & Larcker, 1981). The AVE was greater than the squared inter-construct correlation between any pair of constructs, which supports the discriminant validity of the constructs. The results have confirmed the discriminant validity of the five remaining constructs since all correlations satisfy the testing criteria. In other words, the five constructs have statistical evidence proving that they are distinct from each other. Thus, the measurement model demonstrated discriminate validity (see [Table 4](#)).

#### **4.5. Model test**

According to Hair et al. (2010) Comparative Fit Index (CFI), Tucker & Lewis Index (TLI), Root Mean Square Error Approximation (RMSEA). The goodness-of-fit for each model was assessed by examining the chi-square statistic, the comparative fit index (CFI), and the root-mean-square error of approximation (RMSEA), NFI, IFI, and CFI are greater than 0.90. GFI, and RMSEA are used to assess only the overall model fit. As reliability and validity are supported, we proceed to examine the hypotheses shown in the structural model given in [Figure 2](#) by using SEM. Analytical results are reported in [Table 4](#). Model fit is acceptable (CMIN = 543.261; df = 312;  $p < 0.001$ ;  $\chi^2/df = 1.741$ ; CFI = 0.964; RMSEA = 0.049). The paths in the model are all significant. Therefore, the five hypotheses are all supported.

Further evaluation in the structural model indicates that human crowding has a significant, negative influence on excitement (standardized coefficient  $\beta = 0.340$ ) and stress ( $\beta = 0.27$ ). Thus, H1a and H1b are supported. In addition, spatial crowding has a significant, negative impact on excitement ( $\beta = 0.447$ ) and stress ( $\beta = 0.37$ ). Thus, H2a and H2b are supported. The next investigation in this study was assessing the relationship between excitement and satisfaction in online shopping. The results explored that there is a positive relation to these two variables ( $\beta = 0.105$ ). Thus, H3 is supported. The fourth hypothesis proposed that stress ease of use has a negative effect on satisfaction ( $\beta = 0.303$ ). Thus, H4 is supported. Finally, Customer satisfaction is also proved to have a significant, positive effect on impulse intention ( $\beta = 0.926$ ). The results of the direct path show the hypotheses H1, H2, H3, H4, and H5 are supported (see [Table 5](#)).

**Table 2. Testing results of reliability and convergent validity of various conceptions**

	<b>Loading</b>	<b><math>\alpha</math></b>	<b>CR</b>	<b>AVE</b>
Human crowding		0.907	0.907	0.66
I found the store too busy during my shopping trip	0.904			
The store traffic was high	0.834			
I found a lot of shoppers in the store	0.792			
Spatial crowding		0.894	0.9	0.69
The store looks more congested due to the design and layout	0.854			
The store feels very spacious when I shop in the store	0.778			
I felt confined when shopping in the store	0.804			
Excitement				
Exhilarating	0.781	0.914	0.89	0.63
Sensational	0.769			
Stimulating	0.736			
Exciting	0.804			
Interesting	0.875			
Stress		0.901	0.914	0.682
Frenzied	0.865			
Tense	0.804			
Hectic	0.778			
Panicky	0.823			
Rushed	0.857			
Satisfaction		0.887	0.886	0.661
I was satisfied with my shopping experience at the store	0.855			
I would like to come back to the store for more shopping	0.821			
This is the store which I regularly like to come for shopping	0.803			
Impulse purchase		0.836	0.887	0.663
I buy things that is not in my list when I see the store crowded	0.765			
I often purchase more when the store is crowded	0.773			
I feel motivated to buy in stores which are crowded	0.850			

**Table 3. Respondent profile**

Measure	Threshold
Chi-square/df (cmin/df)	≤ 2 good; ≤ 5 sometimes permissible
Goodness of fit index (GFI)	≥ 0.9: acceptable; ≥ 0.8: marginal
Adjusted goodness of fit index (AGFI)	≥ 0.80
Comparative fit index (CFI)	≥ 0.95 great; ≥ 0.90 traditional; ≥ 0.8 sometimes permissible
Root mean squared error of approximation (RMSEA)	≤ 0.05 good; ≤ 0.08 moderate
Probability close (P)	≥ 0.05
Tucker Lewis index (TLI)	≥ 0.9

**Table 4. Discriminant validity and correlations among the constructs**

	Human crowding	Spatial crowding	Excitement	Stress	Satisfaction	Impulse Purchase
Human crowding	1					
Spatial crowding	.664	1				
Excitement	0.679	0.666	1			
Stress	0.599	0.623	0.547	1		
Satisfaction	0.645	0.652	0.651	0.637	1	
Impulse purchase	.654	.670	0.622	0.619	0.638	1

**Table 5. Result of the hypothesis test**

Hypothesis Test	Hypothesis
H1a: Human crowding is negatively related to excitement.	Supported
H2a: Spatial crowding is negatively related to excitement	Supported
H1b: Human crowding is positively related to stress.	Supported
H2b: Spatial crowding is positively related to stress.	Supported
H3: Excitement is positively related to satisfaction of the shopper.	Supported
H4: Stress is negatively related to satisfaction of the shopper	Supported
H5: Satisfaction of shoppers is positively related to impulse purchase.	Supported

In summary, the results explored that human crowding and spatial crowding are negatively related to excitement. Besides, human crowding and spatial crowding are positively related to stress. Spatial crowding and excitement are positively related to satisfaction of the shopper. Finally, the finding supported that satisfaction of shoppers is positively related to impulse purchase

## 5. Conclusion

The findings indicate that the perceptions of human and spatial crowding have a negative influence on customer satisfaction leading to their impulse purchase decision. This belief is advocated by the existence of human emotional reactions to customer satisfaction. This paper reinforces and proves a relationship between customers' satisfaction when shopping activities are restricted (Stokols, 1972) and perceived crowding that results from a combination of human limited shopping interactions and spatial density stimuli (Stokols, 1972). In addition, Bellizzi and Hite (1992) showed that spatial crowding negatively effects to consumer shopping satisfaction.

The findings, initially, found that human crowding and the physical density negatively influence shoppers' excitement. Additionally, a positive relationship between customers' stress reaction and perceptions of human and spatial crowding supports strongly the belief that physical shopping environment is significantly vital to customers' emotional response leading to satisfaction and impulse purchase (Bellizzi & Hite, 1992). This belief is advocated by existence of human emotional reactions to customer satisfaction. In detail, excited reactions positively impact on shoppers' satisfied feelings; by contrast, stress is negatively related to customers' satisfaction. Furthermore, impulse purchase is led positively from customer satisfaction. As a result, the alleviation of perceived crowding participates importantly in retail store design.

Customer impulse intention may be influenced by an overall impression of a store shopping environment (Hildebrandt, 1988). The findings indicate that the perceptions of human and spatial crowding have a negative influence on customer satisfaction leading to their impulse purchase decision. In other words, shoppers intend to be more excited and less stressed in retail who could facilitate a low level of spatial crowding and appropriate physical arrangements of fixtures.

As to consumer perceptions within Covid-19 crisis, a retail store with human density represents a higher opportunity of virus community transmission while social distancing is not restricted due to a disability in human density control. Consequently, shoppers will choose alternative stores to fulfill their impulse purchases due to their dissatisfaction with those dense retail environments.

### 5.1. Managerial implication

According to Bidyut Jyoti Gogoi (2017), the store design strategy is also considered as one of the essential strategies to make shopping more pleasant, leading to an increase in buyer feedback, resulting in increased satisfaction and buying motivation. It is proved that a retail store with proper space arrangement and allocation would provide customers more ease and comfortable physical movements and shopping activities. This study implemented the idea of which store design should seek a balance among reducing the impression of space overcrowding from space intensity and also how human crowds should be controlled. Control over the human density, moreover, in a retail store so that shoppers are easily able to avoid unexpected crowds is necessary. Especially in the peak season, retailers should consider the most convenient store layout through controlling locating rays, product presentation, number of check-out points, etc., to ensure better flow of customer traffic, both in-store and in payment points. Besides, managers should be aware of these effects on consumer responses and take actions that make consumers more accepting of their perception of shopping experience crowds such as creating rest areas, managing queues, or improving circulation (Marlette. et al., 2017). An effective strategy to engage the group who find a certain degree of density to be crowded leading to feeling stressed and less likely to patronize shopping, would be to provide more real or perceived control to customers in retail settings. This makes sense for marketing activities like advertising, shopping mall design, and the use of technology. Advertisements may focus on shopping at less bustling hours and obviously characterize when those hours are (e.g., to pull in guys, place promotion in the games segment of the paper recommending "Purchase from 6:00 pm to 9:00 pm non-weekend days to abstain from crowding"). If the retail environment could

adapt to those factors, they could encourage shopper impulse purchases by improving customer satisfaction.

Therefore, the author's findings suggest that retail store physical arrangements of fixtures need to be allocated conveniently to alleviate the perceptions of spatial crowding from spatial density. Retailers should, additionally, maintain appropriate human crowding from social density. Redesigning stores with open, non-stuffy spaces as well as creating more promotions during off-peak hours will attract more shoppers. It also avoids human crowding, spatial crowding that negatively impacts customer satisfaction.

### 5.2. Research limitation and further research

The research still has limitations in some aspects. Firstly, within different shopping contexts as well as unmentioned feature elements that we have not concentrated on which can engage during shopping trips to alter responses to others' presence. Secondly, the impact of human crowding on various varieties of shops should be investigated, because the research findings are specific and related to discount stores. The future study should cover some mentioned limitations which will be much better and get valuable results. The process of collecting sample data is very difficult because questionnaire interview so the truthfulness of the data depends very much on honesty, the ability to understand, and the attitude of the respondents. In addition, after collecting the questionnaires, the research data is still in raw form which needs to be processed and inputted into the software, so the search and collation take a lot of time as well as inevitably wrong, errors in the input process. Besides, the actual social situation shows a great influence from the CoVid-19 epidemic to the decision to study abroad but due to time constraints, the author has not been able to put this issue into the study. The research results are therefore not highly generalized.

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