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# US Consumer Behavior during a Pandemic: Precautionary Measures and Compensatory Consumption

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**Abstract:** This study's purposes were to examine how selected demographic variables affect frequency of use of precautionary measures when shopping for clothing in retail stores; and how uncertainty avoidance/ambiguity intolerance and fashion innovativeness affect (a) precautionary measures used when shopping in retail stores during a pandemic and (b) compensatory consumption. Participants (122 US men; 209 US women aged 20 to 64) completed an online questionnaire containing demographic items plus measures of uncertainty avoidance/ambiguity intolerance, compensatory consumption, precautionary measures, and fashion innovativeness. Data analysis included reliability, factor analysis, M/ANOVA and SNK. Older adults, adults with higher education, and married adults more frequently used precautionary measures when shopping in retail stores. Men and women reported similar frequency of use. Fashion innovators and consumers with less tolerance for uncertainty/ambiguity more frequently used precautionary measures. Fashion innovators and consumers higher in uncertainty avoidance/ambiguity intolerance engaged in more compensatory consumption. Generalization of the results is limited because the data are context-specific: country (US), time period (during a pandemic), and sample. Guidelines for the general public regarding precautionary measures came from within organizations, between organizations and experts but the general public was not consulted (public open innovation) perhaps hindering compliance with precautionary measures.



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**Keywords:** COVID-19 pandemic; compensatory consumption; precautionary measures; fashion innovativeness; uncertainty avoidance; ambiguity intolerance

## 1. Introduction

The COVID-19 pandemic has been not only a public health crisis but also a challenge to businesses and consumers. The negative emotions consumers experience because of pandemic restrictions may stimulate them to engage in compensatory consumption, that is, retail therapy [1], especially fashion innovators who enjoy shopping and shop more often than other consumers [2]. Government authorities issued guidelines for precautionary measures for consumers to follow when shopping in retail stores (e.g., social distancing, wearing a mask, etc.). A lack of information and the presence of misinformation regarding efficacy of such measures created an atmosphere of uncertainty and ambiguity. Fashion innovators (i.e., consumers higher in innovativeness) are more comfortable with change and with uncertain/ambiguous situations. Uncertainty about how the pandemic will progress and when it will end affect consumers of all ages, genders, and marital status not only economically but socially and psychologically as well. There are many papers related to the COVID-19 pandemic but none has examined the relationships among the following variables; therefore, the purpose of this study was two-fold: (1) to examine how selected demographic variables affect frequency of use of precautionary measures when shopping for clothing in retail stores; and (2) to examine how uncertainty avoidance/ambiguity intolerance and fashion innovativeness affect (a) precautionary measures used when shopping in retail stores during a pandemic and (b) compensatory consumption.

The conceptual framework for this study was provided by four constructs: precautionary measures, uncertainty avoidance/ambiguity intolerance, compensatory consumption and fashion innovativeness. The review of literature will show how these four constructs are related. The study was guided by Hofstede's [3] theory of cultural values which has inspired research into how cultural values influence consumer behavior. However, individual-level cultural values may vary from country-level cultural values so that individuals within a culture may differ in the strength of their commitment to cultural values [4,5].

## 2. Conceptual Framework and Hypotheses Development

### 2.1. Precautionary Measures

According to Alumran [6], available data on the impact of precautionary measures on the spread of COVID-19 is scarce. As the pandemic has progressed, more information has become available about the efficacy of precautionary measures. For example, precautionary measures were found to be effective in controlling the spread of COVID-19 in Saudi Arabia. Some of the most common precautionary measures were social distancing, frequent handwashing, avoiding touching of the face, and wearing masks in public.

#### 2.1.1. Demographic Variables and Use of Precautionary Measures

Demographic variables such as age, gender, education, and marriage have been found to influence self-precautionary behavior during a pandemic [7,8]. Regarding many self-precautionary behaviors (e.g., avoiding parties, wearing masks, hand hygiene), people with lower educational levels were less likely to comply with these precautionary measures [7].

Older people with pre-existing medical conditions and aging immune systems are more vulnerable to severe illness from the corona virus [9]. It has been recommended that older adults limit in-person interactions, avoid crowded indoor areas, wear a mask and practice social distancing [9]. On the other hand, the capability of sorting out the vast quantity of information about COVID-19 from media sources depends on a certain level of experience and maturity which would be more common among older adults. Regarding many self-precautionary behaviors (e.g., avoiding parties, wearing masks, hand hygiene), younger people are less likely to comply with precautionary measures perhaps because young people may discount health risks in general and assume that they are immune to the consequences of COVID-19 [10].

Gender has a significant effect on self-protective behavior [11]. Women and married participants were more likely to comply with precautionary measures such as social distancing, wearing masks and hand washing [12,13]. COVID-19 is a life-threatening disease in people of all ages, genders, marital and educational status. Practicing social distancing, wearing facial coverings, hand washing, and other precautionary measures are important for everyone: younger and older adults, females and males, married or not married, more or less educated [10]. The following hypotheses were proposed:

**H1:** *During the COVID-19 pandemic, older (v. younger) consumers will more frequently use precautionary measures when shopping for clothing in retail stores.*

**H2:** *During the COVID-19 pandemic, married (v. unmarried) consumers will more frequently use precautionary measures when shopping for clothing in retail stores.*

**H3:** *During the COVID-19 pandemic, female (v. male) consumers will more frequently use precautionary measures when shopping for clothing in retail stores.*

**H4:** *During the COVID-19 pandemic, more (v. less) educated consumers will more frequently use precautionary measures when shopping for clothing in retail stores.*

#### 2.1.2. Individual Difference Variables and Use of Precautionary Measures

In addition to demographic variables, individual difference variables may influence use of precautionary measures. Lahav, Rosenboim, Shahrabani, and Song [13] examined

factors affecting individuals' decision to comply with government-recommended precautionary measures. Higher levels of optimism and support for the government's efforts to minimize spread of COVID-19 were positively correlated with compliance. The authors concluded that complying with simple guidelines of avoiding crowds, wearing a mask, and social distancing reduced spread of COVID-19.

According to Bish and Michie [14], predictors of precautionary actions during a pandemic included greater levels of perceived susceptibility to the transmissible disease and its perceived severity. In particular, perceptions about the risk of contracting the disease predicted use of social distancing and handwashing. Other individual difference factors may affect the decision to use precautionary measures during a pandemic. Research has found factors such as optimism, risk perceptions, and emotional responses (e.g., fear, anxiety, stress) to be associated with using precautionary measures in several contexts. For example, perceived risk of catching swine flu or Severe Acute Respiratory Syndrome (SARS) and preventive behaviors such as washing hands [15–18], wearing masks [19,20] and with avoidance of public places [21]. Previous experiences (e.g., during prior pandemics) may influence individuals' risk perception [22].

Individual differences in negative emotions during a pandemic are understandable such as fear, anxiety, loneliness, depression, stress, pain from the loss of loved ones, problems related to new personal and work situation [23]. Research completed after the SARS and swine flu pandemics found that individuals with higher anxiety were more likely to use precautionary measures such as washing their hands and wearing masks [24–26]. Liang et al. [27] investigated consumers' attitudes toward aesthetics, functional and social attributions, and subjective norms regarding purchase of face masks as a precautionary action during a pandemic. Results showed that participants' functional attributions and subjective norms were positively related to their intention to purchase face masks, but not aesthetics and social attributions.

Use of precautionary measures was associated with lower levels of stress, anxiety, and depression [28]. A lack of information and the presence of misinformation regarding efficacy of precautionary measures may create an atmosphere of uncertainty and ambiguity. Frequency of use of precautionary measures may be related to individual differences in tolerance/intolerance of uncertainty and ambiguity.

## 2.2. Uncertainty Avoidance/Ambiguity Intolerance

Hofstede's [3] theory of cultural dimensions helps explain how cultural values may influence consumer behavior during a pandemic. Some research has examined cultural values as an influence on use of precautionary measures. For example, Maaravi, Levy, Gur, Confino, and Segal [29] found that the more individualistic (v. collectivistic) a country was, the more COVID-19 cases and mortalities it reported. These authors also found that the more individualistic participants were, the greater the likelihood they would not comply with pandemic precautionary measures.

Among the values in Hofstede's [3] theory of cultural values is the value of uncertainty avoidance/ambiguity intolerance. Uncertainty avoidance refers to cultural beliefs and institutions designed to reduce anxiety caused by ambiguous situations [3,30]. The US at 46/100 has a relatively low score on uncertainty avoidance meaning that as a whole, US citizens are adaptable, comfortable with uncertainty, and willing to accept new ideas. However, within a single culture such as the US, at the individual level, the degree of uncertainty avoidance/ambiguity intolerance (i.e., the reluctance to take risks, to make risky decisions, to be intolerant of ambiguous situations) varies widely [31]. Ambiguous situations are those that "cannot be adequately structured or categorized by an individual because of the lack of sufficient cues" [32]. Ambiguous situations are unclear, confusing, or can be interpreted in more than one way.

Individuals who are comfortable with uncertainty and ambiguity are open to new ideas; those who avoid uncertainty as much as possible have low tolerance for ambigu-

ity and are comfortable with the status quo [31]. Individual differences in reactions to uncertainty and ambiguity can influence consumer behavior during a pandemic [33].

Tolerance of ambiguity is a personality trait known to predict creativity and problem-solving [34]. Those who are tolerant of ambiguity are comfortable in ambiguous situations and score highly on openness to experience and sensation-seeking [35,36]. Those with low tolerance of ambiguity are uncomfortable in ambiguous situations where lack of information increases the difficulty of making decisions. Ambiguous situations may result in stress, avoidance, delay, suppression, and denial [32,37,38]. The tolerance of ambiguity scale positively correlated with openness [39], extraversion, and novelty-seeking [40].

Individual differences in the ability to tolerate ambiguous situations might influence frequency of use of precautionary measures. Individuals with low tolerance for ambiguity perceive ambiguous situations as a source of discomfort, threat, and perceived lack of control over the situation [41]. Therefore, individuals with low tolerance for ambiguity might use precautionary measures frequently as a strategy to reduce the uncertainty surrounding the COVID-19 pandemic. On the other hand, given the uncertainty and ambiguity about COVID-19, individuals with low tolerance of ambiguity may experience a decreased ability to deal with the pandemic by frequent use of precautionary measures [42].

There is a positive relationship between intolerance for ambiguity and risk aversion [43]. Risk attitude has been described as a trait that indicates a “person standing on the continuum from risk aversion to risk seeking” [44]. Risk aversion can be a motivation for engaging in self-protective actions to control a situation [45] such as staying safe during the COVID-19 pandemic.

Therefore, the following hypothesis was proposed:

**H5:** *During the COVID-19 pandemic, consumers with higher (v. lower) uncertainty avoidance and ambiguity intolerance will more frequently use precautionary measures when shopping for clothing in retail stores.*

### 2.3. Compensatory Consumption

“Compensatory consumption is engaged in whenever an individual feels a need, lack or desire which they cannot satisfy with a primary fulfilment so they seek and use an alternative means of fulfilment in its place” [46]. According to Woodruffe [47], compensatory consumption, such as buying objects, self-gift giving, or shopping is, in fact, normal consumer behavior. Compulsive buying is an extreme and chronic form of compensatory consumption behavior. O’Guinn and Faber [48] pointed out that for many compulsive buyers; their behavior is linked to a perceived lack of affection and support from others. Impulse buying, that is, buying something without planning in advance, can also be related to compensatory consumption [49]. Self gift-giving has a therapeutic role that is related to compensatory consumption behavior [50–52]. Indeed, an important function of consumption in general is to maintain a positive mood or to alleviate a negative emotional state [53,54]. According to Elliott [53], one motivation for compensatory consumption is coping with anxiety and stress.

The compensatory consumer behavior model [55] states that consumers buy products that symbolically express their desired identity, thereby reducing aversive psychological reactions resulting from self-discrepancy with that identity. According to recent articles [56,57], individuals feel various emotions in uncertain situations such as the COVID-19 pandemic; an uncertain situation may result in consumers engaging in compensatory consumption. For example, Afridi et al. [56] investigated relationships between nostalgia, browsing, boredom, and impulse buying behavior during the COVID-19 pandemic. Results revealed that the pandemic affected consumers’ impulse buying behavior as compensatory consumption for emotions such as nostalgia and boredom.

Compensatory consumption, then, is a way to make up for a deficit by acquiring something unnecessary in place of something necessary but unattainable [58,59]. Compensatory consumption during a pandemic can result from a perceived deficiency (e.g., restrictions

due to “stay at home” orders) accompanied by negative emotions (e.g., loneliness, anxiety, depression, stress, and boredom). These negative emotions may result in shopping as a way to alleviate or cope with negative feelings (retail therapy; [1]) or to temporarily escape from a restrictive environment. Among students, negative emotional states were positively related to compensatory consumption [60]. Those high (vs. low) in uncertainty avoidance and ambiguity intolerance experience more negative emotions, and thus, are likely to engage in more compensatory consumption. Therefore, the following hypothesis was proposed:

**H6abc:** *During the COVID-19 pandemic, consumers with higher (v. lower) uncertainty avoidance and ambiguity intolerance will be more likely to engage in compensatory consumption for purposes of (a) mood alleviation, (b) escape and/or (c) coping.*

#### 2.4. Fashion Innovativeness

Hurt, Joseph and Cook [61] defined innovativeness as a normally distributed underlying personality construct that can be interpreted as willingness to change. An innovation is an idea, practice, or object that is perceived as new by an individual [61]. Individuals' level of innovativeness determines how they perceive and react to an innovation; a higher level of innovativeness produces a more positive reaction [62]. Introduction of precautionary measures during a pandemic was undoubtedly a new idea for many people. Their reaction to this new idea may be influenced by their level of innovativeness, for example, their decision to use or not to use precautionary measures in crowded public places such as shopping centers where retail clothing stores may be found. Blendon, Benson, DesRoches, et al. [21] recommended avoidance of public places as one precautionary measure.

Innovativeness manifested within a particular area such as fashion is domain-specific innovativeness [63]. Innovativeness and domain-specific innovativeness are strongly related [63]. Fashion innovators, who have a higher level of innovativeness, may have a more positive reaction to the new idea of using precautionary measures when shopping than other consumers.

Fashion innovators scored higher on creative traits and behaviors than all later adopters [64]. Research has shown creative individuals display a high tolerance of ambiguity [65]. For example, among fashion design students, creativity and tolerance of ambiguity were positively correlated [66]. Therefore, because creativity and problem-solving are associated with greater tolerance of ambiguity, then fashion innovators are likely to have greater tolerance for ambiguity than later adopters. As noted previously, those who are tolerant of ambiguity are comfortable in ambiguous situations, are open to new experiences, are extraverted, have a higher need for variety and sensation-seeking. Fashion innovators have been found to be open to new experiences, higher in extraversion, need for variety, and sensation-seeking than consumers who adopt later in the fashion life cycle [67,68]. Individuals who score higher on the dimension of openness to experience tend to be more flexible, creative, and innovative [69,70]. Previous research [71,72] indicated that openness to experience is associated with the motivation to try new options. Consequently, fashion innovators are likely to be more tolerant of ambiguity than later adopters and, thus, more likely to use precautionary measures.

Therefore, the following hypothesis was proposed:

**H7:** *During the COVID-19 pandemic, fashion innovators (v. later adopters) will more frequently use precautionary measures when shopping for clothing in retail stores.*

Fashion innovativeness has been found to be positively related to clothing expenditure and shopping frequency (e.g., [2,73–75]). Involvement correlated positively with fashion innovativeness meaning that fashion innovators are more involved with fashion than later adopters (e.g., [76–78]). Fashion innovators have a greater need for uniqueness, hedonic shopping motivations and a high need for touch [79–82]. Therefore, because

fashion innovators enjoy shopping, shop often, have a hedonic shopping motivation, plus strong needs for uniqueness and touch, it seems likely they would not be likely to give up shopping in brick-and-mortar retail clothing stores. Not only is shopping a pleasurable activity for fashion innovators but also a way to deal with negative emotions associated with pandemic restrictions. Therefore, during the COVID-19 pandemic, fashion innovators are likely to engage in more compensatory consumption than later adopters.

**H8abc:** *During the COVID-19 pandemic, fashion innovators (v. later adopters) will be more likely to engage in compensatory consumption for purposes of (a) mood alleviation, (b) escape and/or (c) coping.*

### 3. Method

#### 3.1. Participants and Procedure

Participants ( $n = 331$ ) were recruited via Qualtrics Panel services over a two-week period during January 2021. Participants were 122 men (36.9%) and 209 women (63.1%) who ranged in age from 20 to 64 ( $M = 40.05$ ,  $SD = 11.96$ ). Regarding ethnicity, there were 52 African/Americans (15.7%), 12 Asian/Americans (3.6%), 239 Caucasian (72.2%), 22 Hispanic/Latino (6.6%), and 6 other (1.8%).

#### 3.2. Materials

The questionnaire contained demographic items and scales for uncertainty avoidance, ambiguity intolerance, compensatory consumption, precautionary measures used when shopping in retail stores, and fashion innovativeness.

The personal cultural orientations of uncertainty avoidance and ambiguity intolerance were measured by a 12-item scale [5]. Each item was accompanied by a 5-point Likert scale (1 = strongly disagree; 5 = strongly agree). Responses to the 12 items were summed to create a score on uncertainty avoidance/ambiguity intolerance (higher scores indicate greater avoidance of uncertainty and intolerance of ambiguity; low scores indicate greater acceptance of uncertainty and tolerance of ambiguity). Example items are: "I would not describe myself as a risk-taker;" "I feel safe when I am in my familiar surroundings".

The 26-item measure for compensatory consumption was adapted from Singh [59]. Some items from Singh's scale were re-worded, others were dropped, and additional items were added. Singh reported acceptable reliability for all constructs (0.736–0.823). An example item is "I shop when I am irritated."

The 8-item scale for precautionary measures was adapted and expanded from Wang et al. [28] and Probst, Lee, and Bazzoli [83]. Items were accompanied by a 5-point scale (5 = always, 4 = most of the time, 3 = about half of the time, 2 = almost never, 1 = never). Instructions were: Please indicate how often you used the following precautionary measures while shopping for clothing in brick-and-mortar stores during the last six months during the COVID-19 pandemic. An example item is "Wearing a mask or other face covering."

Fashion innovativeness was measured with a 9-item Trendsetter Questionnaire [84]. An example of an item in the trendsetting questionnaire is "I often read detailed articles about the latest ideas, trends, and developments in fashion". Each item was accompanied by a 5-point Likert-type scale. According to Batinic et al. [84], a multiple group confirmatory factor analyses supported the unidimensionality of the scale and acceptable reliability was reported from four samples (0.85, 0.87, 0.88, 0.91).

#### 3.3. Analysis

Descriptive statistics, reliability, factor analysis, M/ANOVA and Student-Newman-Keuls (SNK) post hoc tests were used for data analysis.

### 4. Results

Descriptive statistics for variables used in the study can be found in Table 1. Reliability for all scales was acceptable ranging from 0.82 to 0.96.

**Table 1.** Descriptive statistics and reliability for measures used in study: uncertainty avoidance/ambiguity intolerance, compensatory consumption, precautionary measures, and fashion innovativeness.

Scale	Mean	SD	Observed Range	Reliability Cronbach's $\alpha$
Uncertainty avoidance/Ambiguity intolerance	42.16	7.61	22–60	0.82
Compensatory consumption	83.27	21.15	26–130	0.96
Factor 1: mood alleviation	37.04	9.13	11–55	0.92
Factor 2: escape	15.48	5.18	5–25	0.91
Factor 3: coping	30.74	8.65	10–50	0.93
Precautionary measures	29.14	6.78	8–40	0.83
Fashion innovativeness	25.05	10.11	9–45	0.95

#### 4.1. Demographic Variables

##### 4.1.1. Preliminary Analysis

Items in the precautionary measures scale were summed to create a composite score (higher scores = more frequent use of precautionary measures). Participants were split into two groups based on the median age (less than or equal to 40  $n = 173$ ; greater than 40  $n = 158$ ), marital status (married  $n = 145$ ; not married  $n = 182$ ), gender (women  $n = 209$ ; men  $n = 122$ ), and educational level (high school or less  $n = 111$ ; some college or higher  $n = 220$ ). Four one-way ANOVAs were conducted to test the demographic variables (age, marital status, gender, education) with frequency of use of precautionary measures when shopping for clothing in retail stores.

##### 4.1.2. Hypothesis Testing

Results of the first ANOVA [ $F(1, 329) = 5.28, p < 0.022$ ] showed that participants older than 40 ( $M = 30.03, SD = 6.37$ ) more frequently used precautionary measures when shopping for clothing in retail stores than participants who were 40 or younger ( $M = 28.33; SD = 7.05$ ). Results of the second ANOVA [ $F(1, 325) = 3.18, p < 0.076$ ] showed that married participants ( $M = 29.85, SD = 6.18$ ) more frequently used precautionary measures than unmarried participants ( $M = 28.51; SD = 7.20$ ). Results of the third ANOVA [ $F(1, 329) = 0.555, p < 0.457$ ] showed that women ( $M = 29.35, SD = 6.51$ ) and men ( $M = 28.78; SD = 7.23$ ) were similar in frequency of use of precautionary measures. Results of the fourth ANOVA [ $F(1, 329) = 7.299, p < 0.007$ ] showed that participants with at least some college ( $M = 29.85, SD = 6.46$ ) more frequently used precautionary measures than participants with high school or less education ( $M = 27.74; SD = 7.19$ ). H1, H2, and H4 were supported; H3 was not supported.

#### 4.2. Individual Difference Variables

##### 4.2.1. Preliminary Analysis

Participants were split into two groups based on the median score (42) of the uncertainty avoidance/ambiguity intolerance scale (high  $n = 158$ ; low  $n = 173$ ). Participants were divided into four groups using mean and standard deviation of scores on the trendsetter questionnaire: fashion innovators ( $n = 55; 16.6%$ ); early adopters ( $n = 116; 35%$ ); late adopters ( $n = 86; 26%$ ); reluctant adopters ( $n = 74; 22.4%$ ). Compensatory consumption items were factor analyzed resulting in three factors accounting for 62.35% of the variance: factor 1 (11 items; mood alleviation), factor 2 (5 items; escape), and factor 3 (10 items; coping).

##### 4.2.2. Hypothesis Testing

MANOVA with uncertainty avoidance/ambiguity intolerance (UAAI) and fashion groups as independent variables and dependent variables of precautionary measures and compensatory consumption (factor 1, 2, 3) was significant for uncertainty avoid-

ance/ambiguity intolerance groups ( $p < 0.000$ ) and fashion groups ( $p < 0.000$ ) on the dependent variables.

ANOVA results showed that uncertainty avoidance/ambiguity intolerance was significant for frequency of use of precautionary measures ( $p < 0.000$ ) and all three factors of compensatory consumption ( $p < 0.000$ ): mood alleviation; escape; and coping. Participants high (vs. low) in uncertainty avoidance/ambiguity intolerance more frequently used precautionary measures when shopping for clothing in retail stores. H5 was supported. Participants high (vs. low) in uncertainty avoidance/ambiguity intolerance engaged in more compensatory consumption (see Table 2). H6abc were supported.

**Table 2.** ANOVA results for Fashion innovativeness and UAAI with compensatory consumption factor 1 (mood alleviation), factor 2 (escape), and factor 3 (coping) and precautionary measures.

Scale	Mean	SD	Mean Square	F	p<
Compensatory consumption: factor 1 mood alleviation					
Fashion innovativeness			1905.50	30.30	0.000
Fashion innovators	45.40 <sup>a</sup>	6.97			
Early adopters	36.85 <sup>b</sup>	7.99			
Late adopters	36.85 <sup>b</sup>	7.97			
Reluctant adopters	31.35 <sup>c</sup>	8.99			
UAAI			651.29	10.36	0.001
High	31.44	5.97			
Low	27.04	6.80			
Compensatory consumption: factor 2 escape					
Fashion innovativeness			387.69	17.95	0.000
Fashion innovators	19.44 <sup>a</sup>	4.83			
Early adopters	15.69 <sup>b</sup>	4.70			
Late adopters	15.20 <sup>b</sup>	4.88			
Reluctant adopters	12.55 <sup>c</sup>	4.74			
UAAI			295.11	13.67	0.005
High	16.51	5.46			
Low	14.55	4.74			
Compensatory consumption: factor 3 coping					
Fashion innovativeness			2259.88	44.50	0.000
Fashion innovators	39.53 <sup>a</sup>	6.41			
Early adopters	31.30 <sup>b</sup>	7.12			
Late adopters	30.06 <sup>b</sup>	6.71			
Reluctant adopters	24.14 <sup>c</sup>	8.39			
UAAI			408.09	8.04	0.005
High	32.35	9.10			
Low	29.27	7.91			
Precautionary measures					
Fashion innovativeness			418.85	11.16	0.000
Fashion innovators	33.49 <sup>a</sup>	5.16			
Early adopters	29.22 <sup>b</sup>	6.45			
Late adopters	28.24 <sup>b</sup>	5.90			
Reluctant adopters	26.84 <sup>c</sup>	7.83			
UAAI			1231.32	32.81	0.000
High	31.44	5.97			
Low	27.04	6.80			

Note: The superscript (<sup>a</sup>, <sup>b</sup>, <sup>c</sup>): means that sharing the same superscript did not differ significantly (Student-Newman-Keuls post hoc test). SD = standard deviation

ANOVA results showed that fashion group was significant for precautionary measures ( $p < 0.000$ ) and for all factors of compensatory consumption ( $p < 0.000$ ): mood alleviation; escape; and coping. Fashion innovators more often used precautionary measures when shopping for clothing in retail stores than early, late, or reluctant adopters. H7 was supported.

Fashion innovators engaged in more compensatory consumption for mood alleviation, escape, and boredom than all later adopters; early and late adopters did not differ significantly from one another; reluctant adopters engaged in significantly less compensatory consumption than all earlier adopters. H8 was supported.

## 5. Discussion

The demographic variables of age, education, and marital status influenced consumer behavior during a pandemic with regard to frequency of use of precautionary measures. Older adults, adults with higher education, and married adults more frequently used precautionary measures when shopping in retail stores than did younger adults, adults with a high school or less education, and single adults. These results are consistent with prior research [12,13,78].

Gender was not a variable of significance regarding frequency of use of precautionary measures—men and women reported similar frequency of use. These results contrast with previous research [10–13]. Because these data were collected in January 2021, when the pandemic had been spreading for more than a year and a vaccine was not yet widely available, perhaps both men and women had accepted the importance of using precautionary measures as a method of self-protection.

According to Salvi et al. [33], individual differences in uncertainty avoidance and ambiguity intolerance can influence consumer behavior during a pandemic. Consistent with Salvi et al. [33], in the current study, consumers with heightened uncertainty avoidance/ambiguity intolerance engaged in more frequent use of precautionary measures than consumers who were more tolerant of uncertainty and ambiguity. Because individuals with low tolerance for ambiguity perceive ambiguous situations (e.g., the COVID-19 pandemic) as a source of discomfort, threat, and perceived lack of control over the situation [41], one strategy to reduce the uncertainty is to adhere to precautionary measures. Results of this study are consistent with Janz and Becker's [45] idea that avoiding uncertainty can be a motivation for engaging in self-protective actions to create a sense of control during an ambiguous situation such as the COVID-19 pandemic. As mentioned previously, the US at 46/100 has a relatively low score on uncertainty avoidance meaning that as a whole, US citizens are adaptable, comfortable with uncertainty, and willing to accept new ideas. However, within the US, individuals vary widely regarding their level of uncertainty avoidance/ambiguity intolerance. Results of this study are consistent with Hofstede's theory that uncertainty avoidance/ambiguity intolerance can affect consumer behavior. In this study, it affected consumers' frequency of use of precautionary measures when shopping in retail stores. Results do not support Petrocchi et al.'s [42] suggestion that high ambiguity intolerance, combined with the expansive, and sometimes conflicting, information provided by different levels of government and the media, might result in decreased trust toward the efficacy of precautionary measures and, therefore, less frequent use.

Fashion innovators more often used precautionary measures when shopping for clothing in retail stores than early, late, or reluctant adopters. Fashion innovators may be risk-takers as far as adopting new fashions but they are not risk-takers with regard to physical safety. Reluctant adopters were the least likely to use precautionary measures when shopping. Reluctant adopters, in keeping with their label, do not adapt well to new ways of doing things preferring to maintain the status quo.

Compared to later adopters, fashion innovators engaged in more compensatory consumption. As mentioned earlier, fashion innovators enjoy shopping, so the motivation to continue shopping during the COVID-19 pandemic might be very high. However, government guidelines suggesting that people avoid public places placed restrictions on shopping at brick-and-mortar retail clothing stores; thereby negatively affecting fashion innovators from engaging in one of their favorite pastimes. Therefore, using precautionary measures allowed them to shop as a way to overcome such negative emotions as boredom.

During the COVID-19 pandemic, consumers higher in uncertainty avoidance/ambiguity intolerance (compared to those lower in uncertainty avoidance/ambiguity intolerance)

tended to engage in more compensatory consumption in order to reduce their negative moods. Results of the current study were consistent with previous studies (e.g., [56,57]) that showed consumers engage in compensatory consumption to alleviate negative emotions caused by uncertain and/or ambiguous situations.

## 6. Implications

There are some implications to be derived from the results of this study. In regard to theoretical implications, results support Hofstede's [3,30] cultural values theory and Sharma's [5] notion of cultural values varying by individual citizens within a country. Additionally, this study adds new findings to how consumer values affect their behavior, especially during a pandemic. As for practical implications, retailers who provide resources (e.g., masks, hand sanitizer) to make it convenient for customers to use precautionary measures may decrease customers' uncertainty and give them a sense of control. Determining the impact of these behavioral factors on use of precautionary measures during a severe pandemic is important for designing policy steps to encourage people to follow official instructions and for preventing the spread of the disease.

## 7. Conclusions

Older adults, adults with higher education, and married adults more frequently used precautionary measures when shopping in retail stores. Men and women reported similar frequency of use. Fashion innovators and consumers with less tolerance for uncertainty/ambiguity more frequently used precautionary measures. Fashion innovators and consumers higher in uncertainty avoidance/ambiguity intolerance engaged in more compensatory consumption.

There are several types of open innovation, for example, within an organization (intracompany), between two or more organizations (intercompany), experts outside an organization (experts), and all individuals irrespective of prior knowledge or importance (public open innovation). "The health, economic, and social consequences of the SARS-CoV-2 virus have highlighted the need for collaboration among all agents to face a scenario that we have not before seen" [23]. During development of guidelines for the general public, it appears there was a lack of input from public open innovation sources. Innovative ideas from the public might have resulted in less restrictive measures, fewer complaints, and greater compliance with precautionary measures [85,86]. This study will be helpful for retailers and policymakers to understand individual consumer's compensatory consumption behavior and use of precautionary measures when shopping in retail stores during the next phase of the COVID-19 pandemic or other pandemics that may occur in the future.

## 8. Limitations and Further Study

Generalization of the results of the study is limited because the data are context-specific to a particular country (US), a particular time period (during a pandemic), and a particular sample from the general population. Because this study did not develop a model, further study could include model development to test the relationships among these variables. Other individual difference variables such as optimism, risk perception, and emotional responses could be included in the model. Data from more varied samples (from other countries, other time periods, other age groups) could be collected and analyzed. The analysis could incorporate machine learning, for example, fuzzy-set qualitative comparative analysis and Structural Equation Modeling (SEM) or Partial Least Squares-Structural Equation Modeling (PLS-SEM).

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