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# Protective measures against COVID-19 and the business strategies of the retail enterprises: Differences in gender, age, education, and income among shoppers

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ABSTRACT

The present study sought to develop a conceptual framework to explain the influence of protective measures adopted by the retail enterprises against the COVID-19 virus on customers' attitudes toward these measures, and the safety during the shopping experience, as well as the satisfaction with these types of protective measures and behavioral intentions. A structural equation modeling and metric invariance test were used as the data analysis technique. Our results revealed that the protective measures against the COVID-19 virus significantly and positively influenced customer safety during shopping, the attitudes and satisfaction, which contribute to an increase of their behavioral intentions as a result. The mediating role of attitudes and safety was also uncovered. In addition, our findings from the metric invariance test indicated that gender, age, education, and income significantly moderated the relationships among the studied constructs. Our results can help retail practitioners and researchers develop a strategy to effectively implement protective measures against COVID-19 in the retail enterprises.

## 1. Introduction

The new coronavirus (COVID-19) represents a severe global health crisis and proved to be disastrous the world over due to its highly contagious nature (Chan et al., 2020; Prentice et al., 2020). Since March 2020, the COVID-19 virus has spread rapidly around the world, which was declared a pandemic by the World Health Organization (WHO, 2020). In order to prevent/minimize the spread and transmission of the virus, governments worldwide imposed some important measures and regulations, such as partial or complete lockdowns, self-isolations, social distancing, and curfews. Also, citizens have been required to wear face masks in public areas, avoid large gatherings, and limit visits to stores. However, these measures and regulations have had a major negative impact on the economy worldwide (Nicola et al., 2020). In particular, the sectors that rely predominantly on high levels of human interaction, such as retail enterprises, have experienced the worst impact (Hoque et al., 2020).

Retail enterprises are generally dependent on regular customer traffic and face-to-face contact, so they were severely affected by the reduced market demand caused by the COVID-19 pandemic (Lu et al., 2020; Prentice et al., 2020). The dense, open, and public character of retail stores was also viewed as a major risk for the uncontrollable spread and the transmission of the COVID-19 virus (Munster et al., 2018). Therefore, in order to minimize the risk of spreading the virus as well as to safeguard the health of their consumers and themselves, retailers worldwide have implemented such important protective measures as a) providing free hand sanitizer for the customers, b) installing protective visors to protect the cashiers, c) implementing social distancing measures between the customers and floor signaling through the store, d) using cashless or contactless payment methods in order to minimize the handling of cash, and e) requiring customers to wear gloves and/or face masks. However, these types of protective measures adopted by the retailers to minimize the spread and the transmission of the COVID-19 virus proved to disrupt normal consumers' shopping routine, create anxiety, and cause fear (Forster and Tang, 2005; Naeem, 2021), which had negative effects on the customer shopping experience.

Additionally, recent studies have revealed that the emergence of the COVID-19 pandemic and the extended periods of quarantine have fundamentally changed consumer behavior (Anderson et al., 2020; Islam et al., 2020; Kim et al., 2020; Tran, 2021) and created new

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patterns of purchase/consumption in response to the perceived threat of the contagion with the COVID-19 virus (Cohen, 2020; Laato et al., 2020). For example, Lu et al. (2020) found that consumer trust has decreased as a result of the high sense of insecurity during shopping in the current context of the COVID-19 pandemic, which has had a negative impact on their satisfaction. Previous studies within consumer behavior have also indicated that crises and disasters generally have a profound effect on consumer attitude and safety during shopping (Addo et al., 2020; Kaswengi and Diallo, 2015). In particular, some studies that have explored consumer risk attitudes during crises/disasters revealed that it is critical to investigate this construct since individuals are aware that going into public areas increases the possibility of being infected (Cameron and Shah, 2015). For example, a recent work conducted by Ceylan et al. (2020) showed that consumer attitudes toward purchase and consumption behavior have changed during the COVID-19 outbreak. The importance of safety during shopping has also been tested in the recent studies. For example, Blakely (2020) found that consumers are extremely worried about their health and safety during shopping due to the highly infectious nature of the COVID-19 virus. However, there is a lack of empirical data on how these types of constructs, which included attitude and safety, are related to the protective measures implemented by the retail enterprises against COVID-19 in generating customer satisfaction and behavioral intentions. Therefore, the present research aimed to develop a conceptual framework explicating the potential influence of the protective measures implemented by retail enterprises against the COVID-19 virus on the customers' attitudes toward these measures, safety during shopping, as well as the satisfaction and behavioral intentions, which include the repurchase intentions, positive word-of-mouth, and the willingness to pay more in order to be safe during shopping. In addition, as the proposed framework is newly developed for the current context of the COVID-19 outbreak, the present research adopted an exploratory approach in hypothesizing the moderating effects of the customer demographic traits, which included gender, age, education, and income. The objectives of the present research included a) testing the possible relationships among the protective measures implemented by the retail enterprises against the COVID-19 virus, the customers' attitudes toward these measures, safety during shopping, the satisfaction and the behavioral intentions, which included the repurchase intentions, positive word-of-mouth, and the willingness to pay more in order to be safe during shopping, b) assessing the mediating role of attitude and safety during shopping, and c) evaluating the moderating role of the customer demographic characteristics, which included gender, age, education, and income, on the relationships among the studied constructs in a retail store in the current context of the COVID-19 pandemic.

## 2. Literature review

### 2.1. Protective measures adopted by the retail stores against COVID-19 and their impact

The COVID-19 pandemic is an unprecedented crisis affecting not only human health, but also the global economy (Everingham and Chassagne, 2020). As economic concerns and restrictions continue to affect consumers worldwide, new buying and consumption patterns and behaviors have emerged (Nielsen, 2020a). Based on the previous studies within the consumer behavior literature (Kaswengi and Diallo, 2015), during a recession period/crisis, consumer shopping attitudes and behaviors are very sensitive compared to a normal economic development. While the economic factors have often been the primary drivers of the shopping behavior, however, numerous consumers make product/service/store choices mainly based on health and safety concerns in the context of the COVID-19 outbreak (Nielsen, 2020a, b). For example, a Nielsen survey on the consumer sentiment about the current COVID-19 outbreak (Nielsen, 2020b) found that 55% of the respondents would take extra precautions when visiting the brick-and-mortar stores. Among these precautions, health and safety remain a priority for the consumers until a vaccine is developed. Moreover, a recent study conducted by Blakely (2020) showed that 77% of retail customers will be more cautious about cleanliness as well as health and safety while shopping. An extensive global Nielsen study on premiumization (Leggett, 2020) also revealed that 49% of the respondents would be highly willing to pay a premium price for high quality products/services and verifiable safety standards. Dimensions, such as hygiene as well as health and safety are thus predicted to become the new shopping standard. In addition, consumers will be seeking greater assurance that the preferred products/services are free of risk when it comes to health as well as safety and cleanliness standards, which will require retailers to clearly communicate why their products/services offer should be trusted (Fine, 2020). Moreover, the retailers need to adapt to these new changes and standards in the consumer demand in order to increase customers' loyalty (Fahmy and Sohani, 2020).

However, there is a dearth of empirical studies conducted during a non-financial crisis, such as the COVID-19 pandemic. Therefore, it is not clear yet how this type of outbreak might affect or change the consumers' attitudes, behaviors, and loyalty toward a retail store. Therefore, we could only presume that the protective measures by retail stores against the COVID-19 virus will have a positive influence on the constructs that were studied in the present research, which included the attitude toward the protective measures against COVID-19, safety during shopping, the satisfaction with these types of protective measures, and intentions. Thus, the following hypotheses were developed:

**H1**. Implementation of protective measures against COVID-19 by retail enterprises has a positive influence on customer attitude toward these measures.

**H2**. Implementation of protective measures against COVID-19 by retail enterprises has a positive influence on customer safety during shopping.

**H3**. Implementation of protective measures against COVID-19 by retail enterprises has a positive influence on customer satisfaction.

**H4**. Implementation of protective measures against COVID-19 by retail enterprises has a positive influence on customer intentions.

### 2.2. Attitude

Attitude refers to "the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question" (Ajzen, 1991). Previous studies have attempted to assess risk attitudes and their effects in disasters or extreme situations (Cameron and Shah, 2015; Page et al., 2014). In these studies, risk-taking attitudes were treated as important dimensions that guide human behavior because they determine a range of decision-making strategies. Recent studies on the individuals' attitudes toward COVID-19 (Beck and Hensher, 2020) revealed that this pandemic is perceived as a serious public health concern and as a very high risk, which requires drastic protection measures. In the current context of the COVID-19 outbreak, risk attitudes are an important determinant of behavior because the individuals are aware that going into public places, such as retail stores increases the possibility of being infected (Cameron and Shah, 2015). Moreover, from an economic perspective, the previous research has emphasized that the COVID-19 pandemic has changed both the demand dynamics and the consumption/purchase attitudes (Ceylan et al., 2020). Therefore, attitude could be understood as an overall appraisal that customers develop toward the protective measures adopted by the retail establishments against the COVID-19 outbreak in the present study.

Furthermore, a plethora of studies focused on the concept of attitude and its effect on consumer satisfaction and the behavioral intentions, which include repurchase intentions, positive word-of-mouth, and willingness to pay more. More specifically, some researchers (Zhu et al., 2011) showed that the brand attitude significantly influences customer

satisfaction. In addition, the previous studies consistently demonstrated that attitude is a good predictor for consumers' behavioral intentions, which include repurchase intentions, positive word-of-mouth, and willingness to pay more (Ahn and Back, 2017). For example, Cai and Shannon (2012) demonstrated in a retail context that the more favorable attitude the consumers have toward mall attributes, the more likely they will revisit and spend more money in the mall. Based on this, it is assumed that consumers' attitude toward the protective measures adopted by the retail establishments against COVID-19 has a positive relationship with satisfaction and the behavioral intention, which include intentions to revisit the store, positive word-of-mouth, and willingness to pay more in order to be safe during shopping. Thus, the following hypotheses were proposed:

**H5**. Consumer attitude toward protective measures adopted by retail establishments against COVID-19 has a positive relationship with satisfaction.

**H6**. Consumer attitude toward protective measures adopted by retail establishments against COVID-19 has a positive relationship with intentions.

### 2.3. Safety during shopping

Recent studies (Fahmy and Sohani, 2020) indicated that consumer health consciousness increased as a result of the COVID-19 pandemic because they understood the importance of the immune system and hygiene regarding fighting the virus. Therefore, consumers chose to adopt several health protective measures during shopping activities, such as going less often to stores, minimizing the amount of time spent in stores, avoiding going to multiple stores, standing in crowded places, wearing gloves, and wearing masks in order to remain safe and decrease the risk of getting infected by the COVID-19 virus (Fahmy and Sohani, 2020). Moreover, the fear of getting infected by the COVID-19 virus was viewed as a sufficient premise to build trust between the customers and the sellers (Addo et al., 2020). Therefore, consumer's need for safety during shopping is fundamentally important in order to mitigate the effects of risk and uncertainty within the retail stores in the context of the COVID-19 pandemic. In addition, previous studies established that safety has a positive and significant impact on customer satisfaction and intentions. For example, when evaluating the service quality of virtual community websites, Kuo (2003) has observed that safety is positively and significantly linked with customer satisfaction and loyalty. Based on this evidence, the following hypotheses were developed.

**H7**. Consumer safety during shopping has a positive relationship their satisfaction.

**H8**. Consumer safety during shopping has a positive relationship with intentions.

### 2.4. Satisfaction and behavioral intentions

In an increasingly competitive business environment, customer satisfaction and loyalty are the key dimensions that affect the financial performance of a company (Keisidou et al., 2013). Customer satisfaction is defined as the cumulative feelings that are developed among multiple interactions with a company (San-Martin and López-Catalán, 2013) and the positive affective state that results from the previous and the existing relationships with it (Martín and Jiménez, 2011). Previous research (Darley and Luethge, 2019; Ji and Prentice, 2021; Ranaweera et al., 2005) suggested the importance of achieving customer satisfaction in order to promote long-term relations between a company and consumers. On the other hand, loyalty is defined as customer commitment to engage in positive behaviors for a particular product/service (Oliver, 1999). Furthermore, prior studies conceptualized customer loyalty as behavioral intentions, which included the repurchase intentions, positive word-of-mouth, and the willingness to pay more (Han and Ryu, 2009). The direct relationship between satisfaction and repurchase intentions has been demonstrated in many studies (Han and Hyun, 2017; Kim and Shim, 2019). In addition, the effect of satisfaction on the word-of-mouth intentions has been empirically verified in the marketing literature. For example, previous research (Chang et al., 2013) showed that satisfaction has a clear effect on the generation of positive word-of-mouth. Other researchers emphasized that satisfaction has a significant impact on the customer's willingness to pay more for the product/service (Zhang and Bloemer, 2008). Thus, in the retail context of the present study, the following research hypothesis was developed.

**H9**. The customers' satisfaction with protective measures adopted by retail establishments against COVID-19 has a positive relationship with their intentions.

### 2.5. The moderating influence of demographic characteristics

Previous studies (Engemann and Wall, 2009; Khan et al., 2020; Kaswengi and Diallo, 2015) indicated that changes in the consumption behavior during crisis periods are based on demographic characteristics, which include gender, age, education, and income. More specifically, previous research on gender differences (Czeisler et al., 2020) suggested that although men and women had similar attitudes and behaviors regarding public health measures, a higher percentage of women reported avoiding public spaces, wearing face coverings while in public, and being more supportive of social distancing. Recent studies conducted in the US (Frederiksen et al., 2020) also showed that a greater proportion of women than men self-report adherence to public health measures including avoiding social gatherings and travel, engaging in frequent hand hygiene, and stockpiling of food and medications. Furthermore, previous studies that have examined age (Khan et al., 2018) have pointed out that younger tourists were less concerned about physical tourism-related risks and showed more travel intentions. Similarly, Neuburger and Egger (2020) demonstrated that older individuals were less likely to change their travel plans in the face of a risk threat, while Senbeto and Hon (2020) indicated that older tourists showed a decrease in taking trips even after the 2003 SARS outbreak and the 2015 avian flu outbreak in Hong Kong. The results of a recent study on the impact of the COVID-19 pandemic on public transport (Beck and Hensher, 2020) showed that over half of the respondents (58%) were extremely concerned about the level of hygiene on public transportation, which was up from just 5% prior to COVID-19. However, these attitudes were different in various parts of the sample. For example, females and older respondents were more concerned about the level of hygiene on public transport. The same researchers (Beck and Hensher, 2020) also found that females consider the COVID-19 pandemic as a serious health concern that requires drastic measures.

In regards to education, Qi et al. (2009) have found that the more educated tourists show lower concerns for safety and more positive travel attitudes when there are possible risks involved. Other researchers (Karpinska-Krakowiak, 2021; Tamimi and Sebastianelli, 2007; Veeck et al., 2015; Agarwal and Bhati, 2016; Yasir et al., 2020) found that female and more educated individuals are less willing to take risks, are more concerned about their safety, and are more emotional about their health conditions especially during an epidemic outbreak. In addition, previous studies that have investigated income (Unnikishnan and Figliozzi, 2020) revealed that there is a strong and direct relationship between health and safety concerns and income levels. For example, perceptions of personal risk and ability to prevent infection with COVID-19 were found to be lower for those respondents with lower incomes (Wolf et al. (2020). Similarly, Belot et al. (2020) showed that individuals with lower income are less likely to engage in social distancing behaviors. On the other hand, Wolf et al. (2020) indicated that women and those respondents with higher incomes are more likely to rate the seriousness of the COVID-19 threat as being high.

Furthermore, Almlöf et al. (2020) demonstrated that older, upper

secondary school education and high-income respondents were more likely to avoid public transport during the COVID-19 pandemic. In addition, Kamenidou et al. (2020) investigated whether Greek citizens took the necessary precautions in order to prevent the spread of the COVID-19 virus and found that respondents who frequently take the specific proactive measures to protect themselves from COVID-19 are mostly female, older, highly educated and moderate income respondents. Conversely, the participants who occasionally/rarely took such proactive measures in order to protect themselves from COVID-19 were predominantly male, younger, high-educated and high-income respondents.

Previous research (Cooil et al., 2007; Han et al., 2017; Homburg and Giering 2001; Jain et al., 2020) also analyzed the moderating influence of the demographic traits on customer satisfaction in order to demonstrate their impact on loyalty behaviors, which included the repurchase intentions, positive word-of-mouth, and the willingness to pay more. These studies demonstrated that the link between customer satisfaction and loyalty was stronger with females, youths, and customers with lower levels of income and education. Based on the above studies, the demographic features, which include gender, age, education, and income, are suggested to have a moderating influence on the relationships among the studied constructs. Thus, the following hypotheses are proposed:

**H10a-i**. Positive associations among the studied constructs are stronger for women than men.

**H11a-i**. Positive associations among the studied constructs are stronger for older than younger customers.

**H12a-i**. Positive associations among the studied constructs are stronger for customers in the college group than those in the high school group.

**H13a-i**. Positive associations among the studied constructs are stronger for customers with higher incomes than those with lower incomes.

## 3. Methodology and results

### 3.1. The retail sector in Romania in the context of the COVID-19 pandemic

In the context of Romania, the COVID-19 pandemic has created an unprecedented economic climate. From the first case of COVID-19, which was on February 26, 2020, the Government of Romania has progressively placed the safety of citizens as a national priority. In order to prevent/limit the spread of the COVID-19 virus in Romania a Military Ordinance was instituted throughout the country, and the majority of the population faced an (almost) complete lockdown (EFMP, 2020). The Government of Romania has also implemented o series of exceptional measures, such as a) suspension of retail activities for goods and services in commercial centres with multiple business operators (except for the sale of pharmaceutical products, food/groceries, veterinary products, and cleaning services); b) restrictions in the movement of private individuals (except for emergencies), thus leading to the decrease in the number of potential clients for the businesses which were still open to the public (Noerr, 2020). In addition, the National Committee for Special Emergency Situations has established a series of obligations for food retailers, such as frequent disinfection of surfaces and avoiding crowds in commercial spaces (Ministry of Health, 2020).

The closure of commercial centres and malls due to the COVID-19 pandemic has had a very strong, negative impact on the Romanian retail (NRCC, 2020). Although the Government of Romania sought to support the retail sector through policy initiatives, many small- and medium-enterprises were at risk of going bankrupt/out of business. While non-food retailers were facing store closures and important revenue losses, hypermarkets and supermarkets have benefited from panic buying (described as consumers buying excessive number of products to avoid shortage in the future, Shou et al., 2011), to stabilizing operations, maintaining supply chains and developing new ones (NRCC, 2020). Moreover, during the first six months of 2020, Romania's largest retail outlets opened over 170 new stores nationally (USDA, 2020), with discounters and proximity stores being the most attractive retailers for Romanian consumers (Retail-FMCG.ro).

In order to reassure Romanian customers, safety concerns due to the COVID-19 outbreak, many food retailers in Romania (e.g. Mega Image, Lidl, Kaufland, Cora, Profi, Carrefour Penny, DM Drogerie Markt etc.) have offered free hand sanitizing to customers, implemented social distancing by limiting number of customers in retail stores, encouraging customers to make payments by cards, limiting contact at pay points with installing the protective screens across stores, marking distances at which consumers waiting in line should adhere to, and increasing the stock of staple goods with long shelf-life. Retailers have also given more time to retail employees to prepare shelves, clean stores, and respond to abnormal customer demands during the lockdown due to the Covid-19 pandemic. More employees were also deployed to increase cleaning across all operations (Retail-FMCG.ro). On the other hand, many Romanian consumers chose to buy more local products, particularly staple goods, reduced their visits to large supermarkets, and shifted more towards neighborhood stores where there is little interaction with other consumers (USDA, 2020).

### 3.2. Conceptual framework

The main goal of this study was to investigate whether protective measures utilized by retail establishments against COVID-19 exert an influence on customers' satisfaction during shopping and their behavioral intentions, which include the revisit intentions, word-of-mouth intentions, and willingness to pay more in order to be safe while shopping, as well as the mediating role of the customers' attitude toward protective measures against COVID-19 and their safety during shopping. Demographic characteristics were treated as moderators in the relationships among the research constructs. The proposed conceptual framework for the present research is depicted in Fig. 1.

### 3.3. Measurement scales and questionnaire development

A self-administered survey questionnaire was developed based on the above literature review. The questionnaire consisted of five sections that covered (1) perception of protection measures against COVID-19 adopted by retail establishments, (2) perceived safety during shopping, (3) customer attitude toward protection measures against COVID-19 implemented by retail stores, (4) customer satisfaction with protection measures against COVID-19 adopted by retail stores, and (5) customer's behavioral intentions toward retail stores. The study constructs were assessed with multiple items using a 5-point Likert's scale that ranged from strongly agree (1) to strongly disagree (5). For perceptions of protection measures against COVID-19, respondents were asked to evaluate the performance of retail establishments during their shopping experiences. Six protection measures items were evaluated in the survey questionnaire. For safety during shopping, respondents were asked to indicate the extent to which protection measures against COVID-19 ensure a sense of safety while shopping in the retail store. Three questions were employed to measure safety during shopping. In the third section, respondents were asked to indicate their attitudes toward protection measures against COVID-19 implemented by retail stores. Based on the studies conducted by Ajzen (1991) and Ajzen and Fishbein (1980), four survey questions were employed to measure customers' attitudes. Using the work of Oliver (2010) and Moon et al. (2016) three items were developed to measure customer satisfaction with protection measures implemented by retail stores against COVID-19. In the last section, respondents were asked to evaluate their behavioral intentions toward retail establishments. The three survey questions used to measure behavioral intentions were adopted from Han et al. (2010) and

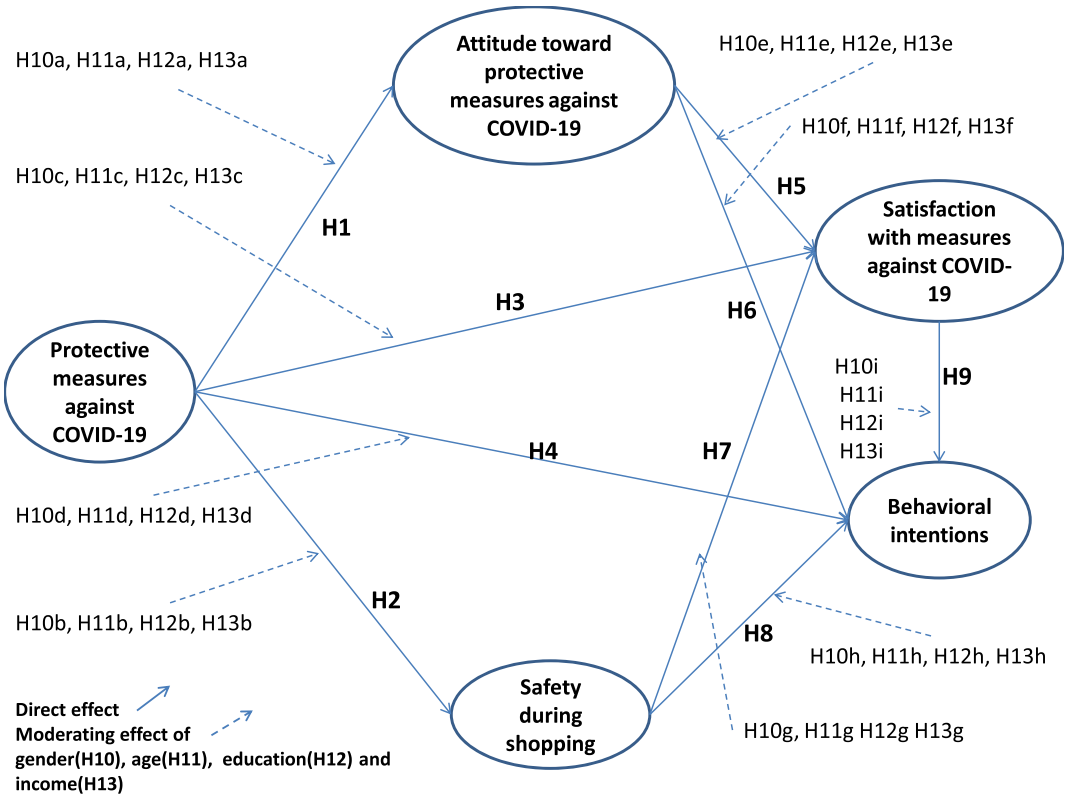


**Fig. 1.** The research conceptual framework.

Zeithaml et al. (1996). A measurement list of all latent constructs and their item loadings (λ coefficients) can be seen in Table 1.

### 3.4. Data collection and sample characteristics

The survey questionnaire – including these measures for research constructs, a research description and questions for demographic information – was pre-tested with subjects who had shopped in a retail store recently in order to check whether the statements are clear enough and to avoid ambiguities. Survey invitations and questionnaires were sent by email to 30 participants who were asked to select a link which directed them to the survey questionnaire. Minor improvements were made based on their comments. The survey questionnaire was reviewed and finalized by two specialists in trade academia and two retail practitioners. After revision, the final data was collected via an online survey methodology (https://docs.google.com/forms). The population of interest included Romanians who were 18 years of age and older and have shopped in a retail store at least once in the last month. The survey was conducted for approximately three weeks, which was from April 15 to May 7, 2020. Given the difficulty of reaching the target population (due to the quarantine imposed by Romanian authorities to limit the spread of the COVID-19 virus), a snowballing sampling technique was adopted. Through this sampling approach, the survey questionnaire was sent to 1050 participants who were previously contacted by e-mail and expressed their interest in responding the questionnaire. Reminder e-mails were sent to participants who did not complete the survey in order to increase the response rate. Respondents were asked to write the name of the last retail store they shopped at the most recently (a list of the retail stores which were mentioned by respondents can be depicted in the Appendix). Afterwards, they were requested to fill out the questionnaire based on their shopping experience in the context of the protective measures against COVID-19 taken by these retail stores. After removing incomplete and unusable responses, a total of 401 responses were gathered from the survey participants, yielding a 38.2% response rate, and further utilized for the data analysis. Among the 401 participants in the survey, approximately 42% were male and 58% were female. The respondents' mean age was 33 years, which ranged from 18 to 77 years. 41.9% of the respondents indicated that they were high school graduates, and 58.1% of the respondents had a bachelor's degree. About 32% of the survey respondents reported that their monthly income per family member was $500 or less, and 68% of them indicated their income per family member was more than $500 (see Table 2).

### 3.5. Data analysis and results

In the present research, the data was analyzed using SPSS and AMOS 20. First, in order to evaluate whether the 19 items generate the factor structure, an exploratory factor analysis with a principal component method and direct oblique as a rotation solution was employed. Following the recommendation of Hair et al. (1998), four items with a factor loading lower than 0.4 were removed (i.e. three items related to protection measures against COVID-19, such as "In this store there are devices for temperature scanning" (COV4), "This store is permanently ventilated" (COV5), "This store is clean, sterilized" (COV6), and one item related to attitude, namely "For me, to apply the protection measures against Covid-19 in this store is a pleasant/unpleasant thing" (ATT4)). A five-factor solution with 15 items was identified based on eigenvalues greater than one. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy (KMO = 0.889) and Bartlett's test of spericity (Bartlett's Sphericity test = 5075.318, $p < .01$) indicated that the distribution of values was adequate for conducting factor analysis. In addition, the resulting five factors accounted for 84.303% of the variance in the data set. The Cronbach's alphas coefficients for the five factors ranged from 0.873 to 0.926, which surpassed the criteria for reliability acceptability.

Prior to assessing the measurement model, data screening was performed in order to examine possible violations of basic assumptions. The results showed that the absolute values of univariate skewness were less

**Table 1**
Survey questions and descriptive statistics.

| Latent constructs and their items | Factor loadings (λ) | Mean | Standard deviation | Skewness | Kurtosis |
|---|---|---|---|---|---|
| *Protection measures against COVID-19 (COV)* | | 2.23 | 1.122 | . | |
| COV1. In this store, there are dispensers for hand disinfection. | .893 | | | 463 | -.491 |
| COV2. This store offers customers the opportunity to pay by card. | .771 | | | .771 | -.189 |
| COV3. In this store, customers are required to wear a protective mask. | .865 | | | .592 | -.224 |
| *COV4. In this store, there are devices for temperature scanning.*[a] | | | | | |
| *COV5. This store is permanently ventilated.*[a] | | | | | |
| *COV6. This store seems clean and sterilized.*[a] | | | | | |
| *Safety during shopping (S)* | | 2.01 | 1.015 | | |
| S1. The hygiene/ cleanliness in this store gives me a sense of safety during shopping. | .890 | | | 1.071 | .696 |
| S2. The protection measures adopted by this store in order to limit/ prevent Covid-19 disease give me a sense of safety during shopping. | .907 | | | .778 | .161 |
| S3. The protection measures adopted by this store in order to limit/ prevent Covid-19 disease reduce my feeling of fear/ anxiety. | .878 | | | .813 | .224 |
| *Attitude toward protection measures against COVID-19 (ATT)* | | 1.51 | .966 | | |
| ATT1. For me, applying protection measures against Covid-19 in this store is a positive/ negative thing. | .836 | | | 2.141 | 4.071 |
| ATT2. For me, applying protection measures against Covid-19 in this store is a wise/ senseless thing. | .940 | | | 2.188 | 4.352 |
| ATT3. For me, applying protection measures against Covid-19 in this store is a beneficial/harmful thing. | .835 | | | 1.825 | 2.651 |
| *ATT4. For me, applying the protection measures against Covid-19 in this store is a pleasant/ unpleasant thing.*[a] | | | | | |
| *Satisfaction with protection measures against COVID-19 (SAT)* | | 2.03 | 1.030 | | |
| SAT1. Overall, my experience with this store in the context of the protection measures taken to prevent/limit Covid-19 disease was a happy/ unhappy one. | .852 | | | 1.000 | .838 |
| SAT2. I am satisfied with the protection measures taken by this store in order to prevent or limit Covid-19 diseases. | .901 | | | .889 | .107 |
| SAT3. Overall, my experience with this store in the context of the protection measures taken to prevent/limit Covid-19 disease was pleasant/ unpleasant. | .774 | | | .691 | -.059 |
| *Behavioral intentions (INT)* | | 1.76 | .888 | | |
| INT1. I plan to visit this store again in the future for other purchases. | .955 | | | 1.347 | 2.022 |
| INT2. I will encourage my friends and relatives to visit this store. | .939 | | | 1.179 | 1.110 |
| INT3. I am willing to pay more in order to stay healthy and safe while shopping. | .805 | | | 1.161 | 1.206 |

Note. All items were measured with a 5-point Likert's scale ranging from strongly agree (1) to strongly disagree (5).
All standardized factor loadings (λ coefficients) are significant ($p < .001$).
[a] This item was removed in the measurement model test because its factor loading did not meet the minimum criterion of .40 as suggested by Anderson and Gerbing (1988).

than 3, and the absolute values of univariate kurtosis were less than 5, which is in accordance with Kline (1998). Consequently, the data does not substantially deviate from a normal distribution. Additionally, the assumption of no multicollinearity of independent variables was tested using the Variance Inflation Factor (VIF). The findings indicated that VIF for all variables was bellow 3.0 ($1.032 \leq VIF \leq 1.552$). Therefore, the assumption of multicollinearity was not violated (Kline, 2005). Also, an evaluation of normal probability plots, scatter plots matrices, and residual scatter plots indicated that multivariate linearity, normality and

**Table 2**
Demographic characteristics of the sample.

| | | Frequency | Percent (%) |
|---|---|---|---|
| Gender | Male | 231 | 42.4 |
| | Female | 170 | 57.6 |
| Age | 18–25 | 144 | 35.9 |
| | 26–40 | 116 | 28.9 |
| | 41–55 | 123 | 30.7 |
| | 56–77 | 18 | 4.5 |
| Education | high school degree | 168 | 41.9 |
| | bachelor's degree | 233 | 58.1 |
| Income[a] | 500$-under 500$ | 127 | 31.7 |
| | 501$-over 501$ | 274 | 68.3 |

[a] Indicates monthly income per family member.

homoscedasticity were free from violation.

The measurement model was estimated by conducting a confirmatory factor analysis (CFA) in order to ensure the reliability, the convergent validity, and the discriminant validity of the latent constructs. The measurement model was assessed with a maximum likelihood estimation method. The results indicated that the measurement model had an acceptable fit to the data ($\chi^2 = 271.964$, df = 80, $\chi^2$/df = 3.400, $p < .001$, RMSEA = 0.077, CFI = 0.962, IFI = 0.962, and TLI = 0.950). The confirmatory factor analysis results also showed that the standardized lambda coefficients (λ) of the 15 items ranged from 0.771 to 0.955, and that the 15 items significantly loaded to the intended latent constructs ($p < .01$). Therefore, the unidimensionality underlying the set of construct measures was evident. Also, a composite reliability test was conducted in order to evaluate the internal consistency of the items for each construct. As reported in Table 3, all the values ranged from 0.881 to 0.928, which exceeded the recommended threshold of 0.70 that was suggested by Hair et al. (2010). Furthermore, the construct validity was examined. The average variance extracted (AVE) values for all the constructs varied from 0.713 to 0.814, which exceeded the recommended cutoff of 0.50 (Hair et al., 2010; Anderson and Gerbing, 1988). In addition, these AVE values for each dimension were all greater than the squared correlations between the variables, which indicated that discriminant validity was evident (see Table 3).

Further, structural equation modeling (SEM) was conducted in order to evaluate the proposed conceptual framework. As reported in Table 4 and Fig. 2, the structural model was found to satisfactorily fit the data ($\chi^2 = 272.755$, df = 81, $\chi^2$/df = 3.367, $p < .001$, RMSEA = 0.077, CFI = 0.962, IFI = 0.962, and TLI = 0.951). The results indicated that the protective measures against COVID-19 satisfactorily accounted for the total variance in the intentions ($R^2 = 0.592$). This model also explained 49.7%, 66.6%, and 5.5% of the total variance in satisfaction, safety during shopping, and attitude toward the protective measures against COVID-19.

**Table 3**
The measurement model results, correlations and covariances between constructs.

| Constructs | COV | S | ATT | SAT | INT | CR | AVE |
|---|---|---|---|---|---|---|---|
| COV | 1.000 | .753[c] | .190 | .454 | .555 | .881 | .713 |
| S | .817[a] (.667)[b] | 1.000 | .119 | .415 | .563 | .921 | .795 |
| ATT | .240 (.058) | .164 (.027) | 1.000 | .328 | .197 | .904 | .760 |
| SAT | .554 (.307) | .552 (.305) | .509 (.259) | 1.000 | .374 | .881 | .713 |
| INT | .667 (.445) | .737 (.543) | .302 (.091) | .551 (.304) | 1.000 | .928 | .814 |

Goodness-of-Fit Statistics: $\chi^2 = 271.964$, df = 80, $\chi^2$/df = 3.400, $p < .001$, RMSEA = 0.077, CFI = 0.962, IFI = 0.962, and TLI = 0.950.
Note: COV = Protective measures against COVID-19, S = Safety during shopping, ATT = Attitude toward protective measures against COVID-19, SAT = Satisfaction with measures against COVID-19, and INT = Intentions.
[a] Correlations between the constructs are below the diagonal.
[b] Squared correlations.
[c] Covariances between the constructs are above the diagonal.

**Table 4**
The results of the structural equation modeling, the hypotheses testing, and the mediating effects.

| Hypothesized paths | Standardized coefficients | t-values | Results of hypotheses testing |
|---|---|---|---|
| H1: COV → ATT | .234 | 4.323** | H1: Supported |
| H2: COV → S | .816 | 17.774** | H2: Supported |
| H3: COV → SAT | .182 | 2.078* | H3: Supported |
| H4: COV → INT | .122 | 1.585 | H4: Not supported |
| H5: ATT → SAT | .408 | 8.737** | H5: Supported |
| H6: ATT → INT | .120 | 2.682** | H6: Supported |
| H7: S → SAT | .334 | 3.877** | H7: Supported |
| H8: S → INT | .553 | 7.042** | H8: Supported |
| H9: SAT → INT | .116 | 2.058* | H9: Supported |

| | |
|---|---|
| Total variance explained: | Goodness-of-Fit Statistics: $\chi^2 = 272.755$, df = 81, $\chi^2$/df = 3.367, $p < .001$, RMSEA = .077, CFI = .962, IFI = .962, and TLI = .951. |
| $R^2$ of SAT = .497<br>$R^2$ of INT = .592<br>$R^2$ of ATT = .055<br>$R^2$ of S = .666 | *p < *p < .05 and **p < .01 |

| Indirect impact: | Total effect on satisfaction: | Mediating effects (Sobel test) |
|---|---|---|
| $\beta_{COV\text{-}ATT\text{-}SAT} = .096$** | $\beta_{COV} = .550$** | |
| $\beta_{COV\text{-}ATT\text{-}SAT\text{-}INT} = .139$** | $\beta_{ATT} = .408$** | Sobel Z $_{COV\text{-}ATT\text{-}SAT} = 3.837$** |
| $\beta_{COV\text{–}S\text{-}INT} = .470$** | $\beta_{S} = .334$** | Sobel Z $_{COV\text{-}ATT\text{-}INT} = 2.284$* |
| $\beta_{COV\text{–}S\text{-}SAT\text{-}INT} = .527$** | | Sobel Z $_{COV\text{–}S\text{-}INT} = 6.550$** |
| $\beta_{COV\text{-}ATT\text{-}INT} = .034$** | | Sobel Z $_{COV\text{–}S\text{-}SAT} = 3.782$** |
| $\beta_{COV\text{–}S\text{-}SAT} = .248$* | Total effect on intention: | Sobel Z $_{ATT\text{-}SAT\text{-}INT} = 1.997$* |
| $\beta_{ATT\text{-}SAT\text{-}INT} = .092$* | $\beta_{COV} = .665$** | Sobel Z $_{S\text{-}SAT\text{-}INT} = 1.813$ |
| $\beta_{S\text{-}SAT\text{-}INT} = .056$* | $\beta_{ATT} = .167$** | Sobel Z $_{COV\text{-}SAT\text{-}INT} = 1.457$ |
| $\beta_{COV\text{-}SAT\text{-}INT} = .144$** | $\beta_{S} = .591$** | |
| | $\beta_{SAT} = .116$* | |

Note: COV = Protective measures against COVID-19, S = Safety during shopping, ATT = Attitude toward protective measures against COVID-19, SAT = Satisfaction with measures against COVID-19, and INT = Intentions.

The hypothesized associations among the studied constructs were also examined. As indicated in Table 4, implementation of the protective measures against COVID-19 had a significant and positive influence on attitude toward these measures ($\beta = 0.234$ and $p < .01$) and safety during shopping ($\beta = 0.816$ and $p < .01$). Thus, Hypothesis 1 and Hypothesis 2 were supported. In addition, the proposed relationships on the impact of the protective measures against COVID-19 on satisfaction and the intentions indicated that implementation of the protective measures by the retail enterprises significantly influenced satisfaction ($\beta = 0.182$ and $p < .05$), which supported Hypothesis 3, but did not significantly affect intentions ($\beta = 0.122$ and $p > .05$). Hence, Hypothesis 4 was not confirmed. Moreover, the effect of attitude toward the protective measures on satisfaction ($\beta = 0.408$ and $p < .01$) and intentions ($\beta = 0.120$ and $p < .01$) was positive and significant. Therefore, Hypotheses 5 and 6 were supported. The linkages from safety during shopping to satisfaction ($\beta = 0.334$ and $p < .01$) and intentions ($\beta = 0.553$ and $p < .01$) were also significant, which confirmed Hypotheses 7 and 8. The hypothesized association between satisfaction and intentions was also found to be positive and significant ($\beta = 0.116$ and $p < .05$). This result supported Hypothesis 9.

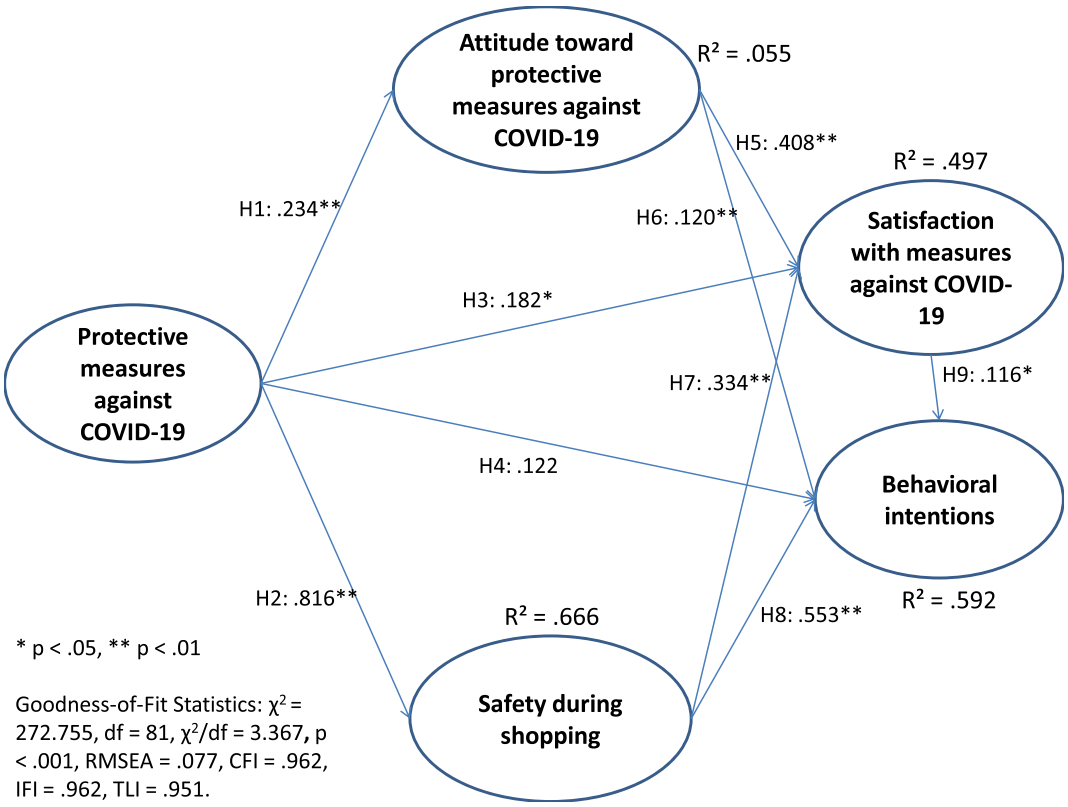


**Fig. 2.** The results of the structural model.

Next, in order to investigate the potential mediating effect of attitude and safety during shopping in the relationship between the protective measures against COVID-19 and satisfaction as well as between the protective measures and intentions, a bootstrapping procedure recommended by Jose (2013) and the Sobel test were run. First, the number of bootstrapping samples was set at 2000 with a confidence level of 95%. As shown in Table 4, the protective measures against COVID-19 had a significant effect on satisfaction indirectly through attitude ($\beta_{COV\text{-}ATT\text{-}SAT} = 0.096$ and $p < .01$) and safety ($\beta_{COV\text{-}S\text{-}SAT} = 0.248$ and $p < .05$). These findings indicated that both attitude and safety exert a significant mediating role in the relationships between protective measures against COVID-19 and satisfaction as well as between protective measures and revisit intentions. In addition, protective measures had a significant and positive indirect effect on the intentions through attitude ($\beta_{COV\text{-}ATT\text{-}SAT\text{-}INT} = 0.139$ and $p < .01$; $\beta_{COV\text{-}ATT\text{-}INT} = 0.034$ and $p < .01$), safety ($\beta_{COV\text{-}S\text{-}INT} = 0.470$ and $p < .01$; $\beta_{COV\text{-}S\text{-}SAT\text{-}INT} = 0.527$ and $p < .01$) and satisfaction ($\beta_{COV\text{-}SAT\text{-}INT} = 0.144$ and $p < .01$). These results imply that attitude, safety, and satisfaction acted as mediators in the proposed research framework. Moreover, attitude and safety positively affected the intentions through satisfaction ($\beta_{ATT\text{-}SAT\text{-}INT} = 0.092$ and $p < .05$; $\beta_{S\text{-}SAT\text{-}INT} = 0.056$ and $p < .05$), which indicates that satisfaction exerts a significant mediating effect in the relationship between attitude and intentions as well as between safety and intentions. In addition, the total effect of the study constructs was tested. As reported in Table 4, the findings indicated that the protective measures against COVID-19 had the greatest effect on satisfaction ($\beta_{COV} = 0.550$ and $p < .01$), which was followed by attitude ($\beta_{ATT} = 0.408$ and $p < .01$) and safety ($\beta_S = 0.334$ and $p < .01$). The results also showed that the protective measures had the greatest effect on the intentions ($\beta_{COV} = 0.665$ and $p < .01$), which was followed by safety ($\beta_S = 0.591$ and $p < .01$), attitude ($\beta_{ATT} = 0.167$ and $p < .01$), and satisfaction ($\beta_{SAT} = 0.116$ and $p < .05$).

Second, the Sobel test results indicated that protective measures against COVID-19 has a significant indirect effect on customers' behavioral intentions toward the retail store through their attitudes toward such measures and perception of safety during shopping (Sobel $Z_{COV\text{-}ATT\text{-}INT} = 2.284$ and $p < .05$; Sobel $Z_{COV\text{–}S\text{-}INT} = 6.550$ and $p < .01$). Our findings also revealed that protective measures against COVID-19 has a significant indirect effect on customer satisfaction through their attitudes and perception of safety during shopping (Sobel $Z_{COV\text{-}ATT\text{-}SAT} = 3.837$ and $p < .01$; Sobel $Z_{COV\text{–}S\text{-}SAT} = 3.782$ and $p < .01$). These results indicate that attitude and safety during shopping exert their full mediating effects between the protective measures against COVID-19 and behavioral intentions and a partial mediating effect between the protective measures against COVID-19 and satisfaction. However, satisfaction was found to have an insignificant mediating role between protective measures against COVID-19 and behavioral intentions (Sobel $Z_{COV\text{-}SAT\text{-}INT} = 1.457$ and $p > .10$) as well as between perception of safety during shopping and behavioral intentions (Sobel $Z_{S\text{-}SAT\text{-}INT} = 1.813$ and $p > .05$) but a significant mediating effect between customers' attitude and their behavioral intentions (Sobel $Z_{ATT\text{-}SAT\text{-}INT} = 1.997$ and $p < .05$). These findings indicate that satisfaction exerts a partial mediating effect only between attitude and intentions.

### 3.6. Invariance test

In order to evaluate the moderating role of respondent demographic characteristics, which included gender, age, education, and income, in the relationships among the studied constructs, four metric invariance tests were conducted. For each invariance test, a baseline model was first generated, which all the loadings across the two groups were constrained to be equivalent. The findings indicated that the model satisfactorily fits to the data. Using a chi-square difference test, the baseline model was subsequently compared to nine nested models in order to test invariance in the hypothesized paths across the groups. The results of the baseline model and the constrained nested models can be depicted in Tables 5–8. In addition, the moderating effects on the relationships among the constructs for the groups were interpreted according to their significant z-score value.

**Table 5**
Summary of the findings from the structural-invariance models (*gender*).

| Relationships | Male (n = 170) | | Female (n = 231) | | Constrained nested model | Chi-square difference test[a] | Z-value[b] |
|---|---|---|---|---|---|---|---|
| | β | t value | β | t value | | | |
| H10a: COV→ATT | .291 | 3.387** | .205 | 2.934** | $\chi^2$ (163) = 552.036 | Δ $\chi^2$ (1) = .400 | .637 |
| H10b: COV→S | .807 | 10.451** | .809 | 13.864** | $\chi^2$ (163) = 552.470 | Δ $\chi^2$ (1) = .834 | -.954 |
| H10c: COV→SAT | .010 | .073 | .273 | 2.609** | $\chi^2$ (163) = 553.698 | Δ $\chi^2$ (1) = 2.062 | −1.478 |
| H10d: COV→INT | .118 | .920 | .150 | 1.619 | $\chi^2$ (163) = 551.744 | Δ $\chi^2$ (1) = .108 | -.340 |
| H10e: ATT→SAT | .395 | 5.101** | .426 | 7.332** | $\chi^2$ (163) = 551.637 | Δ $\chi^2$ (1) = .001 | -.025 |
| H10f: ATT→INT | .147 | 1.952 | .104 | 1.826 | $\chi^2$ (163) = 551.749 | Δ $\chi^2$ (1) = .113 | .342 |
| H10g: S→SAT | .456 | 3.168** | .284 | 2.791** | $\chi^2$ (163) = 552.973 | Δ $\chi^2$ (1) = 1.337 | 1.195 |
| H10h: S→INT | .632 | 4.436** | .471 | 5.165** | $\chi^2$ (163) = 552.271 | Δ $\chi^2$ (1) = .635 | .826 |
| H10i: SAT→INT | -.063 | -.703 | .222 | 2.920** | $\chi^2$ (163) = 557.960 | Δ $\chi^2$ (1) = 6.324** | −2.556** |

Goodness-of-Fit Statistics.
$\chi^2$ = 551.636, df = 162, $\chi^2$/df = 3.405, p < .001, RMSEA = 0.078, CFI = 0.925, IFI = 0.926, and TLI = 0.903.
*p < .10, **p < .05 and ***p < .01.
Note: COV = Protective measures against COVID-19, S = Safety during shopping, ATT = Attitude toward protective measures against COVID-19, SAT = Satisfaction with measures against COVID-19, and INT = Intentions.
[a] Is a result of the difference between constrained nested model and freely estimated baseline model ($\chi^2$ (162) = 551.636).
[b] Indicates critical ratios for path coefficients differences between the two groups.

**Table 6**
**Summary of the findings from the structural-invariance models (*age*).**

| Relationships | Young (n = 199) | | Adult (n = 202) | | Constrained nested model | Chi-square difference test[a] | Z-value[b] |
|---|---|---|---|---|---|---|---|
| | β | t value | β | t value | | | |
| H11a: COV→ATT | .219 | 2.726** | .236 | 3.214** | $\chi^2$ (163) = 495.056 | Δ $\chi^2$ (1) = .659 | .821 |
| H11b: COV→S | .826 | 11.789** | .813 | 13.837** | $\chi^2$ (163) = 495.867 | Δ $\chi^2$ (1) = 1.470 | −1.223 |
| H11c: COV→SAT | .111 | .799 | .305 | 2.772** | $\chi^2$ (163) = 495.369 | Δ $\chi^2$ (1) = .972 | .997 |
| H11d: COV→INT | -.059 | -.488 | .205 | 2.049* | $\chi^2$ (163) = 496.894 | Δ $\chi^2$ (1) = 2.497 | 1.615 |
| H11e: ATT→SAT | .367 | 4.996** | .449 | 7.568** | $\chi^2$ (163) = 495.013 | Δ $\chi^2$ (1) = .616 | -.797 |
| H11f: ATT→INT | .204 | 3.068** | .007 | .113 | $\chi^2$ (163) = 500.958 | Δ $\chi^2$ (1) = 6.561*** | −2.577*** |
| H11g: S→SAT | .365 | 2.621** | .253 | 2.398* | $\chi^2$ (163) = 494.698 | Δ $\chi^2$ (1) = .301 | -.564 |
| H11h: S→INT | .790 | 6.022** | .378 | 4.015** | $\chi^2$ (163) = 500.446 | Δ $\chi^2$ (1) = 6.049** | −2.499** |
| H11i: SAT→INT | -.056 | -.733 | .333 | 3.919** | $\chi^2$ (163) = 505.569 | Δ $\chi^2$ (1) = 11.172*** | 3.375*** |

Goodness-of-Fit Statistics.
$\chi^2$ = 494.397, df = 162, $\chi^2$/df = 3.052, p < .001, RMSEA = 0.072, CFI = 0.938, IFI = 0.938, and TLI = 0.919.
*p < .10, **p < .05 and ***p < .01.
Note: COV = Protective measures against COVID-19, S = Safety during shopping, ATT = Attitude toward protective measures against COVID-19, SAT = Satisfaction with measures against COVID-19, and INT = Intentions.
[a] Is a result of the difference between constrained nested model and freely estimated baseline model ($\chi^2$ (162) = 494.397).
[b] Indicates critical ratios for path coefficients differences between the two groups.

**Table 7**
Summary of the findings from the structural-invariance models (*education*).

| Relationships | High school (n = 168) | | College (n = 233) | | Constrained nested model | Chi-square difference test[a] | Z-value[b] |
|---|---|---|---|---|---|---|---|
| | β | t value | β | t value | | | |
| H12a: COV→ATT | .159 | 1.908 | .234 | 3.298** | $\chi^2$ (163) = 486.972 | Δ $\chi^2$ (1) = .349 | .596 |
| H12b: COV→S | .819 | 11.539** | .808 | 12.992** | $\chi^2$ (163) = 486.717 | Δ $\chi^2$ (1) = .094 | -.310 |
| H12c: COV→SAT | .024 | .180 | .354 | 3.101** | $\chi^2$ (163) = 489.378 | Δ $\chi^2$ (1) = 2.755* | 1.680* |
| H12d: COV→INT | .349 | 2.832** | -.111 | −1.063 | $\chi^2$ (163) = 493.669 | Δ $\chi^2$ (1) = 7.046** | −2.733** |
| H12e: ATT→SAT | .313 | 4.674** | .432 | 6.895** | $\chi^2$ (163) = 487.425 | Δ $\chi^2$ (1) = .802 | .902 |
| H12f: ATT→INT | .133 | 2.035* | .089 | 1.496 | $\chi^2$ (163) = 486.660 | Δ $\chi^2$ (1) = .037 | -.195 |
| H12g: S→SAT | .565 | 4.237** | .128 | 1.155 | $\chi^2$ (163) = 493.657 | Δ $\chi^2$ (1) = 7.034** | −2.733** |
| H12h: S→INT | .361 | 2.749** | .725 | 7.026** | $\chi^2$ (163) = 494.458 | Δ $\chi^2$ (1) = 7.835*** | 2.939*** |
| H12i: SAT→INT | .077 | .874 | .195 | 2.648** | $\chi^2$ (163) = 488.646 | Δ $\chi^2$ (1) = 2.023 | 1.448 |

Goodness-of-Fit Statistics.
$\chi^2$ = 486.623, df = 162, $\chi^2$/df = 3.004, p < .001, RMSEA = 0.071, CFI = 0.936, IFI = 0.937, and TLI = 0.918.
*p < .10, **p < .05 and ***p < .01.
Note: COV = Protective measures against COVID-19, S = Safety during shopping, ATT = Attitude toward protective measures against COVID-19, SAT = Satisfaction with measures against COVID-19, and INT = Intentions.
[a] Is a result of the difference between constrained nested model and freely estimated baseline model ($\chi^2$ (162) = 486.623).
[b] Indicates critical ratios for path coefficients differences between the two groups.

### *3.6.1. Gender as a moderator*

The male group included 170 respondents, and the female group included 231 respondents. Our results showed that only the path coefficient indicating the link between satisfaction and the intentions (Δ $\chi^2$ (1) = 6.324 and p < .05) was significantly different between the male and the female groups. The other remaining paths were not statistically significant.

Although the findings did not indicate a significant difference

**Table 8**
Summary of the findings from the structural-invariance models (*income*).

| Relationships | Low (n = 127) | | High (n = 274) | | Constrained nested model | Chi-square difference test[a] | Z-value[b] |
|---|---|---|---|---|---|---|---|
| | β | t value | β | t value | | | |
| H13a: COV→ATT | .134 | 1.414 | .287 | 4.311** | $\chi^2$ (163) = 493.748 | Δ $\chi^2$ (1) = .473 | .695 |
| H13b: COV→S | .698 | 8.612** | .863 | 15.185** | $\chi^2$ (163) = 496.141 | Δ $\chi^2$ (1) = 2.866* | 1.726* |
| H13c: COV→SAT | .199 | 1.831 | .256 | 1.922 | $\chi^2$ (163) = 493.385 | Δ $\chi^2$ (1) = .110 | .341 |
| H13d: COV→INT | .215 | 2.194* | .058 | .486 | $\chi^2$ (163) = 493.995 | Δ $\chi^2$ (1) = .720 | -.877 |
| H13e: ATT→SAT | .540 | 6.524** | .321 | 5.621** | $\chi^2$ (163) = 493.943 | Δ $\chi^2$ (1) = .668 | -.819 |
| H13f: ATT→INT | .166 | 1.851 | .097 | 1.858 | $\chi^2$ (163) = 493.282 | Δ $\chi^2$ (1) = .007 | -.084 |
| H13g: S→SAT | .334 | 3.089** | .275 | 2.110* | $\chi^2$ (163) = 493.382 | Δ $\chi^2$ (1) = .107 | -.351 |
| H13h: S→INT | .490 | 4.771** | .613 | 5.204** | $\chi^2$ (163) = 494.785 | Δ $\chi^2$ (1) = 1.510 | 1.280 |
| H13i: SAT→INT | .158 | 1.361 | .090 | 1.396 | $\chi^2$ (163) = 493.428 | Δ $\chi^2$ (1) = .153 | -.396 |
| Goodness-of-Fit Statistics: | | | | | | | |
| $\chi^2$ = 493.275, df = 162, $\chi^2$/df = 3.045, p < .001, RMSEA = .072, CFI = .937, IFI = .938, and TLI = .919. | | | | | | | |
| *p < .10, **p < .05 and ***p < .01 | | | | | | | |

Note: COV = Protective measures against COVID-19, S = Safety during shopping, ATT = Attitude toward protective measures against COVID-19, SAT = Satisfaction with measures against COVID-19, and INT = Intentions.

[a] Is a result of the difference between constrained nested model and freely estimated baseline model ($\chi^2$ (162) = 493.275).

[b] Indicates critical ratios for path coefficients differences between the two groups.

between male and female customers for the most relationships, the different structural associations among the constructs for the two groups provided an indication that behaviors between the two groups might differ (see Table 5). In particular, for females, the relationships between the protective measures and satisfaction and between satisfaction and intentions were significant and much stronger than for males. In addition, the associations between the protective measures and safety and between attitude and satisfaction were significant and greater for females, thus supporting hypotheses 10 b,c,e and 10i. The remaining associations among the studied constructs were higher for male than for female respondents or not significant. Therefore, hypotheses 10a and 10 d,f,g,h were not supported.

### 3.6.2. Age as a moderator

The hypothesized moderating role of age, which involved Hypothesis 11a to Hypothesis 11i, was conducted by investigating nine modeling tests for metric invariance. The subjects were divided into two groups based on the median value of age. The young group included participants were 18–33 years of age, and the adult group included participants that were over 33 years of age. The young group contained 199 respondents, and the adult group contained 202 respondents. Our findings indicated that the links between attitude and the intentions (Δ $\chi^2$ (1) = 6.561 and p < .05), safety and the intentions (Δ $\chi^2$ (1) = 6.049 and p < .05), and satisfaction and the intentions (Δ $\chi^2$ (1) = 11.172 and p < .01) were significantly different between the young and adult groups. The other remaining paths were not statistically significant.

However, the different structural relationships among the constructs for the two groups revealed that for adult customers, the associations between protective measures and satisfaction, protective measures and intentions, and satisfaction and intentions were significant and much stronger than for the young customers. In addition, the links between protective measures and attitudes, and attitude and satisfaction were higher for the adult group than for the young group. Thus, Hypotheses 11a,c,d,e and 11i were supported. The remaining associations among the studied constructs were higher for the young than for adult group. Thus, hypotheses 11 b, f, g and 11 h were not supported.

### 3.6.3. Education as a moderator

In order to investigate the hypothesized moderating effect of education in the proposed framework, an invariance test was conducted. The high school graduates group consisted of 168 respondents and the college graduates group consisted of 233 respondents. As reported in Table 7, our findings revealed that the relationships between the protective measures and the intentions (Δ $\chi^2$ (1) = 7.046 and p < .01), safety and satisfaction (Δ $\chi^2$ (1) = 7.034 and p < .01), and safety and the intentions (Δ $\chi^2$ (1) = 7.835 and p < .01) were significantly different across the high school degree group and the college degree group. The other remaining paths were statistically insignificant.

Subsequently, the structural relationships among the constructs for the two groups indicated that the associations between protective measures and attitude, protective measures and satisfaction, and satisfaction and intentions were significantly higher for the college degree group than for the high school degree group. Also, the links between attitude and satisfaction and safety and intentions were higher for the college degree group than for the high school group, thus supporting Hypotheses 12a,c,e,h and 12i. However, the remaining relationships among the studied constructs were stronger for the high school degree respondents than for the college degree respondents. Therefore, Hypotheses 12 b,d,f and 12 g were not supported.

### 3.6.4. Income as a moderator

Finally, an invariance test was conducted to evaluate the hypothesized moderating effect of income. The low income group was comprised of 127 respondents, and the high income group was comprised of 274 respondents. The outcomes indicated that all the relationships in the proposed framework were not significantly different across the high income and the low income groups.

However, the different structural associations among the constructs for the two groups indicated that the relationship between protective measures and attitude was significantly stronger for the high income group than for the low income group. In addition, the links from protective measures to safety and from safety to intentions were greater for the high income group than for the low income group. Thus, Hypotheses 13a,b and 13 h were supported. The remaining links among the studied constructs were stronger for the low income group than for the high income group or were statistically insignificant. Therefore, Hypotheses 13c,d,e,f,g and 13i were not supported.

## 4. Discussion and implications

The aim of the present study was to develop a conceptual framework that explicated the potential effect of the protective measures implemented by retail enterprises against the spread of the COVID-19 virus on customers' attitudes toward these measures, safety during shopping, satisfaction, and behavioral intentions, which included revisit intentions, word-of-mouth intentions, and willingness to pay more to be safe while shopping. In addition, we sought to evaluate the associations among the studied constructs, the mediating role of the attitudes and safety, and the moderating effect of customer demographic characteristics. Our results indicated that the protective measures against COVID-19 had significant positive effects on the customers' safety and their attitudes, which contribute to the increase of satisfaction and the

intentions as a result. In addition, the constructs utilized in the current study (i.e. protective measures against COVID-19, attitude toward these measures, safety during shopping, and satisfaction with these protective measures) and their significant associations were found to be important drivers of customers' behavioral intentions ($R^2 = 0.592$) that has not been previously tested. Thus, our findings highlighted the vital importance of understanding the impact of implementing of protective measures by the retail enterprises against COVID-19 on the customers' shopping experience, which filled a gap in the existing literature within consumer behavior in the context of the COVID-19 pandemic. From a managerial perspective, our results can be used by retail practitioners in order to develop efficient marketing strategies to increase the customers' safety during shopping experience as well as favorable attitudes toward these measures, which ultimately lead to an increase of satisfaction and intentions to revisit the store.

The findings of the present research indicated the critical importance of the protective measures against the COVID-19 virus with building the customers' safety during the shopping experience ($\beta_{COV\text{-}S} = 0.816$ and $p < .01$), which significantly contributes to the increase of satisfaction and behavioral intentions. Our results also indicated that safety was the most significant construct in generating customers' behavioral intentions toward the retail store ($\beta_{S\text{-}INT} = 0.553$ and $p < .01$). These results imply that an increase in protective measures against COVID-19 will significantly enhance customer safety during shopping, which has a positive effect on their satisfaction and behavioral intentions, such as revisit intentions, word-of-mouth intentions, and willingness to pay more to be safe while shopping. This finding enriched the retail literature because this study, to the best of our knowledge, was the first research conducted in the context of the COVID-19 pandemic that emphasized the crucial importance of protective measures adopted by the retail enterprises against the spread of the COVID-19 virus and their significantly positive effects on the customers' safety during shopping and the satisfaction and intentions. Our findings also revealed that protective measures against COVID-19 had a positive effect on customers' attitudes toward these measures ($\beta_{COV\text{-}ATT} = 0.234$ and $p < .01$), which in turn, significantly influenced their satisfaction and behavioral intentions. In addition, it was found that attitude was the most significant construct in generating customers' satisfaction ($\beta_{ATT\text{-}SAT} = 0.408$ and $p < .01$). This finding is theoretically meaningful in that it demonstrates the prominent role of attitude toward protective measures against COVID-19 in increasing customers' satisfaction toward these protective measures. From a practical perspective, our findings can provide retail operators vital information for the increase of the customers' positive shopping experiences during the COVID-19 outbreak. More specifically, in order to increase customer attitudes and safety during shopping, the retail operators could make these protective measures against COVID-19 more visible by communicating, through different channels and/or social networks, the steps that have been taken to provide the customers' health and safety during their shopping experiences and also reassure their customers of the cleanliness and the safety of the environment around the store. These endeavors could result in increased customer attitudes and safety while shopping, which would have significantly positive impacts on their satisfaction and behavioral intentions.

Our results demonstrated that the customers' attitudes toward protective measures against COVID-19 and their safety during shopping had a significant mediating influence in the proposed conceptual framework. Our results indicated that the path from protective measures against COVID-19 to behavioral intentions is statistically significant only through the mediating effects of attitude and safety during shopping (Sobel $Z_{COV\text{-}ATT\text{-}INT} = 2.284$ and $p < .05$; Sobel $Z_{COV\text{–}S\text{-}INT} = 6.550$ and $p < .01$). In other words, an increase in protective measures against COVID-19 will significantly contribute to an increase of customer intentions toward the retail store only when their attitudes toward these protective measures and safety during shopping are boosted. This outcome has significant theoretical meaning, as it addresses the vital role of attitude toward the protective measures and safety during shopping in the context of the COVID-19 outbreak. Our findings also showed that both attitude and safety significantly mediated the link between the protective measures against COVID-19 and the satisfaction. This result implies that an increase in the protective measures against COVID-19 will significantly boost customers' satisfaction when their attitudes toward such measures and safety during shopping are enhanced. From a managerial perspective, these findings signify that in order to build satisfied and loyal customers, retail managers should constantly reassure them that the protective measures against the COVID-19 virus taken in the store will protect their health and safety during the shopping experience.

Furthermore, our examination of the indirect influence of research constructs showed that satisfaction significantly mediated only the relationship between attitude and behavioral intention. In other words, the relationship between customers' attitudes toward the protective measures and their intentions toward the store is significant when their satisfaction is involved. From a theoretical viewpoint, researchers should utilize this mediator when developing theoretical frameworks that assess the customers' behavioral intentions toward a retail store, which include the revisit intentions, positive word-of-mouth intentions, and the willingness to pay more to be safe during shopping, in the current context of the COVID-19 pandemic. From a managerial perspective, retail operators should consider this mediating dimension in order to increase the customers' intentions. For example, retail operators should periodically evaluate/monitor their customers' satisfaction in the context of implementing protective measures against COVID-19, which in turn will help increase behavioral intentions.

The results from the metric invariance test demonstrated that the customer demographic characteristics, which included gender, age, education, and income played a significant moderating role in the proposed conceptual framework. More specifically, the relationships between protective measures against COVID-19 and satisfaction ($\beta_{female} = 0.273$ and $p < .01$; $\beta_{male} = 0.010$ and $p > .05$) and between satisfaction and intentions ($\beta_{female} = 0.222$ and $p < .01$; $\beta_{male} = -0.063$ and $p > .05$) were significant and stronger in the female group than in the male group. This result implies that at a similar level of the protective measures against COVID-19, female customers have a higher level of satisfaction than male customers, and that at a similar level of satisfaction, female customers have greater intentions toward the retail store than male customers. In addition, the strength of the relationships between protective measures against COVID-19 and satisfaction ($\beta_{adult} = 0.305$ and $p < .01$; $\beta_{young} = 0.111$ and $p > .05$), protective measures against COVID-19 and intentions ($\beta_{adult} = 0.205$ and $p < .05$; $\beta_{young} = -0.059$ and $p > .05$), and satisfaction and intentions ($\beta_{adult} = 0.333$ and $p < .01$; $\beta_{young} = -0.056$ and $p > .05$) were significant and much stronger for the adult customers than for the young customers, while the strength of the relationships between attitudes and intentions ($\beta_{young} = 0.204$ and $p < .01$; $\beta_{adult} = 0.007$ and $p > .05$) was significantly higher for the younger customers than for the adult customers. This means that at similar levels of protective measures against COVID-19, adult customers have a significant higher level of satisfaction and stronger intentions toward the store than the young group. Likewise, at a similar level of satisfaction, adult customers have greater intentions toward the store than the young group. On the other side, at a similar level of attitude toward the protective measures against COVID-19, young customers have significantly higher intentions toward the store than adults. In regard to education, the strength of the associations between the protective measures against COVID-19 and the intentions ($\beta_{high\ school} = 0.349$ and $p < .01$; $\beta_{college} = -0.111$ and $p > .05$), attitude toward the protective measures and intentions ($\beta_{high\ school} = 0.133$ and $p < .01$; $\beta_{college} = 0.089$ and $p > .05$), and between safety and satisfaction ($\beta_{high\ school} = 0.565$ and $p < .01$; $\beta_{college} = 0.128$ and $p > .05$) were greater in the high school group than in the college group. Meanwhile, the relationships between protective measures against COVID-19 and attitude ($\beta_{college} = 0.234$ and $p < .01$; $\beta_{high\ school} = 0.159$ and $p > .05$), the protective measures against COVID-19 and satisfaction ($\beta_{college} = 0.354$ and $p < .01$; $\beta_{high\ school} = 0.024$ and

$p > .05$), and satisfaction and intention ($\beta_{college} = 0.195$ and $p < .01$; $\beta_{high\ school} = 0.077$ and $p > .05$) were stronger for the customers in the college group than for the customers in the high school group. These outcomes indicate that at similar levels of protective measures against COVID-19 and attitudes, customers in the high school group will have stronger intentions toward the retail store. Additionally, at a similar level of safety during shopping, customers in the high school group are more likely to be satisfied with the protective measures against COVID-19 implemented by the retail store. Our findings also imply that at similar levels of protective measures against COVID-19, the customers in the college group will have higher levels of attitude and satisfaction, while at a similar level of satisfaction, the customers in the college group will have greater intentions toward the retail store. With regard to income, the path from the protective measures against COVID-19 to attitude ($\beta_{high\ income} = 0.287$ and $p < .01$; $\beta_{low\ income} = 0.134$ and $p > .05$) was significantly stronger for the high income group than for the low income group. However, the path from the protective measures to intentions ($\beta_{high\ income} = .058$ and $p > .05$; $\beta_{low\ income} = 0.215$ and $p < .05$) was stronger for the low income group than for the high income group. These results signify that at a similar level of protective measures against COVID-19, the customers in the high income group will have higher attitudes than the customers in the low income group, while at a similar level of protective measures against COVID-19 customers in the low income group will have greater intentions toward the retail store. These results regarding the moderating effects of the demographic traits provide meaningful insights for both the retail researchers and the practitioners. Our findings successfully unearthed the moderating effect of demographic characteristics affecting the relationships among the research constructs, which was not uncovered in the retail literature in the context of the COVID-19 pandemic. From a practical point of view, our findings provided the retail operators valuable information that the protective measures against COVID-19 contributes to an increase of intentions among the customers in the adult, low income and high school group, whereas these protective measures have a greater impact on satisfaction among the college, older and female customers. Additionally, our results established that safety is more influential on satisfaction among the customers in the high school group, while satisfaction significantly contributes to the increase of the intentions among the adult, college and female customers. Our findings revealed that the protective measures against COVID-19 have a stronger influence on attitude among the college and high income customers, whereas attitudes significantly contribute to an increase in intentions among the young and high school customers. These results suggest that retail operators should develop dissimilar communication strategies for different customer segments in accordance with the targeted demographic profile (i.e. gender, age, education, and income level) in order to increase their attitude toward the protective measures against COVID-19, safety during shopping, as well as satisfaction and behavioral intentions.

## 5. Limitations and future research

This study contains several limitations that need to be pointed out. First, this research focused on attitude, safety, satisfaction, and intentions as the positive consequences of the retail enterprises' efforts to protect customer health and safety during shopping. Future research could expand the proposed conceptual framework by including other possible outcomes of the protective measures against COVID-19 in a retail context. Second, the survey was conducted among Romanian individuals in order to collect the data. Therefore, the results should be cautiously generalized to retail customers of different nationalities/cultures. Third, the conceptual framework was tested in a retail context. Consequently, future studies could apply the proposed framework to other types of services, which could include tourism, hospitality, education, and leisure. Fourth, the sample size was relatively small. A larger number of respondents would be more adequate not only for increasing the research capacity for generalizing results but also because large samples provide better estimates from structural models (Bentler, 1995). Fifth, the field survey was conducted in April–May 2020, when the protection measures against the spread of COVID-19 imposed by the Romanian authorities and the citizens' movement requirements outside the home were more restrictive. Therefore, future research could replicate this study in other periods of the year in order to establish whether customers have similar perceptions on the protective measures against COVID-19 adopted by the retail stores, safety during shopping, as well as attitudes toward such protective measures, satisfaction and behavioral intentions. Lastly, for the more effective use of safety variables, a sound way of the modification process on scale items is recommended for future research.

## Appendix. Frequency of the retail stores included in the study

| Retail store category | Number | Frequency (%) |
|---|---|---|
| Hipermarket/Hardware stores | | |
| Auchan | 53 | 13,217 |
| Carrefour | 62 | 15,461 |
| Kaufland | 44 | 10,972 |
| Selgros | 18 | 4488 |
| Brico Depot | 3 | 0,748 |
| Dedeman | 6 | 1496 |
| Supermarket | | |
| DM Drogerie Markt | 6 | 1496 |
| Lidl | 76 | 18,952 |
| Mega Image | 15 | 3740 |
| Penny | 24 | 5985 |
| Profi | 17 | 4239 |
| Other* | 10 | 2493 |
| Convenience shops | | |
| La Doi Paşi | 10 | 2493 |
| Sergiana | 18 | 4488 |
| Other* | 39 | 9725 |

*not mentioned.

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