

**PERCEIVED RETAIL CROWDING AND ANXIETY:
IMPACT ON SHOPPING SATISFACTION AND IMPULSE BUYING**

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RESUMO

A literatura tem mostrado a existência de um papel mediador das emoções na relação entre percepção de *crowding* no retalho e a satisfação de compra. Os estudos precedentes não têm, porém, investigado o papel que a ansiedade pode desempenhar nesta mediação, pese embora estar amplamente associada a situação de *crowding*. Este estudo propõe-se compreender essa relação associando, para além da satisfação com a compra, a decisão de compra por impulso.

Com uma amostra de 441 clientes de supermercado testámos um modelo por via de equações estruturais com a percepção de *crowding* (humano e espacial) como preditora, a ansiedade-estado como mediadora e a satisfação e compra de impulso como variáveis critério. Controlámos a potencial influência da ansiedade-traço.

Os resultados mostram um papel mediador da ansiedade-estado na relação entre o *crowding* espacial percebido com a satisfação de compra, sem, porém, tal se verificar para a decisão de compra por impulso. Do mesmo modo, a ansiedade-traço está apenas associada (positivamente) à compra por impulso.

O estudo conclui pela existência de processos paralelos associados à ansiedade que deverão ser considerados aquando da gestão dos espaços de retalho tendo por vista a maximização da experiência de compra e porventura a de compra por impulso.

Palavras-chave: *Crowding*, Ansiedade, Satisfação na compra, Compra por impulso

Classificações JEL: M10 Gestão empresarial, D23 Comportamento organizacional, M31 Marketing

ABSTRACT

Research has been showing a mediator role of emotions in the relation between perceived retail crowding and shopping satisfaction. Previous studies have, however, overlooked the role anxiety can play in this mediation, although its relation with crowding is well documented. This study is set to understand this relation adding to the model, besides shopping satisfaction, impulse buy.

With a sample of 441 retail shoppers we tested a model with structural equations taking perceived crowding (human and spatial) as the predictor, state-anxiety as a mediator, and shopping satisfaction together with impulse buy as criteria variables; we controlled the potential influence of trait-anxiety.

Findings show that state anxiety does play a mediator role between spatial crowding and shopping satisfaction. However, this was not observed for impulse buying. Likewise, trait-anxiety is only associated (positively) with impulse buy.

The study concludes for the existence of twofold processes associated with anxiety that should be taken into consideration when managing retail facilities attaining to maximize buying experience and, eventually, impulse buy.

Keywords: Crowding, Anxiety, Shopping satisfaction, Impulse buy

JEL classifications: M10 General Business Administration, D23 Organizational behavior, M31 Marketing

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ACRONYMS

CMIN/DF – Chi Square to degrees of freedom

CFA – Confirmatory Factorial Analysis

RMSEA - Root Mean Square Error of Approximation

SRMR - Standardized Root Mean Square Residual

CFI - Comparative Fit Index

TLI – Tucker Lewis Index

I. INTRODUCTION

In retail, in order to plan management decisions that retailers most likely benefit, it is important to understand the consumer behavior under certain conditions and indeed realize how decision making is influenced by different variables (Machleit *et al.*, 1994). Among these conditions, the store environment itself plays an important role. Retailers do acknowledge the relevance of store environment as a mechanism for market differentiation (Levy and Weitz, 1995). If the effects of the consumer-environment relationship are well understood, naturally the store environment can be considerably enhanced in a way to produce positive outcomes (Machleit *et al.*, 2000). By designing store atmospherics to produce specific emotional responses, the retail managers will boost the consumers' likelihood to buy (Kumar and Karande, 2000).

Due to increasing competition, this becomes a pressing matter and there has been a growing flow of research on how the service environment can influence consumer decision making and buying patterns (Lam, 2001). Indeed, the physical environment in retail stores was found to directly affect consumers' experiences and purchasing during shopping trips (Eroglu and Machleit, 1990). It also plays an important role in building customer satisfaction (Machleit *et al.*, 2000). Some researchers (e.g., Akram *et al.*, 2016) claim the product itself plays a lesser role than buying environment in purchasing decisions.

The store environment comprehends several dimensions. Baker (1987) formulated a framework organizing them into three general groups: ambient, design, and social. Ambient refers to background characteristics, such as temperature, lighting, noise, music and ambient scent. The design concerns the below-conscious level structures that operate such as store layout or architecture. Layout includes the size, shape and arrangement of products, shopping carts and aisles. Also, the spatial relationship among them. Lastly, the social dimension comprehends the number, type and behavior of customers and employees (Baker, 1987; Bitner, 1992; Baker *et al.*, 2002).

Among store environment elements, in-store crowding is particularly interesting for being transversal to all three dimensions and for having received over time increasing attention (e.g., Bateson and Hui, 1992; Eroglu and Machleit, 1990; Gogoi, 2017; Harrell, Hutt, and Anderson, 1980; Hui and Bateson, 1991; Machleit *et al.*, 1994; Machleit, Eroglu and Mantel, 2000; Maeng, Tanner, and Soman, 2013; Pons, Girouz, Murali and Zins, 2016).

Perceived retail crowding, the focal point of this study, also called as perceived crowding or just crowding (Mehta, 2013) plays an important role in consumers' evaluations of services experiences and feelings during shopping trips, consequently affecting shopping behavior (Harrell *et al.*, 1980). It influences a number of retail outcomes such as consumers' satisfaction (Eroglu *et al.*, 2005; Machleit *et al.*, 2000), position towards the store (Mehta *et al.*, 2012; Pan and Siemens, 2011) and behavioral responses (Hui and Bateson, 1991; Pan and Siemens, 2011). It can also have huge influence on customer responses (e.g., time spent at the store and amount purchased) (Machleit *et al.*, 1994). According to Eroglu *et al.* (2005) perceived crowding can occur both from a sense of too many people in the store (human) or scarcity of physical space (spatial). Crowding and queuing, in which the second one represents a direct function of the first, are the main stressors in retail environments (Aylott and Mitchell, 1998).

Store environmental cues affect shoppers' behaviors by means of cognition, emotion and physiological state arousal, without the consumer necessarily being aware of such influences. Cognitive responses involve attitudes, attributions, credibility, evaluation, loyalty, perceptions, store image (Mohan *et al.*, 2013), satisfaction (Eroglu *et al.*, 2005) and values (Eroglu *et al.*, 2005b). Emotional responses can be positive or negative and to evaluate positive emotional responses, the Mehrabian and Russell (1974) PAD (Pleasure, Arousal and Dominance) model is often used, while Izard's (1977) differential emotions model (10 emotions: 7 negative; 2 positive; 1 neutral) with its extensive negative emotions (e.g. sadness, anger, disgust) seems appealing to study consumers' negative responses. At the behavioral level, consumers may activate adaptation strategies, approach-avoidance behavior, behavioral intentions, complaints, behavioral interactions, sales performance, shopping frequency, store patronage, time spent, purchase (Mohan *et al.*, 2013) and impulse buying (e.g., Mattila and Wirtz, 2008).

It is within this topic and context that the present study elects two consumer dependent key drivers of success in retail: shopping satisfaction, and impulse buying. Both are important to increase sales revenue and follow different psychological mechanisms. The first is taken as an asset that increases the chances of repeated buying, and ultimately in customer loyalty, which represents a long run lasting return. The latter builds sales increase not on loyalty but on opportunity, mostly of an emotional nature.

While reviewing previous studies on perceived retail crowding, one of the most relevant and frequently used criterion variable is consumers' shopping satisfaction (Mehta, 2013;

Mohan *et al.*, 2013). This variable is an essential factor for guaranteeing success of any company that sells products or service and it is originated on basis of the evaluation of expected versus experienced product/service performance (Machleit and Mantel, 2001). One of its direct predictors is precisely the store crowding (Eroglu and Machleit, 1990). Its value lies in building loyalty (Carpenter, 2008).

Alongside this loyalty-based reasoning, impulse buy is also to be considered. Cobb and Hoyer (1986) did sustain that, at least occasionally, almost every customer buy impulsively. So, it is not an outlier behavior that should be discarded from retail management. Such purchases account for a considerable amount of the goods sold across a broad range of product categories, every year ranging from 40 to 80% of sales (Amos, Holmes, and Keneson, 2014; Bellenger *et al.*, 1978; Cobb and Hoyer, 1986; Hausman, 2000; Kacen, Hess and Walker, 2012; Rook and Fisher, 1995; Weinberg and Gottwald, 1982). Despite the context, increasing impulsive buying to enhance sales is a main goal in retailing (Beatty and Ferrel, 1998; Kacen *et al.*, 2012; Puri, 1996).

Impulse buying has been considered a distinctive type of consumer buying behavior (Rook, 1987) and is a focal point in terms of purchasing (Matilla and Wirtz, 2008). In order to qualify it as an impulsive purchase, it should have at least two essential features: The absence of planning and deliberation regarding the purchase and the emotional response (Beatty and Ferrell, 1998; Rook, 1987; Rook and Gardner, 1993; Wood, 1998).

Studying impulsive buying in retail settings, more specifically supermarkets, is in the interest of manufacturers and retailers (Abratt and Goodey, 1990) due to the large amounts of money they spent in marketing advertisement in order to create brand awareness and increase market share. Sometimes the in-store stimuli and the way consumers react to them are crucial to design strategies that stimulate additional sales and differentiate from competitors (Zhou and Wong, 2004).

Despite the increasing attention this topic has received in marketing literature (Beatty and Ferrell, 1998; Rook and Fisher, 1995; Jones *et al.*, 2003; Mattila and Wirtz, 2008), there is an information gap on how the store environment influences the impulsive purchase. One of the contributions that can help filling in the gap lies in a common denominator of both satisfaction and impulse buy: emotions.

Emotional response is one of the most commonly investigated criterion variable. Some studies refer that social relations, and the level of crowding and density in a store can induce

customers' pleasure and arousal (Baker *et al.*, 1992; Eroglu *et al.*, 2005; Machleit *et al.*, 2000).

Cluttered shelves, narrow and irregular aisles were found to increase shoppers' perception of crowding, which may lead to negative emotions (Mohan *et al.*, 2013). The status of emotions in marketing research models is often the one of a mediator. Machleit *et al.* (2000) referred precisely to emotions as a mediator in the retail crowding-shopping satisfaction relationship. Further, these authors claimed that higher levels of perceived crowding hinder positive emotions (e.g., joy or interest) and induce negative emotions (e.g., anger, sadness, disgust, anxiety).

Studies have mostly departed from PAD model (Mehrabian and Russell, 1974) to evaluate consumers' emotional responses (Donovan and Rossiter, 1982; Donovan *et al.*, 1994; Machleit *et al.*, 2000; Turley & Milliman, 2000) to different types of environmental stimuli (Richins, 1997). Although they have somewhat overlooked that consumers not only experience emotions in the shopping trip as they actually bring with them a disposition about emotional experience and display. This is what has been known in psychological literature as the difference between "state" and "trait".

Anxiety is precisely an emotion that is liaising with crowding, impulse buy, and satisfaction. It is, additionally an emotion that has received plenty research attention differentiating between anxiety as a state (something experience at the moment, in reaction to a stimulus) and anxiety as a trait (a dispositional aspect of personality). It is also measured by a widely used model (STAI Spielberger, 1970; Spielberger, 1983) in behavioral research. Hence, anxiety is an ideal variable to conduct research on consumer behavior linked to crowding and focusing on the possible mediator effect of emotions.

It is on the basis of this theoretical analysis that this study is set to empirically test the mediator role of state anxiety in the relationship between crowding (both spatial and human), and both shopping satisfaction and impulse buy as outcomes. Anxiety (state only) is taken as the only mediator because it could not reasonably be produced by a short-term experience. Trait anxiety is included in the model for controlling purposes.

The study follows by reviewing literature on key concepts and findings concerning firstly perceived retail crowding, focusing on its antecedents and consequences. It develops to show its relation with satisfaction and impulse buying. It ends the literature review by exploring emotion as a mediator and anxiety in this matter. The theoretical part ends by showing the proposed research model and hypotheses.

II. LITERATURE REVIEW

2.1. PERCEIVED RETAIL CROWDING

Several theories were formulated in the 1970s to explain the phenomenon of crowding. The first approach was regarding environmental and social psychology, later it was hosted by Harrell and Hutt (1976) in the retailing literature.

Stokols (1972) defined crowding as the state of psychological stress that occurs when a person's demand for space exceeds the supply and this could be the consequence of individuals' perceptions of physical or social factors making them anticipate certain problems that potentially can happen. Described in negative terms by individuals' feeling confined, constrained, and restricted results in a negative psychological reaction to dysfunctional dense environment that interferes with ones' tasks and achievement of goals (Baker and Wakefield, 2011; Mehta, 2013; Stokols, 1972).

The majority of the empirical works published concerning perceived crowding and its relation with retail environments rely on three different phenomena that are intimately linked – density, perceived density, and perceived crowding. It is imperative to mention that those are not synonymous (Baker and Wakefield, 2011; Eroglu *et al.*, 2005; Mehta, 2013). Density is the physical condition “in terms of spatial parameters” (Stokols, 1972). It is the number of people in a given area or space and can be split into two types: spatial and social. Spatial density refers to the spatial capacity per person and social density refers to the number of people in a certain space (McGrew, 1970). Perceived density is an unpleasant feeling felt by the individual, and defined as a subjective individual estimate of the number of people, the availability of space, and their organization among each other (Rapoport, 1975). Perceived crowding is the result of the individuals' negative appraisal of the perceived density, based on individuals' desired standards. (Eroglu and Machleit, 1990).

Analogously, density is the objective and quantifiable measure, perceived density is subjective (based on inner experience rather than fact) and neutral (neither positive nor negative) and perceived crowding is the subjective and appraising measure (could be positive or negative) (Mehta, 2013).

In retail settings, perceived crowding is the consumers' evaluation of the confining condition of the retail space. It will be perceived by shoppers when their activities are restricted by a dysfunction in the density stimulated by people (number and type of shoppers),

objects (shopping carts, display equipment, store fixtures), and the relationship among them (cluttered aisles, crowded racks, slow checkout speed) (Eroglu and Machleit, 1990) or when the coping capacities are diminished due to excess of environmental stimuli (Machleit *et al.*, 1994).

Since it is considered a not so easy construct to assess, because given the same conditions of density/perceived density in the same space, each person may have different interpretations of what is happening. Each may or may not experience negative feelings and then perceive different levels of crowding. The appraisal whether the place seems crowded or not is individual in nature (Machleit *et al.*, 1994) and an individual can even feel crowded in a less dense store.

2.1.1.HUMAN AND SPATIAL CROWDING

There has been some controversy regarding the way the researchers treat the dimensionality of the construct. The unidimensional construct has been supported by some (Eroglu and Machleit, 1990; Hui and Bateson, 1991) against the two-dimensional construct supported by others (Eroglu *et al.*, 2005; Harrell *et al.*, 1980; Machleit *et al.*, 1994; Machleit *et al.*, 2000). Even though this duality, latter literature corroborates the earlier empirical findings of Machleit *et al.* (1994) emphasizing the relevance of differentiating the measure construct in two different dimensions: human and spatial crowding (Eroglu *et al.*, 2005; Machleit *et al.*, 2000, Pan and Siemens, 2011).

Human crowding consists in the perception of the number of people as well as their interaction. Spatial crowding refers to the perception of the amount of merchandise and fixtures and their configuration in the store (Eroglu *et al.*, 2005).

Previous studies focus on both antecedents and consequences of perceived retail crowding, although more recently, empirical studies attempted to expand findings on its consequences.

2.1.2.ANTECEDENTS

Harrell and Hutt (1976) demonstrated that high human density is a situational determinant of crowding, and Eroglu and Machleit (1990) validated the hypothesis that higher human density leads to higher perceived crowding. The perceptions of spatial and human densities impact directly both dimensions of perceived crowding (Machleit *et al.*, 2000).

The consumers' appraisal of whether they feel crowded or not is influenced by many factors, such as, personal factors, perceived risk, tolerance for crowding, expectations, situational motives (shopping motivation and time pressure), and cultural variables (Baker and Wakefield, 2011; Eroglu and Machleit, 1990; Eroglu *et al.*, 2005; Machleit *et al.*, 2000, Pons *et al.*, 2006; Pons and Laroche, 2007). Also, Eroglu and Machleit (1990) reported that male shoppers had higher perceptions of crowding than women.

With considerable evidences showing that perceived crowding is a direct function of density, Hui and Bateson (1991) stated that density also affects perceived crowding indirectly through perceived control, adding that it is possible to minimize the outcomes of high consumer density perceived by returning some control to the consumer.

2.1.3.CONSEQUENCES

There are several types of consequences while perceiving crowding in retail settings: emotional, cognitive and behavioral. Those outcomes are mediated by consumers' emotions, cognitive evaluations of the store, shopping value, and coping mechanisms (Mehta, 2013).

Harrell and Hutt (1976) highlighted that high density hampers mobility and decreases shopping efficiency.

Several studies over time have demonstrated that retail crowding can influence consumers' affective responses (Argo *et al.*, 2005; Hui and Bateson, 1991; Baker and Wakefield, 2011; Li *et al.*, 2009; Pons and Laroche, 2007; Pons *et al.*, 2006), satisfaction (Eroglu *et al.*, 2005; Eroglu and Machleit, 1990; Machleit *et al.*, 1994; Machleit *et al.*, 2000), shopping value (Eroglu *et al.*, 2005), adaptation strategies (Harrell *et al.*, 1980), and behavioral intention (Pan and Siemens, 2011; Mohan *et al.*, 2013). Commonly, the literature analyzes the negative effects of crowding on consumers' affective responses (Eroglu *et al.*, 2005; Machleit *et al.*, 2000).

2.1.3.1. RELATION WITH SATISFACTION

The majority of the literature about the consequences of perceived retail crowding focus on the consumers' affective responses and shoppers' satisfaction (Argo *et al.*, 2005; Eroglu and Machleit, 1990; Hui and Bateson, 1991; Li *et al.*, 2009; Machleit *et al.*, 1994; Machleit *et al.*, 2000; Eroglu *et al.*, 2005).

Perceived retail crowding is an important determinant of shopper satisfaction since it is considered part of the environment of stores (Eroglu and Machleit, 1990; Machleit *et al.*, 1994; Zehrer and Raich, 2016) being a major contribution to the evaluation of the shopping experience. Consumers are less satisfied in crowded stores than in empty ones (Eroglu and Machleit, 1990). The store will be assessed negatively due to the increase of stress levels (Aylott and Mitchell, 1998; Baker and Wakefield, 2011; Baxter and Deanovich, 1970; Das and Varshneya, 2017) and the decrease of sense of comfort (Langer and Saegert, 1977).

Regarding the crowding-satisfaction relationship, empirical studies demonstrated that both dimensions of the perceived crowding, human and spatial, have impact on consumers' satisfaction. Even though spatial crowding only affects negatively consumers' satisfaction (Eroglu *et al.*, 2005; Li *et al.*, 2009; Machleit *et al.*, 2000), human crowding showed negative impact (Machleit *et al.*, 1994; Machleit *et al.*, 2000) and, despite few findings, positive (Eroglu *et al.*, 2005; Li *et al.*, 2009; Pons *et al.*, 2006) impact on satisfaction, in certain circumstances.

Earlier, Machleit *et al.* (1994) supported that the relationship between human crowding and satisfaction is curvilinear, claiming that one may consider disproportionate either few or many shoppers in the store, depending on the circumstances. The author also suggested that the relationship crowding-satisfaction might not be a direct one after observing this relationship being moderated by shoppers' expectations of crowding.

Later findings reported that the crowding-satisfaction relationship is mediate by emotions experienced while shopping and moderated by some variables such as emotions, prior expectations of crowding, personal tolerance for crowding, store type and cultural differences (Eroglu *et al.*, 2005; Li *et al.*, 2009; Machleit *et al.*, 2000; Pons and Laroche, 2007). For instance, when the individual expectations of crowding are not met, less shopping satisfaction is experienced. Also, in individuals with lower tolerance for crowding, human crowding will reduce shopping satisfaction.

There are some exceptions where crowds are appreciated and produce positive emotional and behavioral effects (Hui and Bateson, 1991). The positive correlation between crowding and satisfaction often happens in hedonic contexts like leisure situations (e.g., bar, discos, sports events, concerts) (Baker and Wakefield, 2011; Mehta, 2013; Pons *et al.*, 2006).

2.1.3.2. RELATION WITH IMPULSE BUYING BEHAVIOR

Over time, the definition of impulse buying has evolved and generated some controversy. Rook (1987) defined impulse buying as a persistent and strong urge to buy products or services immediately. While reviewing prior research, it is possible to notice that often impulse buying is treated as unplanned purchase as if these terms were synonymous (Stern, 1962). The rationale is that impulse buy can be classified as unplanned, but unplanned buy cannot be always labeled as impulse buy (e.g., Kacen *et al.*, 2012; Verhagen and van Dolen, 2011; Zhang *et al.*, 2010). This distinction occurs, for example, when a product apparently resulted from an unplanned purchase but had been planned longer before. In this case, it cannot be classified as impulse buying (Verplanken and Herabadi, 2001). Another definition to impulse buy relies on the fact that, when it occurs, exhibit an “at-the-moment on-spot decisions” which are mostly influenced by the store environment and the shoppers’ feeling at the moment (Beatty and Ferrell, 1998). More recently, 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 (Sharma *et al.*, 2010).

Generically it is possible to define impulse buying based on three topics: First, the spontaneous act with absence of planning and deliberation regarding the purchase accompanied by a positive emotional response (Beatty and Ferrell, 1998; Rook, 1987; Rook and Gardner, 1993; Wood, 1998). Second, the decreased concern regarding any consequences or costs. Third, the involvement of hedonic temptation that needs to be fulfilled immediately through purchasing (Amos *et al.*, 2014; Sharma *et al.*, 2010; Verhagen and van Dolen, 2011).

According to Amos *et al.*, 2014 it is possible to group the impulse buying antecedents into three categories: dispositional, situational, and sociodemographic. Dispositional refers to traits of a person that tend to exhibit during diversified situations. (e.g., Beatty and Ferrell, 1998; Rook and Fisher, 1995; Sharma *et al.*, 2010). Situational antecedents relate with environmental, personal and social factors present at that moment. (e.g., Beatty and Ferrell, 1998; Dholakia, 2000; Kacen *et al.*, 2012). Some examples of situational factors can be the

retail environmental conditions (e.g., product assortment, store layout, and store size) and the presence of other shoppers (Amos *et al.*, 2014). Those two examples can be associated with retail crowding, both spatial and human, respectively. Other examples of situational antecedents are affective states (e.g., consumers' current mood state), marketing stimuli, personal constraints (e.g., money and time) and motivations (e.g., Amos *et al.*, 2014; Dholakia, 2000; Kacen *et al.*, 2012; Sharma *et al.*, 2010). Last but not least, sociodemographic antecedents that include aspects such as gender, age, ethnicity and income (Amos *et al.*, 2014; Sharma *et al.*, 2010).

Thus, retail environmental cues are considered one of the most important factors causing impulse buying among all the antecedents. Researchers suggested that when consumers perceive the store as over-stimulating in the presence of highly appealing and pleasant store environment (e.g., ease of browsing, and retail esthetics), impulse buying is induced (Amos *et al.*, 2014; Stern, 1962; Verplanken and Herabadi, 2001) but there is also suggestion that consumers who perceive more easily retail crowding show higher impulse buy (Mattila and Wirtz, 2008). This may imply that impulse buy can be favored both by positive as well as negative emotions.

We may also speculate that whenever the perception of retail crowding is so strong to negatively impact the customer, he or she can always opt to leave the store and postpone the purchase (Grossbart *et al.*, 1990).

2.1.3.3. MEDIATOR ROLE OF EMOTIONS

Hui and Bateson (1991) defended that perceptions of crowding create a state of stress and due to increasing levels of stimulation generated by dense environments and feelings of tension (Stokols, 1972). According to Baker and Wakefield (2011), feelings of stress are catalyzed, under crowded circumstances, when high levels of arousal and low levels of pleasure are combined. This means that higher crowded stores induce higher levels of stimulation realized by the individuals (Li *et al.*, 2009; Machleit *et al.*, 2000). Poon and Grohmann (2014) mentioned anxiety as one of the negative consumers' responses while perceiving spatial crowding under high spatial density. Sensing spaces as crowded induce feelings of claustrophobia boosting anxiety levels (Baxter and Deanovich, 1970).

Prior studies refer to mediating variables as a way to explain the relationship between

crowding and consumers' different responses (Mohan *et al.*, 2013). The different type of consequences (e.g., emotional, cognitive, and behavioral) that may result from crowding perceptions in retail settings can be mediated by consumers' emotions, cognitive evaluations of the store, shopping value, and coping mechanisms (Mehta, 2013).

Machleit *et al.* (2000) referred to the emotions as a mediator in the retail crowding-shopping satisfaction relationship claiming that higher levels of perceived crowding inhibit positive emotions and induce negative ones (e.g., tension, confusion, anxiety or frustration). Those negative emotions will imply a bad appreciation of the overall shopping experience and consequently, hinder shopping satisfaction. Feelings of congestion not only evoke negative emotional responses but also influence consumers' shopping behaviors, such as avoidance. Research by Eroglu *et al.* (2005) has provided evidence that the perceived crowding-shopping values-shopping satisfaction relationship is also mediated by emotions. Some authors claim that the consumer emotions produced in-store due to store environmental stimuli (e.g. retail crowding) influence impulsive buying (Donovan and Rossiter, 1982; Donovan *et al.*, 1994; Rook, 1987; Zhou and Wong 2004). Further, Chang *et al.* (2014) findings predicted that the consumers' positive emotional replies to store environmental cues boost impulse buying behaviors. Li *et al.* (2009) showed a positive relation between satisfaction and impulse buy.

Amongst emotions, anxiety is a strong candidate to play an important role in this mediation models both with shopping satisfaction and impulse buying. It is a basic emotion in the psychological literature (Laros and Steenkamp, 2005) that connects to high arousal, negative valence and is linked to perception of lack of control (Brooks, 2014; Raghunathan and Pham, 1999). According to Maeng *et al.* (2013) perceived social crowding relates with a sense of personal space violation and it activates two defensive mechanisms: a self-protection mechanism (linked with experience of fear and anxiety) and a disease avoidance mechanism (linked with experience of disgust). Maeng *et al.* (2013) successfully showed that social crowding activated the first one, thus highlighting the underlying anxiety inducing nature of crowding.

Brooks and Schweitzer (2011: 44) define anxiety as “a state of distress and/or physiological arousal in reaction to stimuli including novel situations and the potential for undesirable outcomes”. In marketing context anxiety was defined as discomfort and worry about a purchasing situation (Dube and Morgan, 1996; Lau-Gesk and Meyers-Levy, 2009).

Anxiety has been mostly studied as a trait, i.e., a dispositional feature individuals have that tends to be stable across life (Spielberger, 1985). However anxiety is also situational as it

relates with individual's reaction to specific stimuli. In consumer behavior, both trait and state anxiety are relevant variables to understand consumer choices where anxiety inducing situations can elicit different levels of behavioral reaction in, e.g., the same retail store environment. A high trait anxiety individual will most likely show stronger anxiety reactions across daily experiences, so, trait and state anxiety are correlated.

Recently it has been called attention that anxiety can be also taken as arousal, which is found to have a positive effect on purchasing (Das and Varshneya, 2017). However, arousal as a state is not conceptually identical to anxiety. Anxiety has been defined as excessive arousal combined with low pleasure. Therefore, what these authors might be finding is the optimal level of anxiety in the well-known inverted U-curve relationship with many performance outcomes (Swain and Jones, 1996). In hedonic contexts, human crowding has also been found to relate in a curvilinear manner with satisfaction where optimal experience requires neither too few nor too many shoppers (Machleit *et al.*, 1994). The parallel between anxiety and crowding is patent.

2.2. RESEARCH MODEL AND HYPOTHESIS

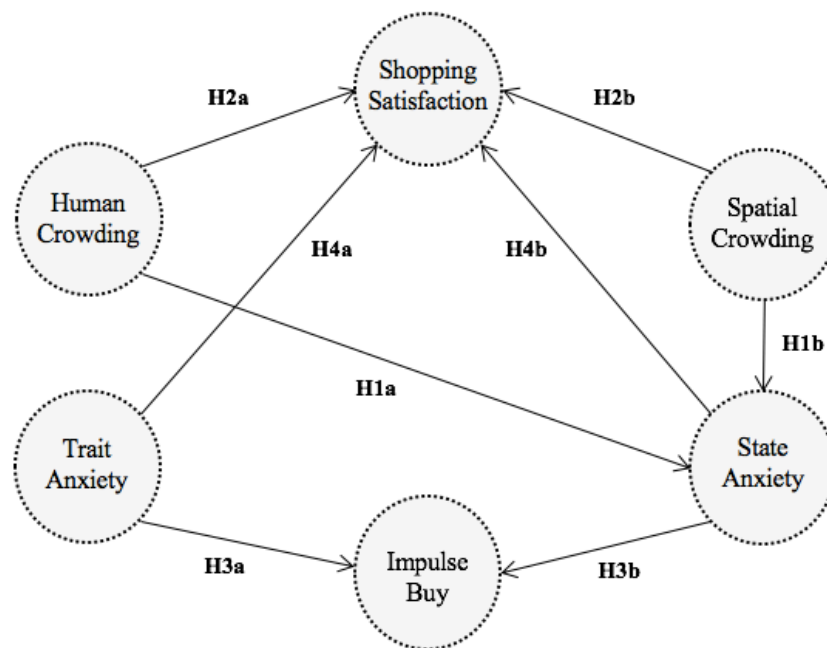


Figure 1. Proposed research model

H1: The more perceived crowded a shop is, the higher state anxiety is reported (perceived crowding is positively associated with state anxiety).

H1a: Perceived human crowding is positively associated with state anxiety.

H1b: Perceived spatial crowding is positively associated with state anxiety.

H2: The more perceived crowded a shop is, the lower buy satisfaction is reported (perceived crowding is negatively associated with buy satisfaction).

H2a: Perceived human crowding is negatively associated with buy satisfaction.

H2b: Perceived spatial crowding is negatively associated with buy satisfaction.

H3: The more anxiety reported, the higher impulse buy (anxiety is positively associated with impulse buy).

H3a: Trait anxiety is positively associated with impulse buy.

H3b: State anxiety is positively associated with impulse buy.

H4: The more anxiety reported, the lower buy satisfaction (anxiety is negatively associated with buy satisfaction).

H4a: Trait anxiety is negatively associated with buy satisfaction.

H4b: State anxiety is negatively associated with buy satisfaction.

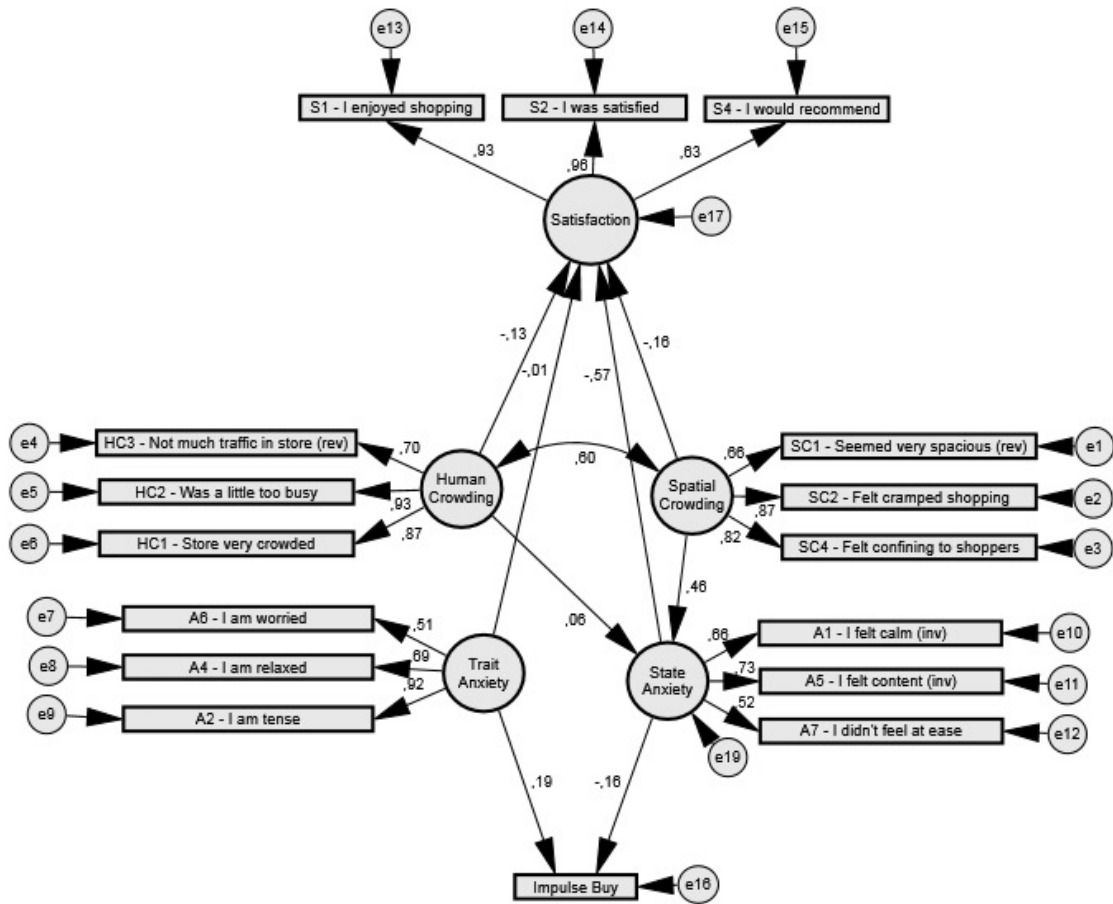


Figure 2. SEM for research model

III.METHOD

This section evolves by showing the procedure, data analysis strategy, sample, and measures.

3.1.PROCEDURE

The empirical phase of this study started by developing the data collection questionnaire (Appendix A, shown in the original Portuguese language for rigor's sake), comprising several scales intended to measure the constructs under analysis. After this, we made the questionnaire available online with software Qualtrics by means of a link that was sent by email or using social networks to possible participants in the community. Participant selection was based on convenience and asked to spread the link via a snow ball strategy.

To ensure ethics compliance, we included a front page in the questionnaire clarifying its purposes, providing institutional emails to guarantee both the authenticity of the request as well as the possibility of clarifying any doubt. Lastly, we stated the participation was voluntary and anonymous.

Data collection was available for 15 days. Once completed, we conducted the psychometric quality assessment of the measures. This was done by means of both confirmatory and exploratory factor analysis. After suitable measures were found, we proceeded to hypothesis testing, which were done based on structural equation modelling.

3.2.DATA ANALYSIS STRATEGY

The first requirement to conduct quantitative data analysis is to ensure the measures are psychometrically sound. This is achieved by means of testing its construct validity and reliability. To do that, we proceeded to factorial analysis (Thompson, 2004) starting by confirmatory factor analysis (CFA) for previously known scales. As the scales have a theoretical structure we opted for Confirmatory factor analysis instead of exploratory factor analysis, also because it offers more robustness to the analysis as it tests simultaneously covariances between errors. The CFA is valid when fit indices achieve the following thresholds as stated by Hair *et al.* (2010) adjusting for sample size (over 250) and number of

estimated parameters (in CFA most scales count on less than 12 items): CMIN/DF<3.0 (although it could have a significant p value), Comparative Fit Index (Bentler, 1990, CFI) > .92; Root Mean Square Error of Approximation (Browne and Cudeck, 1993, RMSEA) < .07; Standardized Root Mean Square Residual (Jöreskog and Sörbom, 1996, SRMR) < .08. In the cases where no CFA was possible due to unacceptable fit indices we conducted exploratory factor analyses (EFA). Its suitability was judged on the basis of KMO (>.60), MSAs above .500, a significant (p<.01) Bartlett's X² statistic, and all communalities above .500. The extracted factor solution should be able to explain 60% or more of variance. For all cases, both CFA and EFA, we tested for reliability on the basis of Cronbach's alpha (above .70).

3.3.SAMPLE

The sample comprises 441 responses. It comprehends 54.7% females, and the predominant age ranges from 45 to 54 years old (23%) and within its adjacent categories (35-44 & 55-64) falls 65% of the full sample.

Table 1. Gender

	Frequency	Percent	Valid Percent	Cumulative Percent
Masculine	199	45.1	45.3	45.3
Feminine	240	54.4	54.7	100.0
Total Valid	439	99.5	100.0	
Missing	2	.5		
Total	441	100.0		

Table 2. Age

	Frequency	Percent	Valid Percent	Cumulative Percent
19-24	33	7.5	7.5	7.5
25-34	84	19.0	19.1	26.6
35-44	93	21.1	21.1	47.7
45-54	101	22.9	23.0	70.7
55-64	94	21.3	21.4	92.0
65-74	32	7.3	7.3	99.3
Over 75 years old	3	.7	.7	100.0
Total Valid	440	99.8	100.0	
Missing	1	.2		
Total	441	100.0		

Participants reported using mostly Continente, Pingo Doce, Jumbo, and Lidl retail shops totalizing 92.5% of the sample.

Table 3. Supermarket chains

	Frequency	Percent	Valid Percent	Cumulative Percent
Continente	214	48.5	48.5	48.5
Pingo Doce	98	22.2	22.2	70.7
Jumbo	53	12.0	12.0	82.7
Lidl	43	9.8	9.8	92.5
Intermarché	12	2.7	2.7	95.2
Minipreço	8	1.8	1.8	97.0
Aldi	4	.9	.9	97.9
E.leclerc	4	.9	.9	98.8
El Corte Ingles	3	.7	.7	99.5
Missing	2	.5	.5	100
Total	441	100.0	100.0	

The majority of participants (2/3) shop in Metropolitan Lisbon area (66.9%), covering municipalities of Almada, Barreiro, Lisbon, Loures, Moita, Montijo, Oeiras, Seixal, and Setúbal (full data in Appendix C).

Table 4. Location of shopping venues

	Frequency	Percent	Valid Percent	Cumulative Percent
Lisboa	84	19.0	19.0	19.0
Setúbal	45	10.2	10.2	29.2
Moita	43	9.8	9.8	39.0
Barreiro	33	7.5	7.5	46.5
Montijo	25	5.7	5.7	52.2
Seixal	22	5.0	5.0	57.2
Almada	21	4.8	4.8	62.0
Oeiras	13	2.9	2.9	64.9
Loures	9	2.0	2.0	66.9

3.4. MEASURES

Respondents were requested to reply all the following measures in a 5-point Likert scale from 1= Strongly disagree, to 5=Strongly agree.

Perceived crowding was measured with the Human Crowding and Spatial Crowding, a two-dimensional scale comprising eight items validated by Machleit *et al.* (1994). The human crowding dimension comprehended four items (“The store seemed very crowded to me”, “The store was a little too busy”, “There wasn’t much traffic in the store during my shopping trip” (reverse coded), “There were a lot of shoppers in the store”), and the spatial crowding dimension comprises also four items (“The store seemed very spacious” (reverse coded), “I felt cramped shopping in the store”, “The store had an open, airy feeling to it” (reverse coded), “The store felt confining to shoppers”).

The original structure had poor fit indices (CMIN/DF=6.760, $p < .001$; CFI=.943; RMSEA=.114; SRMR=.0541). By using modification indices, we removed two items (“There were a lot of shoppers in the store”, “The store had an open, airy feeling to it”) which substantially improved fit indices (CMIN/DF=3.501, $p < .001$; CFI=.986; RMSEA=.075; SRMR=.0301). Both factors show acceptable internal consistency (Cronbach alpha=.86, and .82 respectively).

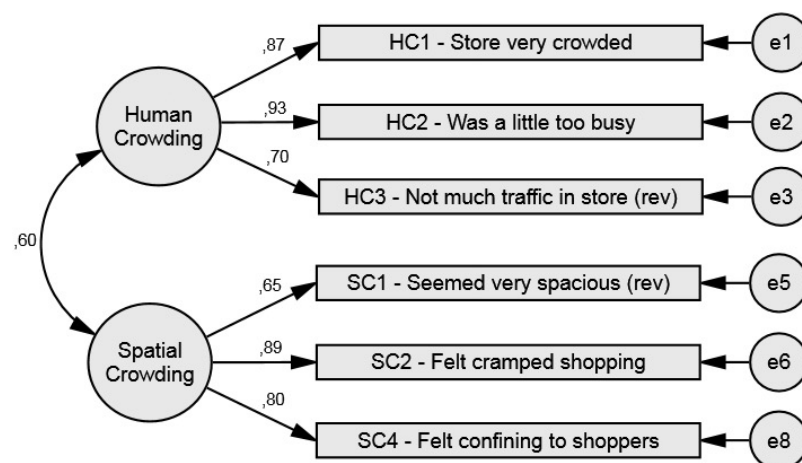


Figure 3. CFA for Perceived Crowding

Satisfaction was measured with Machleit *et al.* (1994) four-item scale adapted from Eroglu and Machleit (1990): “I enjoyed shopping at the store”, “I was satisfied with my

shopping experience at the store”, “Given a choice, I would probably *not* go back to the store” (reverse coded), “I would recommend the store to other people”.

The original factor structure had poor fit indices (CMIN/DF=12.035, $p < .001$; CFI=.979; RMSEA=.158; SRMR=.0479) and using modification indices only suggested removals that create overfitted models. Therefore, by studying normality of data, we found data distribution for all variables was platikurtic and negative skewness (leaning towards right). Hence, we transformed the data to lower kurtosis and skewness and fit to the normal distribution. Despite attempts no viable solution was found with CFA and therefore, we proceeded with less robust technique of Principal Component Analysis. The full item solution suggested removal of item “Given a choice, I would probably *not* go back to the store” (reverse coded)” due to insufficient communality. The three-item factor analysis showed valid indices (KMO=.665, Bartlett $X^2=896.507$, 3df, $p < .001$, $.611 < \text{MSA} < .918$) for a single factor solution explaining 80.1% and with good reliability (Cronbach alpha=.87).

Table 5. Factorial matrix shopping satisfaction

	Component 1
S2 - I was satisfied with my shopping experience at the store	.941
S1 - I enjoyed shopping at the store	.937
S4 - I would recommend the store to other people	.800

Extraction Method: Principal Component Analysis.

Impulse buying was measured with Chang *et al.* (2014) scale, adapted from Beatty and Ferrell (1998), intending to aggregate three items: “I bought things that I had not planned to purchase on this trip”, “On this trip, I felt a sudden urge to buy something and I bought it”, and “On this trip, I felt excitement of the hunt”. Although impulse buy can be conceived as a factor (a latent variable) the way these items are built makes it more of a formative nature (good to create indices, e.g. behavior description such as “I bought things that I had not planned to purchase on this trip”) rather than reflective (resulting from a latent variable, as possibly the other two items). This might explain the poor fit CFA had with the full 3-item solution with uninterpretable values. To calculate a formative index we firstly conducted a reliability analysis on the three items which generated poor Cronbach alpha (.657). Analyzing item deletion showed we could retain the first two items with a resulting alpha of .734. The composite index was computed as an average of these and will be used in further analyses as single indicator of actual behavior. Respondents were requested to reply in a 5-point Likert scale where 1= Strongly disagree, to 5=Strongly agree.

State/Trait Anxiety was measured using the six-item short-form of the STAI (Spielberger State-Trait Anxiety Inventory), developed by Marteau and Bekker (1992): “I feel calm”, “I am tense”, “I feel upset”, “I am relaxed”, “I feel content” and “I am worried”. Respondents were requested to reply in a 5-point Likert scale where 1= Strongly disagree, to 5=Strongly agree. The bifactorial CFA solution (state + trait) had unacceptable fit indices (CMIN/DF=10.257, CFI=.819, RMSEA=.145, SRMR=.088). By using modification indices we excluded items and the 6-item two-factor solution had acceptable fit indices (CMIN/DF=3.103, $p=.003$, CFI=.975, RMSEA=.069, SRMR=.043). State anxiety has liminal acceptable reliability (Cronbach alpha=.67) while trait anxiety has good reliability (.74).

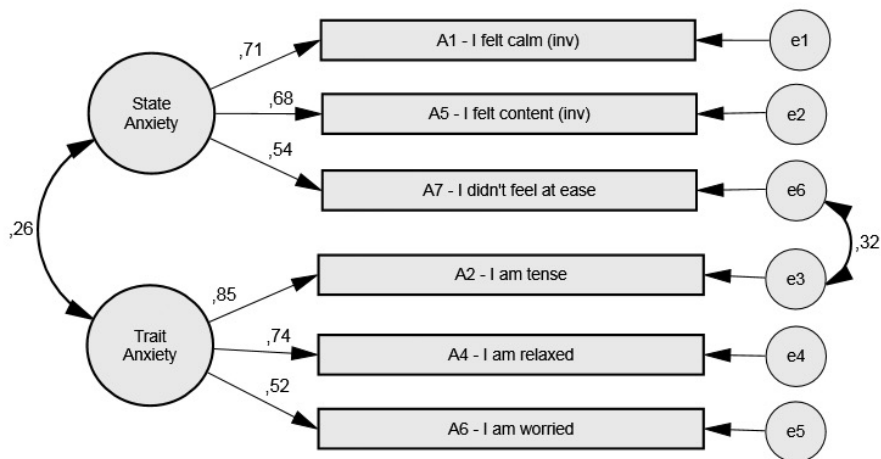


Figure 4. CFA for Anxiety

Overall, the constructs under analysis showed viable factorial solutions although some adjustments had to be done.

IV. RESULTS

Resorting to Structural Equation Modelling allows the simultaneous test of all hypotheses, which renders the model more parsimonious and prone to less systematic error. While designing the full research model, the fit indices showed valid figures (CMIN/DF=2.806, CFI=.947, RMSEA=.064, SRMR=.078) being thus interpretable (Figure 5).

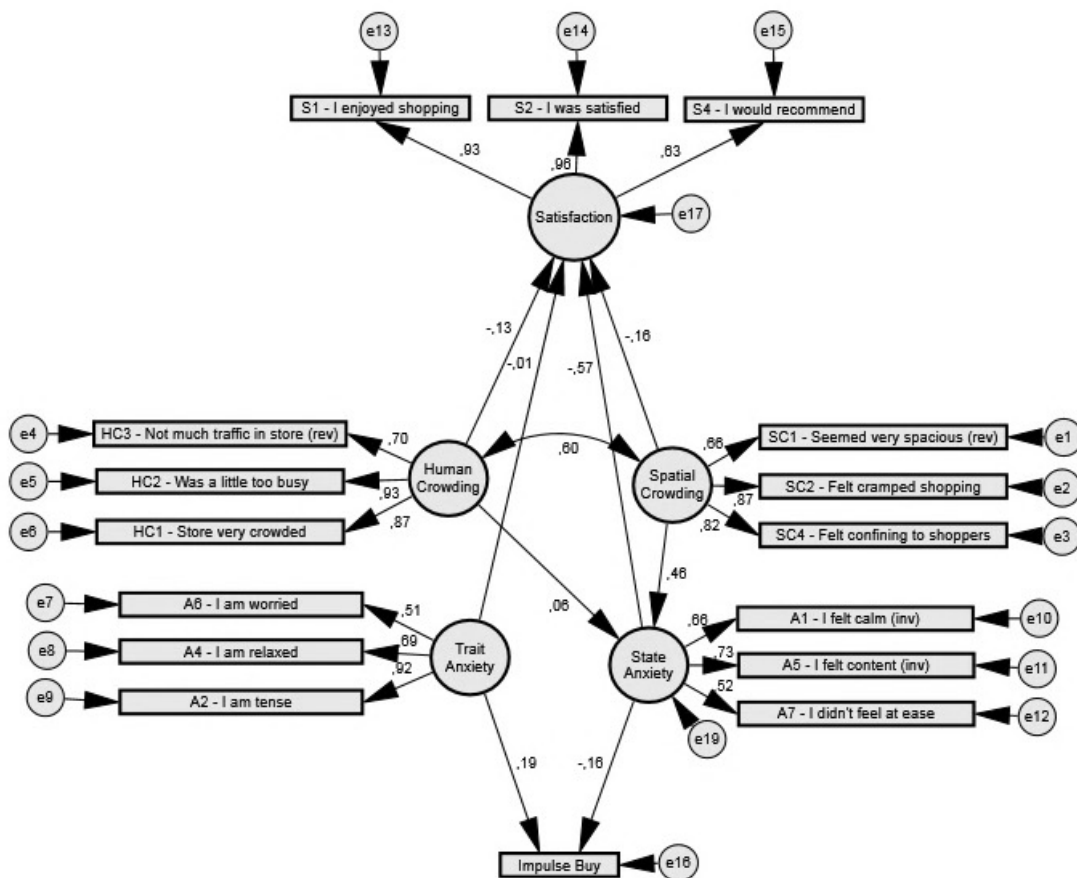


Figure 5. Research model

The joint test of the hypotheses showed a set of paths, some significant, other not (table 6).

Table 6. Regression Weights (MLE)

			Estimate	S.E.	C.R.	P	Standardized Estimate
State Anxiety	←	Spatial Crowding	,449	,083	5,410	***	,455
State Anxiety	←	Human Crowding	,041	,051	,811	,417	,060
Satisfaction	←	Human Crowding	-,104	,045	-2,339	,019	-,128
Satisfaction	←	Trait Anxiety	-,008	,032	-,264	,792	-,011
Satisfaction	←	Spatial Crowding	-,186	,076	-2,464	,014	-,160
Satisfaction	←	State Anxiety	-,677	,083	-8,196	***	-,573
Impulse Buy	←	Trait Anxiety	,215	,058	3,712	***	,192
Impulse Buy	←	State Anxiety	-,262	,092	-2,864	,004	-,155

The resulting model preserving only the significant paths is presented as follows in figure 6.

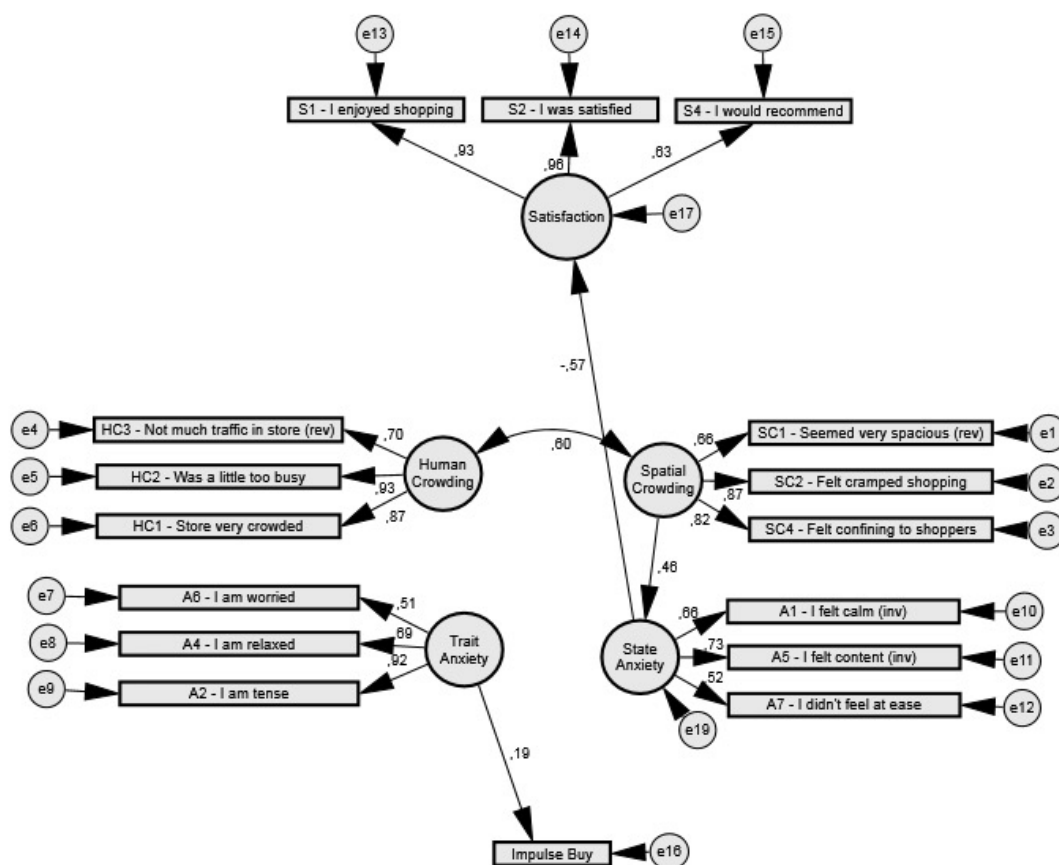


Figure 6. Final model (significant *p* values only)

Findings show firstly a significant beta between perceived spatial crowding and state anxiety (.46, $p < .001$) but not with human crowding. This offers partial support to H1.

The second hypothesis was not supported as none of the paths between perceived crowding was significantly associated with buy satisfaction.

The third hypothesis is partially supported as trait anxiety was found to be positively associated with impulse buy (Beta=.19, $p < .001$).

Lastly, the fourth hypothesis is also partially supported as State anxiety was found to be negatively associated with buy satisfaction (Beta=-.57, $p < .001$) although trait anxiety was not (Beta=-.01, $p = .792$). partially

Table 7. Summary of hypothesis results

Hypothesis	Supported (S)/Not supported (NS)
	H1 Partially
<i>H1a</i> : Perceived human crowding is positively associated with state anxiety.	NS
<i>H1b</i> : Perceived spatial crowding is positively associated with state anxiety.	S
	H2 NS
<i>H2a</i> : Perceived human crowding is negatively associated with buy satisfaction.	NS
<i>H2b</i> : Perceived spatial crowding is negatively associated with buy satisfaction.	NS
	H3 Partially
<i>H3a</i> : Trait anxiety is positively associated with impulse buy.	NS
<i>H3b</i> : State anxiety is positively associated with impulse buy.	S
	H4 Partially
<i>H4a</i> : Trait anxiety is negatively associated with buy satisfaction.	S
<i>H4b</i> : State anxiety is negatively associated with buy satisfaction.	NS

V. DISCUSSION AND CONCLUSION

The significant relation found between perceived spatial crowding and state anxiety which is absent in the case of human crowding partially supports H1 and Baxter and Deanovich (1970) insight that under crowded situations, anxiety emerges. Also endorses Machleit *et al.* (2000), Eroglu *et al.* (2005), and Vas and Varshneya (2017) claims that retail density can induce customers' arousal and decrease pleasure, that builds into anxiety. In our case the way human crowding was measured might explain our findings. Namely, in a retail store checkout queues are an important issue in judging human crowding. Most retail stores are sufficiently large and tall to accommodate a reasonable number of customers without sensing too much human crowding. But even if there are too many customers around, in retail stores people will have a sense of more nuisance if they perceive too many customers queuing up which anticipates long waiting times to pay. Unfortunately, at the time of designing the scales, this issue passed unnoticed although queuing is not often studied together with retail crowding.

The lack of a significant path between perceived crowding and shopping satisfaction goes against H2 and Eroglu *et al.* (2005) findings connecting them directly. However our model does include a possible mediator (anxiety) that could have operated as an inhibitor of that relation, i.e. whenever a total mediation occurs, a previously significant relation between the predictor and criterion variables (retail crowding and buy satisfaction in this case) becomes non-significant. To rule out this possibility we conducted a new SEM testing a model exclusively with perceived retail crowding (human and spatial) as predictors of buy satisfaction. The results showed valid fit indices and also a significant path between spatial crowding and buy satisfaction (Appendix D). Hence, we think this reasonably shows that a total mediation occurs between these variables, taking state anxiety as a key variable to manage spatial crowding situations with the goal of preserving a sense of buy satisfaction in customers.

By supporting H3 findings somewhat go in line with Matilla and Wirtz's (2008) association between retail crowding and impulse buy, taking anxiety as a mediator. However, it would be more expectable to find this relation with state anxiety instead of trait anxiety only although Amos *et al.* (2014) did highlight the expectable dispositional factors of impulse buy. This situation might reasonably be explained due to the concomitance of factors with state anxiety that were not measured in this study. For example, Amos *et al.* (2014) and

Verplanken and Herabadi (2001) did suggest that retail aesthetics could favor impulse buy. We did not control this variable in this study. Therefore, as we have contradictory forces operating at the same time to produce impulse buy, we cannot ascertain to which extent retail aesthetics could have produced our results.

Findings concerning H4 logically connected spatial crowding to state anxiety (positive relation) and state anxiety to satisfaction (negative relation). This echoes Eroglu and Machleit (1990) findings but adds to extant research by taking anxiety as a mediating psychological state, in line with both Aylott and Mitchell (1998), and Baker and Wakefield's (2011) suggestions that the negative assessment (dissatisfaction) was due to increased stress. Thus, the flow from perceived retail crowding producing anxiety which lowers satisfaction was an expectable outcome in this research.

Although the sample size is sufficient to accommodate the data analysis techniques, we do acknowledge its convenience nature as we cannot guarantee its randomness and therefore its external validity. However, we found no specific sociodemographic bias. Also, because the model is inherently focused on psychological decision making processes, we believe they will be shared by most individuals in the same society.

Future research could include an objective measure of crowding, i.e. measures that we could have taken objectively by defining criteria against which perceptions could be contrasted. Yet perceptions are probably more important than objectivity as it is based on perceptions (no matter how biased they may be) that individuals will make decisions. Additionally, future studies may benefit from adjusting the human crowding scale in order to cover the queuing waiting time, that is usually associated with human density. In this line of business it will probably be more informative on shopping experience and anxiety than human crowding in the shopping aisles.

In our opinion, this study is of both theoretical and practical significance. By identifying a total mediation of state anxiety, this study contributes to uncover one of the possible emotions that are known to mediate the outcomes of retail crowding. Also, by including trait anxiety, we could control for dispositional factors that are usually overlooked (assuming explained variance is due to situational factors). From a practical point of view and following Kim and Kim (2012), retail store managers should target environmental elements to create a positive influence on consumer's behavior. The total mediation role of state anxiety suggests this is a prime target for such strategic action by retail managers. More than focusing on the means to design retail spaces (Mehta, 2013) managers should target the psychological state

and emotion that state anxiety represents as it relates with shopping satisfaction over and above trait anxiety.

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APPENDIX

Appendix A. Questionnaire

Appendix B. Fit indices for research model

Appendix C. Detailed location of shopping venues

Appendix D. Auxiliary model crowding–satisfaction SEM

APPENDIX A. QUESTIONNAIRE

O meu nome é Rita Pinho e encontro-me atualmente a terminar o meu Mestrado em Gestão de Empresas no ISCTE.

Este estudo, parte integrante da minha Dissertação de Mestrado, tem como objetivo compreender o impacto da aglomeração de pessoas e escassez de espaço de super e hipermercados na "compra por impulso" (produtos comprados adicionalmente ao que se tinha pensado comprar).

Este questionário tem um tempo médio de realização de apenas 4 minutos.

Todas as respostas são anónimas e confidenciais. O tratamento de dados destina-se exclusivamente a fins académicos. Por favor não escreva o seu nome em qualquer parte.

Se alguma dúvida subsistir, não hesite em contactar-me (rppoa@iscte.pt) ou contactar o meu orientador (nelson.ramalho@iscte.pt).

Se puder partilhar este link com os seus colegas, amigos e familiares, ficaríamos muito gratos.

Obrigada,

Rita Pinho

1. Quanto gasta em média cada vez que vai às compras ao super/hipermercado?

- a) 0€ - 25€
- b) 26€ - 50€
- c) 51€ - 100€
- d) > 100€

2. Com que frequência costuma comprar mais produtos e/ou gastar mais dinheiro do que tinha pensado comprar/gastar inicialmente?

- a) Sempre
- b) Frequentemente
- c) Algumas vezes
- d) Raramente
- e) Nunca

3. Com base na sua experiência, indique até que ponto concorda (**Discordo totalmente; Discordo; Nem concordo nem discordo; Concordo totalmente**) com as seguintes afirmações:

- a) Espero o tempo que for preciso numa fila para comprar o que quero
- b) Quando vejo que as filas estão demasiado longas no supermercado nem sequer entro
- c) Se me demorar demasiado tempo a localizar o que quero num supermercado, vou a outro lugar

4. Com base na sua experiência, indique até que ponto concorda (**Discordo totalmente; Discordo; Nem concordo nem discordo; Concordo totalmente**) com as seguintes afirmações:

- a) Eu gostei de fazer compras neste supermercado
- b) Fiquei satisfeito/a com a minha experiência de compra na loja

- c) Se tivesse que escolher, provavelmente não voltaria a comprar ali
- d) Recomendaria este supermercado a outras pessoas

5. Pense na última vez que foi a um supermercado ou hipermercado a um fim-de-semana

5.1. Pode por favor identificar o nome da cadeia? (Ex: Continente, E.Leclerc, Intermarché, Jumbo, Lidl, Pingo Doce, etc)

5.2. Qual a localização do supermercado ou hipermercado que identificou anteriormente? (Ex: Centro Comercial Vasco da Gama, Telheiras, Setúbal, etc)

5.3. Relativamente a essa última vez que foi ao super/hipermercado ao fim de semana, indique até que ponto concorda (**Discordo totalmente; Discordo; Nem concordo nem discordo; Concordo totalmente**) com as seguintes afirmações

- a) O supermercado parecia-me estar com gente a mais
- b) O supermercado estava com demasiado movimento
- c) Não havia muito movimento no supermercado durante as minhas compras
- d) Havia muitos clientes no supermercado
- e) O supermercado pareceu-me muito espaçoso
- f) Senti-me com falta de espaço enquanto fazia compras nesse supermercado
- g) A organização espacial desse supermercado dá uma sensação de amplitude
- h) Os clientes devem sentir-se apertados e com pouco espaço neste supermercado

5.4. Relativamente a essa última vez que foi ao super/hipermercado ao fim de semana, indique até que ponto concorda (**Discordo totalmente; Discordo; Nem concordo nem discordo; Concordo totalmente**) com as seguintes afirmações

- a) Eu gostei de fazer compras neste supermercado
- b) Fiquei satisfeito/a com a minha experiência de compra na loja
- c) Se tivesse que escolher, provavelmente não voltaria a comprar ali
- d) Recomendaria este supermercado a outras pessoas

5.5. Relativamente a essa última vez que foi ao super/hipermercado ao fim de semana, indique até que ponto concorda (**Discordo totalmente; Discordo; Nem concordo nem discordo; Concordo totalmente**) com as seguintes afirmações

- a) Adquiri exatamente o que queria nesta compra
- b) Não consegui comprar o que realmente queria
- c) Durante as compras, encontrei o(s) artigo(s) que estava a procura
- d) Fiquei desapontado(a) porque tive que ir a outra(s) loja(s) para encontrar o que queria
- e) Eu continuei a comprar, não porque precisasse, mas porque queria
- f) Comparando com outras coisas que podia ter feito, o tempo que passei nas compras foi verdadeiramente agradável
- g) Adoro estar rodeado(a) de novos produtos
- h) Eu gosto de ir às compras pela experiência e não pelas coisas que possa ter comprado
- i) Diverti-me porque fui capaz de comprar e viver o momento
- j) Durante as compras, eu fui capaz de esquecer os meus problemas

5.6. Relativamente a essa última vez que foi ao super/hipermercado ao fim de semana, indique até que ponto concorda (**Discordo totalmente; Discordo; Nem concordo nem discordo; Concordo totalmente**) com as seguintes afirmações

- a) Eu comprei coisas que não tinha planeado comprar nesta ida às compras
- b) Nesta ida ao supermercado, senti uma vontade súbita de comprar alguma coisa que efetivamente comprei
- c) Sinto-me com mais energia e motivado(a) quando vou às compras

5.7. Por último, relativamente a essa última vez que foi ao super/hipermercado ao fim de semana, indique até que ponto concorda (**Discordo totalmente; Discordo; Nem concordo nem discordo; Concordo totalmente**) com as seguintes afirmações

- a) Nesta ida ao supermercado senti-me calmo(a)
- b) Normalmente sou uma pessoa tensa
- c) Nesta ida ao supermercado senti-me perturbado(a)
- d) Normalmente sou uma pessoa tranquila
- e) Nesta ida ao supermercado senti-me satisfeito(a)
- f) Normalmente sou uma pessoa preocupada
- g) Nesta ida ao supermercado não me senti à vontade
- h) Normalmente sou uma pessoa descontraída quando vou às compras

6. As seguintes questões destinam-se meramente à caracterização da amostra

6.1 Sexo

- a) Masculino
- b) Feminino

6.2 Idade

- a) menos de 18 anos
- b) 19-24
- c) 25-34
- d) 35-44
- e) 45-54
- f) 55-64
- g) 65-74
- h) mais de 75 anos

7. Se desejar deixar algum comentário ou sugestão que o questionário não tenha abrangido por favor utilize o campo em baixo

APPENDIX B. FIT INDICES FOR RESEARCH MODEL

CMIN	NP	CMIN	DF	P	CMIN/DF
Default model	61	269,620	109	,000	2,474
Saturated model	170	,000	0		
Independence model	17	3 604,857	153	,000	23,561

Baseline Comparisons	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	0,925	0,895	0,954	0,935	0,953
Saturated model	1		1		1
Independence model	0	0	0	0	0

Parsimony-Adjusted Measures	PRATIO	PNFI	PCFI
Default model	,712	,659	,679
Saturated model	,000	,000	,000
Independence model	1,000	,000	,000

NCP	NCP	LO 90	HI 90
Default model	160,620	116,167	212,766
Saturated model	,000	,000	,000
Independence model	3451,857	3260,024	3650,989

FMIN	FMIN	F0	LO 90	HI 90
Default model	,613	,365	,264	,484
Saturated model	,000	,000	,000	,000
Independence model	8,193	7,845	7,409	8,298

RMSEA	RMSEA	LO 90	HI 90	PCLOSE
Default model	,058	,049	,067	,067
Independence model	,226	,220	,233	,000

ACI	AIC	BCC	BIC	CAIC
Default model	391,620	396,824		
Saturated model	340,000	354,502		
Independence model	3638,857	3640,308		

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ECVI	ECVI	LO 90	HI 90	MECVI
Default model	,890	,789	1,009	,902
Saturated model	,773	,773	,773	,806
Independence model	8,270	7,834	8,723	8,273

HOELTER	HOELTER .05	HOELTER .01
Default model	220	239
Independence model	23	24

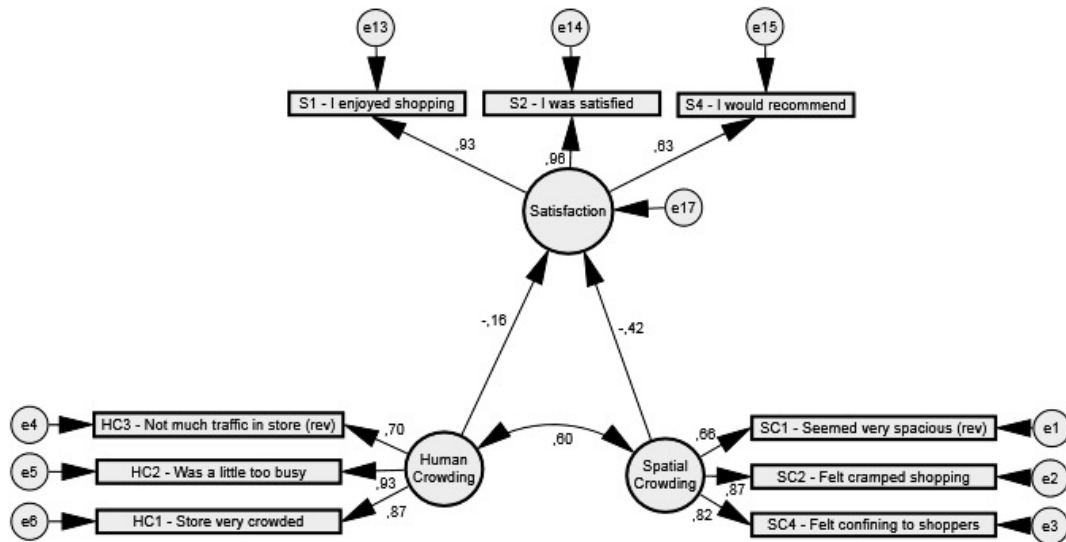
Minimization	,019
Miscellaneous	1,351
Bootstrap	,000
Total	1,370

APPENDIX C. Detailed location of shopping venues

Qual a localização do supermercado ou hipermercado que identificou anteriormente? (Ex: Centro Comercial)

	Frequency	Valid Percent		Frequency	Valid Percent
Alcácer do Sal	5	1.1	Moita	43	9.8
Alcanena	1	.2	Montijo	25	5.7
Alcochete	1	.2	Nazaré	1	.2
Almada	21	4.8	Odemira	1	.2
Almeirim	5	1.1	Odivelas	4	.9
Amadora	7	1.6	Oeiras	13	2.9
Angra do Heroísmo	2	.5	Ourém	2	.5
Aveiro	3	.7	Palmela	1	.2
Barcelos	1	.2	Pinhal Novo	4	.9
Barreiro	33	7.5	Portalegre	2	.5
Braga	1	.2	Portimão	2	.5
Campo maior	1	.2	Porto	4	.9
Carregado	1	.2	Resende	1	.2
Cascais	8	1.8	Sacavém	1	.2
Coimbra	3	.7	Santarém	7	1.6
Coina	2	.5	Santiago do Cacém	2	.5
Corroios	2	.5	S. João da Madeira	4	.9
Coruche	1	.2	São João da Talha	1	.2
Évora	3	.7	Seixal	22	5.0
Faro	5	1.1	Sesimbra	7	1.6
Funchal	1	.2	Setúbal	45	10.2
Grândola	8	1.8	Silves	1	.2
Ilhavo	1	.2	Sines	7	1.6
Lamego	2	.5	Sintra	3	.7
Leiria	4	.9	Tomar	1	.2
Lisboa	84	19.0	V N Famalicão	2	.5
Loulé	1	.2	V N Gaia	1	.2
Loures	9	2.0	Valença	1	.2
Mafra	2	.5	Viana do Castelo	1	.2
Maia	2	.5	Vila Chã	1	.2
Matosinhos	2	.5	Vila Real	2	.5
Miranda do Corvo	1	.2	Viseu	3	.7
Mirandela	1	.2			
			Total	441	100.0

APPENDIX D. Auxiliary model crowding–satisfaction SEM



CMIN / DF = 2.430, $p < .001$; CFI=.986; TLI=.979; RMSEA=.057; SRMR=.038