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Original Article

Not everything is as the eyes see: the role of physical-sensory elements and self-confidence in the vulnerability of consumers with visual impairment

Nem tudo é o que os olhos veem: o papel dos elementos físicos-sensoriais e da autoconfiança na vulnerabilidade de consumidores com deficiência visual

Rômulo Benício Lucena Filho[I], **Edvan Cruz Aguiar**[I]

[I] Universidade Federal de Campina Grande, Campina Grande, PB, Brazil

Abstract

Objectives: This study aims to analyze how physical-sensory elements of the retail environment and self-confidence relate to the perceived vulnerability of visually impaired consumers and their shopping experience. It seeks to demonstrate how factors such as store layout, the need for tactile interaction, and self-confidence influence perceived vulnerability and satisfaction among visually impaired consumers during the shopping experience.

Method/approach: The study adopts a descriptive quantitative approach, using a questionnaire-based research method to collect data from318 visually impaired individuals in the state of Paraíba, Brazil. The questionnaire includes measurement scales for various constructs related to the retail environment and consumer behavior, as well as demographic questions to characterize the sample.

Results: The results reveal significant relationships between store layout, tactile need, self-confidence, perceived vulnerability, and satisfaction among visually impaired consumers. Specifically, store layout and self-confidence were found to have negative associations with perceived vulnerability, while tactile need had a positive association. Perceived vulnerability, in turn, had a negative association with satisfaction.

Limitations/research implications: The study acknowledges limitations such as sample size and geographic specificity, suggesting the need for further research to validate the results in different contexts and populations. Theoretical implications include the need for a deeper understanding of consumer vulnerability and its impact on retail experiences.

Practical implications: The study highlights the importance of accessible store design and customer service training to improve the shopping experience of visually impaired consumers. It also underscores the potential benefits of addressing the tactile needs of these consumers.

Social implications: By promoting social inclusion and accessibility in retail environments, the study contributes to a more equitable shopping experience for individuals with visual impairments, fostering social inclusion and equality.
Originality/value: This study contributes to the limited literature on the retail experiences of consumers with visual impairments, offering insights into the factors influencing their perceived vulnerability and satisfaction. It emphasizes the importance of considering the unique needs of this consumer segment in retail design and service provision.

Keywords: Visually impaired consumers; Retail environment; Perceived vulnerability; Satisfaction; Accessibility

Resumo

Objetivos: Este estudo tem como objetivo analisar como elementos físicos-sensoriais do ambiente de varejo e a autoconfiança se relacionam com a vulnerabilidade percebida dos consumidores de deficiência visual e sua experiência de compra. Busca demonstrar como fatores como layout da loja, necessidade de interação tátil e autoconfiança influenciam a vulnerabilidade percebida e a satisfação dos consumidores com deficiência visual durante a experiência de compra.
Método/abordagem: O estudo adota uma abordagem quantitativa descritiva, utilizando um método de pesquisa por meio de questionário para coletar dados de indivíduos com deficiência visual no estado da Paraíba, Brasil que resultou em 318 respondentes. O questionário inclui escalas de medição para diversos construtos relacionados ao ambiente varejista e ao comportamento do consumidor, além de perguntas demográficas para caracterizar a amostra.
Resultados: Os resultados revelam relações significativas entre layout da loja, necessidade tátil, autoconfiança, vulnerabilidade percebida e satisfação entre os consumidores com deficiência visual. Especificamente, o layout da loja e a autoconfiança foram encontrados com associações negativas com a vulnerabilidade percebida, enquanto a necessidade tátil teve uma associação positiva. A vulnerabilidade percebida, por sua vez, teve uma associação negativa com a satisfação.
Limitações/implicações da pesquisa: O estudo reconhece limitações, como o tamanho da amostra e a especificidade geográfica, sugerindo a necessidade de mais pesquisas para validar os resultados em diferentes contextos e populações. As implicações teóricas incluem a necessidade de um entendimento mais profundo sobre a vulnerabilidade do consumidor e seu impacto nas experiências varejistas.
Implicações práticas: O estudo destaca a importância do design acessível da loja e do treinamento em atendimento ao cliente para melhorar a experiência de compra dos consumidores com deficiência visual. Também destaca os benefícios potenciais de atender às necessidades táteis desses consumidores.
Implicações sociais: Ao promover a inclusão social e acessibilidade nos ambientes varejistas, o estudo contribui para uma experiência de compra mais equitativa para indivíduos com deficiência visual, fomentando a inclusão social e a igualdade.
Originalidade/valor: Este estudo contribui para a limitada literatura sobre as experiências varejistas de consumidores com deficiência visual, oferecendo insights sobre os fatores que influenciam sua vulnerabilidade percebida e satisfação. Ressalta a importância de considerar as necessidades únicas desse segmento de consumidores no design varejista e na prestação de serviços.

Palavras-chave: Consumidores com deficiência visual; Ambiente varejista; Vulnerabilidade percebida; Satisfação; Acessibilidade

1 INTRODUCTION

Companies are employing marketing techniques to offer a more enriching experience to customers, focusing not only on visual appearance but also on texture, sound, and scent. These techniques aim to strengthen the bond between companies and consumers. In addition to visual aspects, marketing seeks to incorporate other senses into products, providing a multisensory journey involving sensory and physical elements (Biswas, 2019).

In this regard, sensory elements are defined as clues related to the sensory systems of sight (see), hearing (listen), smell (smell), touch (touch), and taste (taste) (Biswas, Szocs, & Abell, 2019; Krishna, 2012). Physical aspects, on the other hand, encompass the aesthetics of installation, lighting, and layout of the environment (Ryu & Han, 2011). These physical and sensory components have been shown to influence consumer behavior in purchasing decisions in retail environments (Ryu & Han, 2011; Krishna, 2017; Biswas, 2019; Ali et al., 2021).

Some studies indicate that sensory and physical elements in consumer environments can have both positive and negative effects on consumer behavior (Biswas, 2019; Ali et al., 2021), while others emphasize the importance of environmental aesthetics as an attraction for consumers (Ringler et al., 2019; Togawa et al., 2019; Murray et al., 2019). Despite the literature highlighting the role of retail environment elements in consumer behavior and shopping experience, there is still a significant gap when it comes to consumers with disabilities, who are often overlooked as some stores strategically target consumers without disabilities.

People with disabilities, historically marginalized and ignored, are often overlooked in the realm of consumption, facing numerous barriers even before making a purchase, especially if they are consumers with visual impairments. Visual impairment is defined as a condition that “substantially limits one or more major life activities”, considered a “disability” (Baker et al., 2001). This disability can reduce

consumer confidence, leading to feelings of insecurity regarding their purchasing decisions (Escobar Rodríguez & Bonsón-Fernandéz, 2017). Consumer confidence refers to the perceived ability to make effective consumption decisions, including the ability to obtain and use information and protect oneself from misleading or unfair treatment (Bearden, Hardesty, & Rose, 2001). It is defined as "the extent to which an individual feels capable and secure about their decisions and behaviors in the consumer market" (Bearden, Hardesty, & Rose, 2001, 121). Thus, visual impairment, as a disability, can diminish the confidence of these consumers.

This impairment also imposes limitations and restrictions in interacting with the physical, social, and attitudinal environment (WHO, 2019). It is estimated that approximately 2.2 billion people worldwide have some form of visual impairment, ranging from low vision to total blindness, as reported by the WHO (2019). These numbers underscore the importance of initiatives that promote the social well-being of these consumers, who are often marginalized and face unequal conditions (Coelho & Abreu, 2017).

To promote social inclusion, consumers with visual impairments, as well as those with other disabilities, expect their accessibility needs in the physical and social market environment to be met, as restrictions on freedom of movement and the ability to navigate the environment make these consumers more dependent and vulnerable (Kaufman-Scarborough & Childers, 2009).

Rosenbaum et al. (2017) define vulnerable consumers as those who engage in service transactions with some form of perceived disadvantage. According to Smith and Cooper-Martin (1997), vulnerability can be understood in two aspects: real and perceived. Baker (2005) explains that real vulnerability occurs when it is experienced, while perceived vulnerability occurs when others believe a person is vulnerable, even if they may disagree with this perception. Therefore, this article aims to analyze how the physical-sensory elements of the retail environment and self-confidence relate to the perceived vulnerability of visually impaired consumers and their shopping experience.

This article is justified for several reasons. Firstly, it underscores the importance of studies in fields such as marketing, consumer research, and retail, which often make significant contributions to these areas. Additionally, there is a growing concern, especially among consumer researchers, with investigating sensory and physical elements in different purchasing contexts in retail environments, particularly concerning consumers with visual impairments (Biswas, Lund, & Szocs, 2018). It is important to note that the analysis of the relationship between physical-sensory aspects of the retail environment and the perceived vulnerability of visually impaired consumers is innovative, as there is still no detailed analysis of how these factors impact the shopping experience of these individuals.

2 LITERATURE REVIEW

2.1 Perceived Consumer Vulnerability

Consumer vulnerability is defined as a state of powerlessness that occurs when people lack certain elements of control, leading to market inequalities and subsequent difficulty in achieving consumption goals (Baker et al., 2005). The experience of consumer vulnerability arises from the interaction of individual states, individual characteristics, and external conditions in the environment, where "individual characteristics" include demographic, psychological, and physical characteristics. Examples include socioeconomic status and biophysical issues (such as addictions); the term "personal state" refers to situations like mourning or motivation; and "external conditions" encompass factors including social and economic dynamics (Baker et al., 2005). By deriving this multidimensional and consumer-oriented conceptualization, Baker et al. (2005) challenged the so-called "class-based" perspective, which assumes that certain consumers are disadvantaged (Commuri & Ekici, 2008).

On the other hand, Hamilton et al. (2015) describe consumer vulnerability as an undesirable state catalyzed by a series of human contexts and conditions, which

can be temporarily experienced during transitions such as the death of a loved one (Gentry et al., 1995), job loss, divorce, aging, becoming a parent, natural disaster, or it can be experienced permanently due to a disability, etc., and can occur at any time in people's lives.

The literature on consumer vulnerability considers that it can be identified through two perspectives: through the experiencer and the observers, thus distinguishing real vulnerability from perceived vulnerability (Hill & Sharma, 2020; Baker et al., 2005; Smith & Cooper-Martin, 1997). Vulnerability is real when it is experienced, felt, suffered, and identified in the face of the consumer experience. Perceived vulnerability occurs when a third party observes, detects, identifies, and believes that a person is vulnerable, whether they agree with this perception or not (Hill & Sharma, 2020; Baker et al., 2005).

On the other hand, Windschitl et al. (2002) point out that perceived vulnerability refers to the feeling that one does not have the ability to mitigate the severity of negative outcomes in life. Instead of being an objective or absolute standard, the perception of severity results from comparing one's own capabilities to cope with negative events. Blanton et al. (2001) argue that when negative events occur, individuals first assess whether they can cope better than their peers, rather than examining the events or their own capabilities. This perspective expands existing views on how perceived vulnerability manifests in the market.

Subsequently, Blocker et al. (2013) note that perceived vulnerability by consumers is often accompanied by pains, risks, hopelessness, stress, and insecurity. Perceived vulnerability is based on an individual's estimate of the likelihood of a threat negatively affecting them if a self-protective behavior is not adopted (Salazar et al., 2018). Therefore, Cho & Lee (2006) highlight that when consumers perceive vulnerability, they become much more cautious in decision-making, as they cannot afford the potential loss caused by a faulty decision. This risk aversion subsequently leads consumers to be more prevention-focused, meaning they focus on avoiding pain rather than seeking benefits (Petersen et al., 2015).

For Wise (2017), perceived vulnerability presents itself in two dimensions, one in relation to oneself (absolute) and another in relation to others (comparative). Relative perceived vulnerability refers to the perception that someone is more vulnerable to harm than others. On the other hand, absolute perceived vulnerability indicates the perception of being vulnerable.

Sinclair & Waltson (1999) measured perceived vulnerability through the scale they developed called the PVS - Psychological Vulnerability Scale. The authors claim that psychological vulnerability measured by this instrument tracks cognitive vulnerability related to perceptions, perfectionism, negativity, attributions, and the need for external sources of approval. Finally, the authors define perceived vulnerability as an indicator of a deficit in personal coping resources.

2.2 Background Music, Store Layout, and Perceived Vulnerability

Retail environments are often designed to cater to consumers without disabilities, which can lead to the devaluation of those with visual impairments (Baker, 2006; Cho, 2021; Guerra & Veiga Dias, 2021; Falchetti, Ponchio & Botelho, 2015; Fumarco, 2017; Boustani & Lemoine, 2021). Consumers with visual impairments face daily obstacles, such as difficulty in visualizing product labels and prices in stores, which forces them to expend more effort in evaluating purchase options (Celik & Yakut, 2021). To cope with this, they use coping strategies, including auditory stimuli as an alternative to obtain information (Adam, 2017).

Background music in retail environments is a relevant sound element that influences consumer judgments and evaluations (Cho, 2021). It can affect the mood of customers, but only when three elements of music are considered: tempo, style, and volume (Biswas, Lund, & Szocs, 2018). However, loud music in stores can increase the perceived vulnerability of consumers with visual impairments, as well as other auditory elements present in the store (Beudaert, Gorge, & Herbert, 2017; Biswas, Lund, & Szocs, 2018).

The exclusion of these consumers in establishments can generate inequalities in market interactions and increase their perception of vulnerability (Baker et al., 2005; Wise et al., 2017). In this sense, the presence of loud background music can hinder these consumers' access to the market, leading to greater perceived vulnerability (Celik & Yakut, 2021; Biswas, 2019). Given the above, it is reasonable to assume that:

H1: The greater the presence of background music, the higher the perceived vulnerability of visually impaired consumers.

Consumers with visual impairments face challenges with architectural choices and design in physical consumption environments, such as confined spaces, product invasion, aisle widths, small printed labels, and distorted colors (Mason & Pavia, 2006; Baker, Holland & Kaufman-Scarborough, 2007; Yu, Tullio-Pow, & Akhtar, 2015; Kaufman-Scarborough, 2000). They use adaptive strategies to deal with these issues.

The physical elements of retail environments, including architecture, decoration, colors, materials, and layout, have both aesthetic and functional impacts (Bitner, 1992; Grewal & Baker, 1994). Store layout is particularly relevant as it influences customer satisfaction, especially when well-planned (Siu & Cheung, 2001).

For consumers with visual impairments, adapting to mobility in physical environments is a concern. They resort to alternative sources of information, such as memories, advertisements, or the assistance of friends and family, to make decisions (Amaro et al., 2008; Baker & Mason, 2012; Coelho, Orsini, & Abreu, 2016; Campisi et al., 2021). The presence of architectural barriers in retail environments can make these consumers more vulnerable (Schneider, 2017; Damascena & Farias, 2013).

Inclusive store layout is essential to prevent the manifestation of perceived vulnerability in consumers with visual impairments, as lack of inclusion can make their experience absolutely and comparatively disadvantaged (Wise et al., 2017; Rosenbaum et al., 2017). Therefore, the following hypothesis is formulated:

H2: The better the layout is rated, the lower the perceived vulnerability of visually impaired consumers.

2.3 Need for Touch and Self-confidence of People with Visual Impairment

Peck and Childers (2003) developed the Need for Touch Scale to measure consumers' preferences in obtaining and using information through touch. This need is divided into two dimensions: autotelic, related to the sensory pleasure of touch, and instrumental, focused on touch for specific purposes.

Previous studies in haptic sensation have investigated various issues, such as reactions to products touched by others, individual need for touch, and the effect of accidental interpersonal touch (Argo, Dahl, & Morales, 2006; Peck & Childers, 2003; Martin, 2012).

The sense of touch significantly impacts consumer perceptions and behaviors. It enhances the perception of ownership, confidence in product evaluations, results in more positive evaluations, and can lead to unplanned purchases (Peck & Shu, 2009; McCabe & Nowlis, 2003; Peck & Wiggins, 2006; Peck & Childers, 2006).

For consumers with visual impairments, touch is even more crucial, as other senses become heightened when vision is lost (Bavelier & Neville, 2002). Depriving these consumers of freely handling products can have significant psychological and behavioral consequences (Ringler et al., 2019).

Therefore, exposure to sensory stimuli such as textures in retail environments is important not only for the overall immersion of consumers but also to enable the autonomous inclusion of consumers with visual impairments (Solomon, 2017; Borges et al., 2020). Based on this, the following hypothesis is formulated:

H3: The greater the need for touch the products, the higher the perceived vulnerability of visually impaired consumers.

Consumer self-confidence is a crucial element in understanding their buying behavior. It refers to the degree to which an individual believes themselves to be capable, significant, and worthy (Pierce et al., 1989). It is also related to confidence and security in purchasing decisions (Bearden, Hardesty, & Rose, 2001).

Lastovicka (1982) suggests that consumer self-confidence is more related to

consumption issues than to core self-esteem. Blascovich & Tomaka (1991) emphasize that consumer self-confidence is a relatively stable and accessible assessment due to the constant role of consumption in daily life.

Kalita (2021) highlights that self-confidence involves the ability to effectively face situations independently and have constructive self-evaluation, while Dörnyei (2014) closely relates it to self-esteem.

For consumers with visual impairments, self-confidence plays a fundamental role in facing challenges and participating in the market (Bearden, Hardesty, & Rose, 2001; Wise, 2017). Considering the nuances of self-confidence and perceived vulnerability, it can be assumed that:

H4: The greater the self-confidence of visually impaired consumers, the higher their perceived vulnerability.

2.4 Satisfaction of Consumer with Visual Impairment

The customer satisfaction is influenced by customer service experiences, and the emotions developed during these experiences are crucial factors in consumers' attitudes and behaviors (Mägi, 2003; Hirschman & Holbrook, 1982). For consumers with visual impairments, satisfaction is even more critical as they are more prone to physical or psychological harm in case of service failure, resulting in higher expectations (Ostrom et al., 2010).

Vulnerability increases the likelihood of exploitation, which raises concerns for vulnerable consumers about fair price and quality, leading to dissatisfaction (Herrmann et al., 2007). Satisfied consumers are more likely to maintain long-term relationships with a company and feel a sense of belonging to it (Tsai et al., 2006).

Dissatisfaction can also lead to feelings of incompetence or embarrassment (Ford et al., 2019). Corporate strategies that consider the needs of vulnerable consumers improve overall customer satisfaction, positively impacting the company's reputation and profitability (Celik & Yakut, 2021).

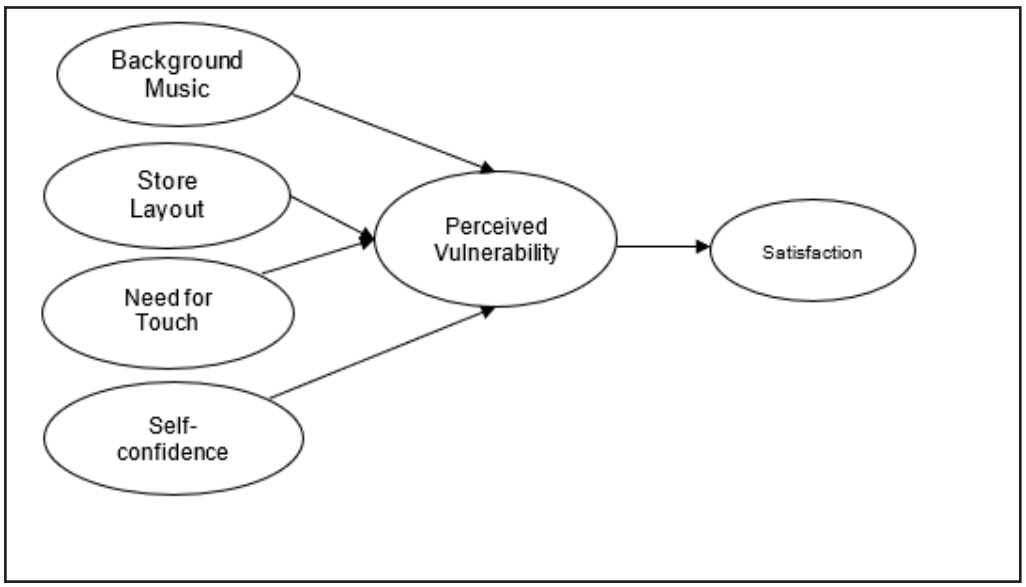
For consumers with visual impairments, a satisfactory shopping experience is important for them to feel autonomous and self-sufficient (Baker, 2006). However, some services may threaten their independence, leading to negative emotions and lower satisfaction in the retail environment (Baker et al., 2002). The more perceived vulnerability, the lower the satisfaction of these consumers (Celik & Yakut, 2021).

Retail satisfaction depends on the balance between store perception and expected performance, influencing customer loyalty (Stan, 2015). For consumers with visual impairments, it is important to balance this relationship, considering the perception of vulnerable consumers and the support offered by the store to ensure satisfaction in the shopping experience (Stan, 2015). Based on the above, the following hypothesis is formulated:

H5: The greater the perceived vulnerability of visually impaired consumer, the lower their satisfaction with the shopping experience.

To provide a better understanding of the theoretical argument presented and discussed, particularly the proposed relationships, a conceptual model was developed, as depicted in Figure 1.

Figure 1 – Conceptual Model



Source: Author (2024)

3 METHOD

3.1 Research method

The study assumes a quantitative approach and applies the survey method for data collection. The target audience was visually impaired individuals located in the state of Paraíba. A non-probabilistic convenience sample was used, considering criteria such as access to respondents and their willingness to participate in the research. Demographic variables (age, gender, education, and family income) were included to characterize the sample. A 7-point Likert scale was utilized, ranging from (1) Strongly Disagree to (7) Strongly Agree.

3.2 Data collection

The questionnaire was made available to respondents through a braille questionnaire, which was divided into two parts: the first part included measurement scales for various constructs related to different aspects such as "Background Music," "Store Layout," "Need for Touch," "Self-confidence," "Perceived Vulnerability," and "Satisfaction." The authors cited in the measurement scales were Baker, Levy, Grewal, Parasuraman, Dabholkar, Peck, Childers, Bearden, Hardesty, Rose, Sinclair, Waltson, and Ranjan & Read. The second part of the questionnaire consisted of demografic questions.

Table 1 – Constructs indicators

(Continued)

Store Layout: Dabholkar, Thorpe & Rentz (1995)
SL1: Store layout makes it easy for customers to find what they need
SL2: Store layout makes it easy for customers to move around
SL3: Availability of merchandise

Table 1 – Constructs indicators

(Conclusion)

Background Music: Baker et al. (1992) Baker et al. (1994)
BM1: I shopped at this store, the background music would bother me
BM2: The background music would make shopping in this store pleasant
BM3: The background music was appropriate
Self-confidence: Bearden, Hardesty e Rose (2001)
SC1: I am hesitant to complain when shopping
SC2: I am too timid when problems arise while shopping
SC3: I have a hard time saying “no” to a salesperson
SC4: I don’t like to tell a salesperson something is wrong in the store
SC5: I am afraid to “ask to speak to the manager
Need for Touch: Peck e Childers, (2003)
NT1: I place more trust in products that can be touched before purchase
NT2: I feel more confident making a purchase after touching a product
NT3: If I can’t touch a product in the store, I am reluctant to purchase the product
Perceived Vulnerability: Sinclair e Waltson (1999)
PV1: If I don’t achieve my goals, I fee l like a failure as a person
PV2: I feel entitled to better treatment from others than I generally receive
PV3: I need approval from others to feel good about myself
Satisfaction: Ranjan e Read (2016)
ST1: I feel satisfied
ST2: My experience with this store is pleasant
ST3: I believe I always make the right decision
ST4: My experience is more pleasant than expected

Source: Author (2024)

3.3 Procedure for data analysis

Before analysis, a data inspection was conducted to check for outliers, normality, and missing data. Subsequently, the reliability and validity of the scales used in the study were assessed using indicators such as Cronbach’s Alpha, Composite Reliability, Average Variance Extracted, and Convergent and Discriminant Validities (Hair et al., 2009; Aaker, Kumar, & Day, 2001; Fornell & Larcker, 1981; Conbrach, 1951). Data analysis was performed using covariance-based structural equation modeling (Field, Miles, & Field, 2012; Ribas & Vieira, 2011). The statistical software The R Project for Windows was employed to assist in the analysis procedures.

4 ANALYSIS AND DISCUSSION OF RESULTS

4.1 Sampel characterization

Based on the 318 valid observations, 49.37% are male and 47.80% are female, indicating a male majority in this sample. Regarding family income, 82.70% of the sample earns up to 2 minimum wages, while 14.50% have incomes between 2 and 4 minimum wages. In terms of education level, 22.64% have completed high school, 6.92% have a college degree, and 2.83% have completed a postgraduate degree. It was also found that 62.26% of visually impaired consumers had complete vision loss, while 37.74% had low vision.

Table 2 – Descriptive statistics

Construct	Average	Median	Standard Deviation
Background Music	4.14	5.67	2.43
Store Layout	1.90	1.67	1.00
Need for Touch	5.94	6.33	0.98
Self-confidence	4.87	5.75	2.01
Perceived Vulnerability	5.60	6.33	1.74
Satisfaction	2.76	2.67	1.26

Source: Research data (2024)

Based on the data presented in Table 2, it is possible to observe the mean value for Store Layout (1.90) along with their respective medians. The low average in responses suggests that the absence of these constructs in store environments could lead to dissatisfaction with the shopping location, as indicated by the mean and median satisfaction score (2.76).

4.2 Validation and data measurement

In order to assess the internal reliability of the scale (construct), a Confirmatory Factor Analysis (CFA) was conducted to examine the covariance structure, aiming to

analyze how variables are related to each other and combined into factors. Cronbach's alpha was used as a measure of internal consistency and reliability of the constructs (Hair et al., 2005; Malhotra, 2019). The literature suggests that a value of 0.7 is acceptable for consumer behavior research. Reliability tests were also performed using Composite Reliability (CR) and Average Variance Extracted (AVE) (see Table 3).

Table 3 – *Coefficient Alpha*, Composite reliability e Average variance extracted

Construct	Alpha	CR	AVE
Background Music	0.980	0.984	0.955
Store Layout	0.930	0.960	0.889
Need for Touch	0.900	0.906	0.763
Self-confidence	0.970	0.965	0.874
Perceived Vulnerability	0.960	0.957	0.883
Satisfaction	0.930	0.922	0.800

Source: Research data (2024)

According to Table 3, the factor loadings of the test results exceed the reference values for all four constructs, ensuring the internal validity of the scales used and allowing the analysis to proceed. Subsequently, the variables were analyzed to assess discriminant validity following the procedure outlined by Fornell and Larcker (1981), which aims to verify how well a scale measures what it intends to measure. The correlation results are presented in Table 4:

Table 4 – Correlations, Shared Variance e AVE

Variables	BM	SL	NT	SC	PV	ST
Background Music	**0.955**	0,323	-0,208	-0,247	-0,221	0,360
Store Layout	**	**0.889**	-0,616	-0,041	-0,430	0,567
Need for Touch	**	**	**0.763**	0,042	0,344	-0,424
Self-confidence	**	**	**	**0.874**	0,476	-0,215
Perceived Vulnerability	**	**	**	**	**0.883**	-0,506
Satisfaction	**	**	**	**	**	**0.800**

Source: Research data (2024)

As can be seen in Table 4, the significance levels of the variables clustered within their respective factor, demonstrating that the variables are measuring what is intended, as the values are above 0.7 (Hair et al., 2005). Thus, positive correlations indicate that as one variable increases, the other variable also tends to increase, while negative correlations indicate that as one variable increases, the other variable tends to decrease.

Table 5 – Fit measures

INDEX	Criteria	Model
χ^2	---	391.459
DF	---	137
P-VALUE	> 0,05	0.000
χ^2/(DF)	2-5	2,857
NFI	≥ 0,900	0.948
IFI	≥ 0,900	0.965
TLI	≥ 0,900	0.956
CFI	≥ 0,900	0.965
RMSEA	≤ 0,08	0.076
SRMR	≤ 0,08	0.048

Source: Dados da pesquisa (2024)

According to Table 5 and considering the performance metrics of the conceptual model, the presented values align with those suggested in the literature. Initially, they showed significant differences in degrees of freedom below 5 (2.857), suggesting that the quality of the other indices is well-founded. The values of CFI (0.965) and TLI (0.956) are above the recommended threshold (>0.90, respectively), while RMSEA (0.076) is slightly above the suggested range (>0.90 and <0.08, respectively). The SRMR index (0.048) reflects the difference between predicted and observed covariance in the model, based on standardized residuals, which falls within the literature's suggested range (<0.08).

4.3 Hypotheses testing

Table 6 – Hypotheses

Hypothesis	Coefficient	Standard Error	β	p-value	Result
H1: MF ↦VP	0.025	0.032	0.025	0.436	Not supported
H2: LL ↦VP	-0.629	0.111	-0.629	0.000	Supported
H3: NT ↦VP	0.230	0.115	0.230	0.044	Supported
H4: AC ↦VP	0.450	0.045	0.450	0.000	Supported
H5: VP ↦ SAT	-0.383	0.041	-0.383	0.000	Supported

Source: Research data (2024)

The study hypothesized that there would be a negative relationship between background music and perceived vulnerability, but the results did not support this hypothesis. The analysis showed a coefficient β = 0.025, indicating a positive relationship between the variables, but it was not significant ($p > 0.05$, significance level = 0.436). Despite this, other research indicates that music can affect consumers' emotions, especially those with visual impairments (Hui, Dubé, & Chebat, 1997). Conversely, consumers familiar with music in a retail environment tend to experience greater well-being, spend more time, and consume more (Yalch & Spangenberg, 2000). Therefore, it can be concluded that the sound environment does not negatively affect perceived vulnerability. Although the hypothesis was not supported in this study, music can still be a useful strategy to enhance consumer experience and, consequently, increase loyalty and sales.

The second hypothesis (H2) suggests a negative relationship between store layout and perceived vulnerability. The results were significant, with a coefficient β of -0.629 and a p-value < 0.001, supporting the hypothesis. This could be explained by the difficulties visually impaired consumers face in locating products within stores. According to Schneider et al. (2017), the most significant barriers for these consumers are related to mobility and access to information. The findings suggest that poorly planned and navigable store layouts can influence

perceived vulnerability among visually impaired consumers, potentially leading to unsatisfactory shopping experiences and even loss of these customers. The importance of accessible design is further underscored by the challenges these consumers face in accessing retail locations, as noted by Campisi et al. (2021). Investing in accessible and intuitive store design can not only improve the shopping experience for visually impaired consumers but also promote greater inclusion and equal access to retail commerce.

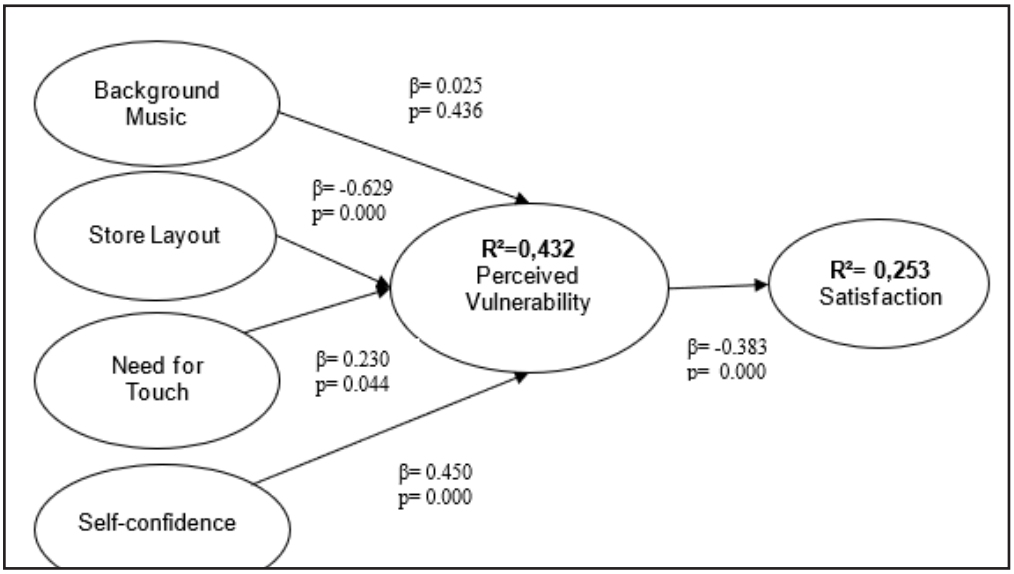
The third hypothesis (H3) proposes a positive relationship between the need for touch and perceived vulnerability among visually impaired consumers. This was supported by a significant result, with $\beta = 0.230$ and p-value < 0.001, confirming the hypothesis. This relationship can be explained by the importance of tactile feedback for visually impaired consumers in evaluating products before purchase. When prevented from touching products, they tend to distrust the shopping environment and reject the product. According to Peck and Childers (2003), consumers with a higher need for touch have more confidence in their product assessments when allowed to touch them but become frustrated when they cannot.

The need for touch is positively related to perceived vulnerability among visually impaired consumers. Therefore, these results highlight the importance of tactile evaluation of products for these consumers before purchase. Moreover, touch provides crucial information about product quality and generates a personal affective response in consumers (Canio & Blastus, 2021), which can increase purchase desire. Hence, companies should be sensitive to the tactile needs of visually impaired consumers and ensure that their products can be evaluated tactually before purchase.

The fourth hypothesis (H4) posits a positive relationship between consumer self-confidence and perceived vulnerability, with $\beta = 0.450$ and p-value < 0.001, a significant result supporting the hypothesis. This connection is explained by the fact that, despite feeling self-confident, visually impaired consumers still perceive

themselves as vulnerable. However, instead of focusing on their limitations, they accept them and use their self-confidence to neutralize threats that put them at a disadvantage, such as seeking help from store staff. This observation is also supported by vulnerability research (Wise, 2017; Boney-McCoy et al., 1999; Smith et al., 1997), reaffirming the link between self-confidence and consumer willingness to act and defend their rights (Bearden, Hardesty, & Rose, 2001). Therefore, as perceived vulnerability increases, consumers tend to concentrate on their positive qualities to minimize potential negative consequences and defend their rights.

Figure 2 – Structural model



Source: Research data (2024)

The fifth hypothesis (H5) found a negative relationship between perceived vulnerability and consumer satisfaction among visually impaired consumers (β = -0.383, p-value < 0.001), supporting the hypothesis. This result can be attributed to the lack of accessibility and physical barriers in stores, which hinder satisfaction among visually impaired consumers. As a result, these consumers perceive themselves as vulnerable during shopping and feel dissatisfied with the experience. This finding is consistent with Eskyte's (2019) research, emphasizing

that companies often neglect the needs of consumers with disabilities, focusing only on meeting the needs of non-disabled consumers. This undermines visually impaired consumers' ability to make informed choices about their purchases, leading to feelings of vulnerability and dissatisfaction. Vulnerability can create feelings of powerlessness and insecurity, according to Baker et al. (2005) and Queiroz & Leite (2019), affecting consumer perceptions of service quality and the product offered. Moreover, vulnerability can make consumers feel undervalued and excluded, negatively impacting trust and loyalty with the company.

5. CONCLUSION

The research on the relationship between physical-sensory elements of retail environments and perceived vulnerability of visually impaired consumers is groundbreaking because there hasn't been a comprehensive exploration of how these elements impact their shopping experience. Often, stores overlook accessibility and other sensory factors crucial to these consumers, resulting in a negative shopping experience. Additionally, literature in marketing and macromarketing is still limited concerning this specific topic. This article provides a unique and valuable perspective on how store layout, the need for touch, and self-confidence affect perceived vulnerability and satisfaction among visually impaired consumers, contributing to a deeper understanding of these elements' importance in their shopping experience.

It was observed that store layout has a negative relationship with perceived vulnerability. The less evaluated the store layout, the higher the perceived vulnerability among visually impaired consumers. To support blind consumers and enhance retailers' reputations, adopting universal retail design and providing customer service training is crucial. Awareness of these consumers' special needs is also fundamental. These actions can be part of retailers' business strategy to stand out in the market.

The need for touch and self-confidence positively correlates with perceived

vulnerability. The higher the need for touch or self-confidence among blind consumers, the greater their perceived vulnerability. Therefore, implementing inclusive strategies, such as addressing the need for tactile interaction for blind consumers, can yield significant benefits for retailers. Firstly, meeting the needs of blind consumers can increase customer satisfaction, which can lead to greater brand loyalty and increased sales. Moreover, people with visual impairments represent a significant yet often underserved market, and companies that implement inclusive solutions can emerge as leaders in their sector, enhancing their reputation and positive image among the general public.

It's also important to note that including people with disabilities is not only an issue of ethics and social justice but can also help companies comply with accessibility legislation and regulations. Therefore, it's essential for retailers to consider the needs of all their customers and adopt inclusive solutions to promote well-being and equal access for everyone.

Interestingly, it was noted that although there was a close positive relationship between background music and perceived vulnerability, the results were not significant. This outcome suggests that future research should pay particular attention to investigating whether factors other than background music, such as loud noises or internal store sounds, affect the perception of vulnerability and satisfaction among visually impaired consumers.

As a limitation, this study cannot generalize its findings because the samples reflect the state of Paraíba, and different research locations may yield different results. Another limitation concerns the sample size; a slightly larger sample might provide more insightful results regarding the perception of vulnerability among these consumers. Lastly, it is recommended that future studies apply the scale to other groups of diverse consumers, validating the various ways consumers perceive vulnerability. For example, comparing results between different consumer groups can broaden the concept of consumer vulnerability and assess if there are differences across different situations.

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Authors

1 – Rômulo Benício Lucena Filho

Institution: Federal University of Campina Grande – Campina Grande, Paraíba, Brazil

Master's Degree in Business Administration – UFCG / Master's Degree in Accounting – UFPB

Orcid: https://orcid.org/0000-0003-0730-7681

E-mail: robelucena@gmail.com

2 – Edvan Cruz Aguiar

Institution: Federal University of Campina Grande – Campina Grande, Paraíba, Brazil

PhD in Business Administration from the Federal University of Pernambuco PROPAD/UFPE

Orcid: https://orcid.org/0000-0002-3433-6210

E-mail: edvan.ed@gmail.com

Contribution of authors

Contribution	[Author 1]	[Author 2]
1. Definition of research problem	√	√
2. Development of hypotheses or research questions (empirical studies)	√	
3. Development of theoretical propositions (theoretical work)	√	√
4. Theoretical foundation / Literature review	√	√
5. Definition of methodological procedures	√	
6. Data collection	√	
7. Statistical analysis	√	√
8. Analysis and interpretation of data	√	
9. Critical revision of the manuscript	√	√
10. Manuscript writing	√	√
11. Other (please specify)		

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