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Progress in Neuropsychopharmacology & Biological Psychiatry 110 (2021) 110321

Contents lists available at ScienceDirect

Progress in Neuropsychopharmacology & Biological Psychiatry

journal homepage: www.elsevier.com/locate/pnp

Mediating effect of intolerance of uncertainty in the relationship between coping styles with stress during pandemic (COVID-19) process and compulsive buying behavior

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ARTICLE INFO

Keywords:
Anxiety
Compulsive buying behavior
Stress-coping strategy
Intolerance for uncertainty

ABSTRACT

Novel CoronaVirus Disease (COVID-19) has begun to expand swiftly beyond all borders and turned into a global source of infection for humans in that all media corporations began to repeatedly share breaking news to release the latest data of all countries. The consequence of that has been a heightened level of anxiety among humans and opting for unorthodox consumption behaviors as consumers. In this study the attempt was to analyze human behaviors during the ongoing pandemic process from the perspective of psychology and marketing fields of science. In so doing, interrelation among anxiety, which surfaced because of Covid-19 pandemic, coping style with stress of individuals and compulsive purchase behavior has been explored. Based on these interrelations, a structural model was suggested. Findings of the research indicated that anxiety has high effect on the helpless approach dimension, which is one of the coping styles with stress; and that helpless approach alone has an effect on compulsive buying behavior. Besides, another objective of the study was to evaluate the mediating effect of intolerance of uncertainty between coping style with stress and compulsive buying behavior. That analysis evidenced that intolerance of uncertainty in such an interrelation had a partial mediating effect.

Unexpected events with devastating results can cause immense harm to the mental state of individuals. Each individual tries to minimize the negative consequences of these events by using some acquired skills as well as genetic factors (Kozak et al., 2005). These efforts might include psychosocial factors and behaviors. For example, those with a higher degree of psychological resilience as a temperament trait may be less affected by destructive events and cope better with these events than those with a lower degree (O'Dowd et al., 2018). Some individuals use adaptive mechanisms such as seeking social support and medical help during these events (Cameron et al., 1995) while some use maladaptive styles to deal with stress and trauma. Foremost among these styles are alcohol and substance use (Zaleski et al., 2013), gambling and betting games, (Bergevin et al., 2006) overeating, (Wolff et al., 2000) and compulsive buying (Sneath et al., 2009). These styles reduce the destructive consequences of the trauma in the short term and provide psychological relief to the person; however, they also have some adverse results such as borrowing, health problems, and addiction in the long term.

The consequences of disaster-related changes in consumption and consumer behavior, including responses to COVID-19, are often simply presented as "panic buying" and "hoarding" (Peck, 2006; Pantano et al., 2020; Yuen et al., 2020). Consumers tend to stockpile staple foods (rice, pasta, flour, etc.) in times of crisis and other essential items that can help them survive during the expected supply shortages.In addition to being a large-scale behavior, stockpiling, also referred to as hoarding, occurs as a result of a serious disaster (e.g. hurricanes, blizzards) or pandemics such as COVID-19.

In line with contagion, defined as the spill-over of effects including fear and anxiety, caused by an extreme negative event in one location as it moves to affect others (Forbes et al., 2012), an increase is expected in the change in rational consumer behavior. Therefore, the COVID-19 crisis is predicted to have an impact on the increase in consumer fear, and a wider impact in fear and uncertainty in spending decisions (Loxton et al., 2020). For this reason, as well as having a worldwide scope like other elements of global change, the pandemic is also a local experience, and examining consumer behavior is of great importance.

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https://doi.org/10.1016/j.pnpbp.2021.110321
Received 15 December 2020; Received in revised form 21 March 2021; Accepted 29 March 2021
Available online 2 April 2021
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The objective of this study is to determine the level of anxiety that COVID-19, which has spread from China in December 2019 and affected the whole world in terms of health in particular and economical, educational, and political aspects, has caused in individuals living in Turkey, to assess the coping mechanisms of these individuals and to examine the mediating role of intolerance of uncertainty on compulsive buying behaviors. The present study also aims to investigate the consuming behaviors of the individuals, who take part in the market as consumers as a result of these negative conditions, both psychologically and from the consumer's point of view. It also aims to contribute to filling this determined gap in this field in academic literature and to identify the uncertainties during the current crisis.

1. Conceptual framework and hypothesis development

1.1. Anxiety, and intolerance of uncertainty (IU)

Individuals encounter sudden and unexpected events in their daily lives. They try to predict the short and long-term consequences of these events. If the event is positive, they try to maximize all kinds of psychological and material gains of it, if it is negative, they try to protect their psychological and material integrity and minimize damage. The body and mind react to these events with the stress response. The anxiety response caused by events is sometimes much more severe. The loss of a loved one, serious/fatal illness, natural disasters are examples of the causes of acute stress. In addition to their negative consequences, these events are unpredictable and make it difficult for people to plan their future. In this case, besides the negative consequences of the stressor, the uncertainty creates secondary stress and causes the living circumstances to become more difficult (Carleton, 2016). The uncertainty caused by anxiety and the ability to cope with it vary between individuals and is known as the intolerance of uncertainty (IU) phenomenon.

IU was defined as a cognitive bias that affects how a person experiences, interprets and reacts to uncertain situations or situations with uncertain consequences (Dugas et al., 2004). In addition, IU refers to the tendency of the individual to perceive uncertain situations as threatening, difficult, and unsolvable (Dugas and Ladouceur, 2000). Studies show that the IU level is directly related to different psychopathologies such as anxiety, depression, and panic disorder (Dugas and Ladouceur, 2000; Kesby et al., 2017). There is a limited number of studies in the literature examining the effects of uncertainty caused by acutely stressful situations on mental health (Sigirci et al., 2016). Some of these studies examined the uncertainty caused by natural disasters and separated them from other stressors (Afifi et al., 2012; Sneath et al., 2009). Natural disasters differ from individual traumas in terms of their consequences. In addition the effects of natural disasters are distinguished from the effects of the other wide-ranging events, such as wars, terrorist attacks, diseases; because in the latter, there is a clear objective to blame and direct the anger to. By channeling their anger, the victims find an object to calm their anxiety, albeit for a short time (Brewin et al., 1996).

Considering the aforementioned effects, COVID-19 was not limited to a specific geographical region and seriously affected the whole world in various areas including the economy and society, particularly in health. The discovery of the virus causing the disease and the absence of comprehensive literature on this disease have supported the continuation and exacerbation of this uncertainty, and the delayed results of drug and vaccine studies have also contributed to the worsening of the situation.

1.2. The styles of coping with stress and anxiety

Coping with stress is defined as the cognitive and behavioral effort of individuals who face difficult situations throughout their lives (Folkman and Lazarus, 1988). The objective of this is to protect psychological and physical integrity. The styles of coping with stress differ among people due to individual differences (Catanzaro et al., 1995). Among these differences are gender, age, intelligence level, response to previous stressors, and reinforcement of these responses, mood, and self-efficacy (Catanzaro et al., 1995). The styles of coping with the stress of every individual develop from childhood due to individual differences. Therefore, this process is a more dynamic process than a static one (Caplan, 1983).

Many people try to eliminate or reduce the impact of stressors by using effective or ineffective styles to cope with stress (Saleh Baqutayan, 2015). Among the many styles, there are four basic classifications to cope with stress. The individual; i) can try to deal effectively with the stress that they encounter, make decisions to solve the problem, and struggle with the problem while protecting their emotions, ii) might do the opposite of the first option and can deny the problem/stress and stay away from it. iii) accepts the stressor but can try to reduce the destructive effects of the problem without solving the stressor or problem. Thus, even if the problem is not solved by diminishing the consequences, they indirectly try to preserve the integrity of the mind and body. iv) accepts stressors and problems and uses neither adaptive nor maladaptive solutions. Hence, the person accepts the consequences of the stressor as they are (Saleh Baqutayan, 2015).

According to the literature on coping with stress, styles such as compulsive buying, alcohol use, gambling, and betting are some of the maladaptive ones. Especially, consumer buying has been viewed as a form of maladaptive behavior that affects the well-being of millions of consumers globally (Baker et al., 2013). Many individuals use these styles not to remove the stressor but to be able to tolerate the destructive consequences of the stressor (Sneath et al., 2009; Wolff et al., 2000).

H1a–H1e. The anxiety due to Covid19 has a statistically significant effect on the self-confident/optimistic/the seeking of social support/submissive/helpless/style, which is one of the styles of coping with stress.

1.3. Compulsive buying behavior

The concept of "compulsive buying behavior" has entered the psychiatric literature at the beginning of the 20th century with obsessive buying disorder (Korur and Kimzan, 2016). Today, this concept is investigated in terms of its various impacts on psychology, sociology, and consumer behaviors due to its wide range of impacts (Kwak et al., 2002; Roberts et al., 2003).

The compulsive buying behavior was first conceptualized as impulsive control difficulty (Black, 2007). Edwards (1993) defines compulsive buying as "a chronic abnormal shopping and spending style characterized by excessive, uncontrollable, and repetitive buying urge regardless of its consequences".

Compulsive behavior is more common in individuals affected relatively easily by negative and positive mood states and environmental factors (Karakuş Başlar and Bozbay, 2019). Consumers buy the products to cope with unpleasant life experiences, internal deficiencies, or negative emotions (Guinn and Faber, 1989; Tamam et al., 1998; Robert and Jones, 2001) and other related emotions, such as stress, tension, or anxiety (Robert and Jones, 2001) or to help them to ease their negative emotions (Scherhorn et al., 1990; Sneath et al., 2014).

The literature on compulsive buying behavior showed that the studies generally aimed at identifying the precursors that caused compulsive buying behavior. High materialistic values (Johnson and Attmann, 2009; Joireman et al., 2010; Park and Burns, 2005; Roberts et al., 2019), status consumption (Phau and Woo, 2008; Karakuş Başlar and Bozbay, 2019), hedonic consumption (Eroğlu, 2016), and obsessive product categories (Aliçavuşoğlu and Boyraz, 2019; Manolis et al., 2008) were found to be effective on compulsive buying behavior. Studies showed that personality traits, values, and sense of self played an important role in compulsive buying behavior (Kellett and Bolton, 2009; Sharif and Khanekharab, 2017). Psychological distress such as depression and anxiety seemed to be an important trigger for compulsive

buying. (Darrat et al., 2016; DeSarbo and Edwards, 1996; Müller et al., 2012; Otero-López and Villardefrancos, 2013; Ridgway et al., 2008).

Compulsive behavior usually occurs when the person is recovering from adversities, avoiding pressures, or ignoring problems (Faber and O'Guinn, 1988: 100). The individual uses buying and consuming activities to reduce stress and associated anxiety repeatedly as a relaxation method during the period of uncertainty in pandemic (DeSarbo and Edwards, 1996), and the research hypotheses, developed regarding this situation, are as follows:

H2a–H2e. The self-confident/optimistic/the seeking of social support/submissive/helpless one of the styles of coping with stress, has a statistically effect on compulsive buying behavior.

H3a–H3e. The intolerance of uncertainty significantly mediates in the relationship between the styles of coping with stress during Covid19, and compulsive buying behavior.

2. Method

2.1. Research objective

Preliminary objective of this study is to analyze the effect of stress and anxiety experienced during early stage – first 2 months– of COVID-19 pandemic process by individuals, who also have consumer identity, on their coping style with stress and also to examine the impact of this coping style with stress on their compulsive buying behavior. Further to that it is aimed to explore the mediating effect of intolerance of uncertainty in the relations across such variables.

2.2. Sampling and data collection

Research population of this study consists of consumers, who are dwelling in Turkey earning a monthly income and living financially independently. The snowball sampling method -one of the nonrandom sampling methods- was employed and data were collected on the electronic survey. For the designated sampling a link to survey form created in surveey.com was shared with 660 recipients in all social media addresses of the authors. After excluding incomplete and half-finished surveys the analysis in this research was performed through 334 surveys. The data of our research were collected between May and June 2020.

2.3. Research model and measurement

Based on relationships mentioned above, the following research objective and literature analysis for this study are illustrated in Fig. 1.

In order to evaluate the magnitude of anxiety disorder symptoms that are widespread among humans, Spitzer et al. (2006) designed a one-dimensional scale was used. Participants were administered a directive which summarized Covid-19 pandemic process in 7 items and by employing imagination method. Although the research was conducted in the fifth and sixth months of the COVID-19 pandemic, the effects of COVID-19 in the first months were investigated and the participants were asked to evaluate their feelings, thoughts and behaviors in that period and answer questions. The reason for selecting the imagination method was that our research data was not collected at the start of the pandemic process and a number of psychological and behavioral human traits tended to change as pandemic progressed. Turkish Standardization of the scale was performed by Konkan (2011) and it proved to have satisfied all of required psychometric qualities.

Coping style with stress scale was developed by Folkman and Lazarus (1988) to assess the type of methods- adaptive or maladaptive methods- employed in times of stress. This scale contained a total of 30 items and a total of 5 sub-dimensions: Self-confident, optimistic, helpless, submissive and seeking of social support styles. As dependent variable of this research compulsive buying behavior was adapted from the work of Sneath et al. (2009). It measured with nine items. IU variable was adapted from Jacoby et al., 2015 and it was measured with twelve items. In measuring IU and compulsive buying behavior variables; 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree) was utilized.

3. Results

3.1. Results of descriptive statistics

As we examine demographic profile of participants it can be seen that 65% consists of women and 35% consists of men. In general, the mean age is 30. Demographic features of participants are as exhibited in Table 1.

15% of participants ($n = 50$) reported to have Covid-19 test; only 8% ($n = 4$) of tested individuals were found positive. 6% of participants stated that one family member was diagnosed with Covid-19 disease.

Participants were asked if in the ongoing pandemic process any change was evident in their income level (pay cut, rent income etc.) due to the emergence of layoffs or short-time working allowances and

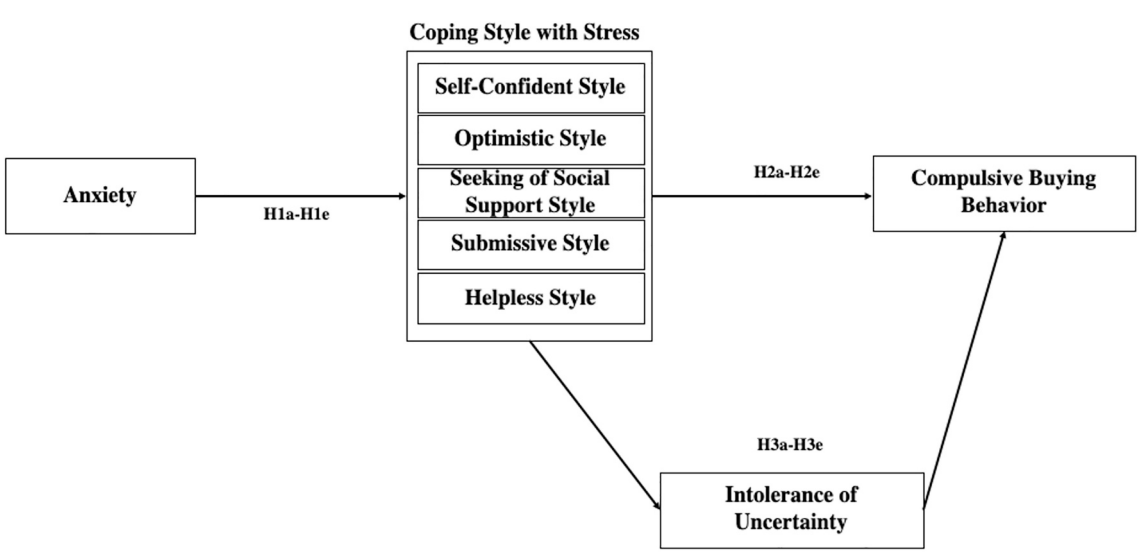

Fig. 1. Research model.

Table 1
Demografic characteristics of respondents ($N = 334$).

Sex	
Female	65%
Male	35%
Age	
18–33	61.2%
34–49	23.7%
50–65	1.8%
Matiral status	
Married	36.2%
Single	63.8%
Educational status	
Elementary school	1.7%
High school	7.8%
Associate degree	4.8%
Undergraduate	49.7%
Postgraduate	36.5%
Monthly house hold income	
≤2000 TRY	6.3%
2001–4000 TRY	18.9%
4001–6000 TRY	28.7%
6001–8000 TRY	18.9%
8001–10,000 TRY	10.8%
≥10,000 TRY	16.5%

obtained results are as displayed in Table 2. In sum, it became apparent that participants whose income level decreased faced challenges in meeting their needs; 54% considered receiving loans or getting credit and about 41% was reported as already indebted.

Table 3 exhibits brief results of the analysis to detect which category had the greatest share of spendings, which of the product categories had greater share from consumers' budget and lastly which of the product categories had greater share of stockpiling by buying more than needed during pandemic. In both pandemic process and pre-pandemic process it was detected that participants saved the greatest budget for food products which were followed in the order of cleaning and hygiene products, health and medical products. Cleaning and hygiene products was the product category in which participants stockpiled most by buying more than needed in this process.

3.2. Results of validity and reliability analysis

In order to test construct validity of the scales for this research data were examined by both exploratory factor analysis and confirmatory factor analysis. Upon examining KMO and Bartlett's Sphericity Test X^2 Statistic which tested whether scales for Anxiety, Intolerance of Uncertainty and Compulsive Buying variables were fit for factor analysis, it was detected that obtained results were fit for factor analysis. By excluding variables with low equivalence value (factor load < 0.50) (Malhotra, 2009) the same analysis was reiterated. Table 4 exhibits factor loads for all these statements.

Coping style with stress scale grouped under five dimensions in literature was ordered below five dimensions that paralleled with literature after conducting exploratory factor analysis. Factor loads of the dimensions are as exhibited in Table 5.

In order to explain as a whole compatibility with conceptual framework and relations between independent variables and dependent variable as well mediating role in this research, structural equation model (SEM) was selected (Byrne, 2001). Therefore, in addition to the exploratory factor analysis, confirmatory factor analysis was performed using the AMOS 26 program to test the validity of the variables.

In any confirmatory factor analysis, goodness of fit statistics must provide significant results as a precondition to accept the findings. For this study the final goodness of fit values of the scale generated by measuring models are as depicted in Table 6.

Table 2
Change in income level of participants.

Decrease in income level during pandemic period	Yes		No	
	37.7% ($N = 126$)		62.3% ($N = 208$)	
	Yes	No	Yes	No
Have you had difficulty meeting your needs?	70.6%	29.4%	32.2%	67.8%
Have you thought about taking out a lon or borrowing?	54%	46%	18.8%	81.3%
Did you take out a loan or borrow money?	40.5%	59.5%	14.4%	85.6%

Table 3
Product categories with the most budget allocated by participants.

Product categories	Differentiating according to the pre-pandemic		Stocking	
	N	%	*N*	%
Food products	253	30.6	132	37.8
Cleaning and hygiene products	252	30.5	120	34.4
Health and medical products	141	17.1	49	14
Entertainment and hobby products (books, movies, music)	70	8.5	14	4
FMCG product	39	4.7	14	4
Technology products	30	3.6	6	1.7
Clothing and footwear products	32	3.9	13	3.7
Other	9	1.1	1	0.4
Total		%100		% 100

Table 4
Exploratory factor analysis and reliability results 1.

Factor name	Factor load	Factor name	Factor load
Anxiety (ANX) (KMO:0.912; Sig.:0.000; Expl. Variance:63.180)		*Intolerance of Uncertainty (IoU)* (KMO:0.916; Sig.:0.000; Expl. Variance:63.450)	
I'm afraid something terrible will happen.	0.850	When it's time to act, uncertainty paralyzes me	0.878
I cannot control or stop my worries.	0.824	Uncertainty keeps me from living a full life	0.787
I worry too much about different matters.	0.816	The smallest doubt can stop me from acting	0.763
I quickly get angry, angry or restless.	0.787	I must get away from all uncertain situations	0.753
I cannot relax and relax.	0.781	When I am uncertain I can't function very well	0.751
I'm angry, anxious, worried	0.757	I should be able to organize everything in advance	0.729
I will be too restless and wriggly to sit still.	0.744	It frustrates me not having all the information I need	0.711
Compulsive Buying Behavior (CBB) (KMO:0.888; Sig.:0.000; Expl. Variance:68.780)		I always want to know what the future has in store for me	0.698
I always felt the urge to buy something	0.852	Unforeseen events upset me greatly	0.658
I often wanted to buy things that I didn't plan on buying.	0.819	I can't stand being taken by surprise	0.623
When ı fell bad, ı like to buy things	0.813	A small, unforeseen event can spoil everything, even with the best of planning	0.620
I often bought stuff that ı don't need	0.794	One should always look ahead so as to avoid surprises	0.514
I got excites when ı purchase new things	0.791		
I liked to show off the things I buy	0.776		
I felt have to spend all of my money.	0.600		
I'm always asking my parents for spending money	0.557		

Table 5
Exploratory factor analysis and reliability results 2.

Factor name	Factor load	Factor name	Factor load
Factor-1: Self-Confident Style (SC) (KMO:0.910; Sig.:0.000; Expl. Variance:59,681)		*Factor-2: Submissive Style (SUB)* (KMO:0.803; Sig.:0.000; Expl. Variance:52,481)	
I find the strength to start all over again.	0.836	I always think "it was because of me".	0.734
No matter what happens, I find the strength to resist and struggle.	0.819	I cannot stop thinking about what happened and constantly thinking about it.	0.697
I try to solve the problem (s) step by step.	0.796	I think "What's my fault?".	0.696
I believe that I can find a way, I will work for it.	0.771	I think "I wish I were a stronger person".	0.659
I try to make the best decision by evaluating the event/events.	0.768	I think the problem is caused by me.	0.640
As a person, I feel that I am changing and maturing for the better.	0.706	I feel like I'm trapped.	0.617
I believe I can defend my right.	0.700	I believe everything will not be the way I want.	0.558
Factor-3: Optimistic Style (OPT) (KMO:0.627; Sig.:0.000; Expl. Variance:55.917)		I expect a miracle to happen.	0.571
I try to be optimistic.	0.828	*Factor-4: Helpless Style (HEL)* (KMO:0.745; Sig.:0.000; Expl. Variance:55,917)	
I try to think calmly and not get angry.	0.757	I say "this is my destiny" in the face of what happened.	0.771
I try to be tolerant of myself.	0.748	I give up the struggle.	0.716
I try to get something positive from the event/ events.	0.731	I believe nothing can be done.	6.98
I try not to magnify the event/events and not dwell on them.	0.665	I think the one who happens will be drawn.	0.587
Factor-5: Seeking of Social Support Style (SoS) (KMO:0.576; Sig.:0.000; Expl. Variance:54.517)		I make a vow to solve the problem.	0.581
I don't want anyone to know about my plight.	0.860	I think it will work.	0.531
I don't want anyone to know.	0.779		
I consult others to understand the real cause of the problem.	0.772		
It is comforting to know that there are people who can support me.	0.541		

Table 6
Model fit values for the measurement model.

	X^2	df	X^2/df	TLI	CFI	RMSEA
Anxiety (ANX)	27.596	13	2.123	0.981	0.988	0.058
Compulsive Buying Behavior (CBB)	67.642	18	3.758	0.945	0.965	0.09
Intolerance of Uncertainty (IoU)	81.036	27	3.001	0.924	0.948	0.078
Coping Style with Stress (STR)	453.983	218	2.082	0.903	0.932	0.057
Goodness model fit*			≤3	≥0.90	≥0.97	≤0.05
Acceptable model fit*			≤4–5	0.89–0.85	≥0.95	0.06–0.08

$p < 0.05$, *Hair et al. (2010).

In the construct validity test of measuring model, at first discriminant and convergent validity factors are examined. Correlations between factors are expected to be below 0.90, which is the generally accepted highest limit (Hair et al., 2010) Correlation matrices showing the correlations between variables are included in Table 7.

In testing convergent validity performed to see the validity of measuring model, obtained path coefficients as well as value coefficients of composite reliability (CR) and average variance explained (AVE) are analyzed. CR and AVE values for the variables have shown in Table 7.

3.3. Path analysis results

In order to analyze effects in the research model and test the hypotheses, the path analysis was used with observed variables (Hair et al., 2010; Salari et al., 2020).

To test mediating effect of IU on the effect of a person's coping style with stress dimensions on compulsive buying behavior, the approach suggested by Baron and Kenny (1986) was taken into account. In order to test research hypotheses during path analysis process, simple unmediated model (Model-1) and mediating model (Model-2) were formed to evaluate direct effects and mediating effects. Goodness of fit values of Model-1 displayed in Fig. 2 are detected to be within acceptable fits ($X^2 = 1126.113$; df = 609; X^2/df = 1.849; TLI = 0.92; CFI = 0.908; RMSEA = 0.05; $p > 0.05$).

Obtained standardized regression coefficients (β) at the end of path analyses for Model-1 are as shown in Table 8.

In the first hypothesis group it is suggested that anxiety due to Covid-19 disease would have a direct effect on coping style with stress dimensions. In the simple Model-1 obtained values reveal that anxiety causes a negative effect on self-confident approach ($\beta = -0.162$, $z = -2.60$, $p < 0.05$) and optimistic approach ($\beta = -0.250$, $z = -3.76$, $p < 0.05$) but a positive effect on helpless approach ($\beta = 0.415$, $z = 6.55$, $p < 0.05$) as well as submissive approach ($\beta = 0.050$, $z = 5.52$, $p < 0.05$). Within the framework of this finding, H1a, H1b, H1d and H1e hypotheses are supported. However, since anxiety has no statistically significant effect on seeking of social support approach ($\beta = 0.505$, $z = 0.23$, $p > 0.05$), H1c hypothesis is not supported.

Within the scope of second hypothesis group of the study, when the results obtained from Model-1 are examined, it is detected that only helpless approach has a positive effect on compulsive buying behavior ($\beta = 0.389$ $z = 4.64$, $p < 0.05$). Therefore, H2e hypothesis is supported; other hypotheses are not supported.

In addition to the effects in Model-1, the intolerance to uncertainty variable was added to the model as a mediator variable (Model-2) and evaluated with path analysis. It was observed that for Model-1 depicted in Fig. 3 goodness of fit values ($X^2 = 344.434$; df = 183; X^2/df = 1.882; TLI = 0.935; CFI = 0.945; RMSEA = 0.051) remained within acceptable ranges.

Mediating role was tested with a four-stage method suggested by Baron and Kenny (1986). Accordingly, as the first precondition, independent variable must have effects on dependent variable; and independent variable must affect mediating variable, mediating variable must affect dependent variable, independent variable must affect dependent variable and at the end of third stage when effects of mediating variable were included independent variable's effect on dependent variable must become statistically insignificant or lowered.

Because of the precondition that independent variable has an effect on dependent variable, only helpless approach dimension among all of stress-coping strategy dimensions takes place in designed Model-2. According to obtained results, helpless approach affected IU positively ($\beta = 0.403$, $z = 5.01$, $p < 0.05$) furthermore IU affected compulsive buying behavior positively ($\beta = 0.172$, $z = 4.2.45$, $p < 0.05$) and this condition offers a sign for the presence of mediating effect. In addition, for Model-2 as intolerance of uncertainty was included to the model, it becomes evident that stress-coping strategy's helpless approach dimension decreased its effect on compulsive buying behavior and yet still stayed as

Table 7
Correlations matrix, cronbach alpha and AVE-CR values.

	IoU	ANX	SoS	SUB	HEL	OPT	SC	CBB	α	AVE	CR
IoU	0.601								**0.907**	**0.518**	**0.904**
ANX	0.303	0.531							**0.902**	**0.601**	**0.910**
SoS	0.116	0.019	0.364						**0.699**	**0.509**	**0.804**
SUB	0.106	0.15	−0.026	0.286					**0.696**	**0.543**	**0.826**
HEL	0.204	0.196	0.035	0.271	0.315				**0.720**	**0.522**	**0.844**
OPT	−0.045	−0.092	0.188	−0.022	−0.059	0.29			**0.790**	**0.520**	**0.813**
SC	−0.013	−0.058	0.231	−0.069	−0.065	0.296	0.346		**0.862**	**0.516**	**0.864**
CBB	0.134	0.138	−0.003	0.089	0.133	−0.047	−0.053	0.369	**0.892**	**0.558**	**0.908**

Bold indicates to draw attention to the alpha, AVE and CR values for the variables.

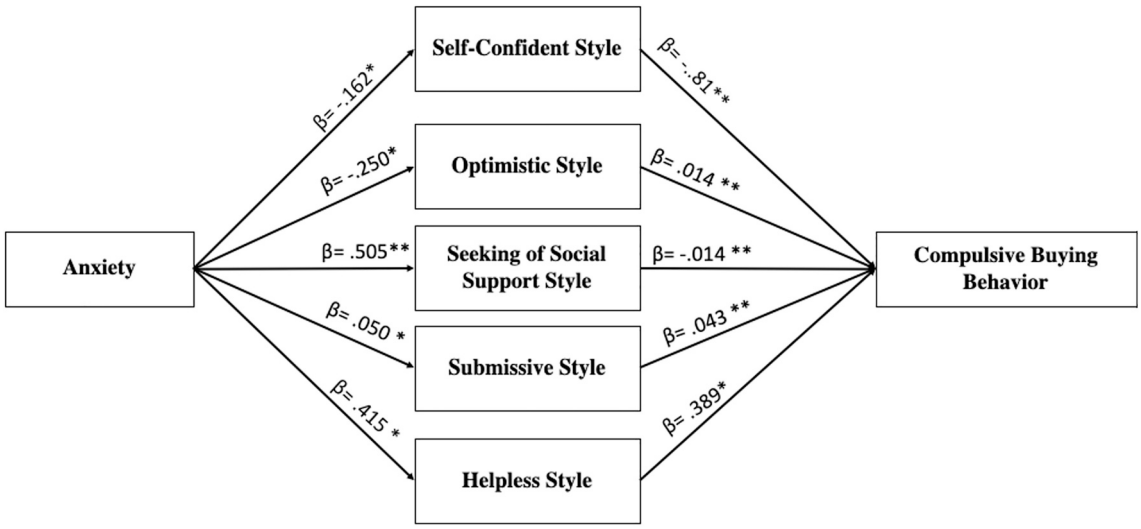

Fig. 2. Simple unmediated model (Model 1).

Table 8
Results of path analyses.

Effects	Model-1 (simple unmediated model)	Model-2 (mediating model)
Anxiety→Self-confident	**−0.162***	**−0.162***
Anxiety→Optimistic	**−0.250***	**−0.250***
Anxiety→Seeking of social support	0.505	0.505
Anxiety→Helpless	**0.415***	**0.415***
Anxiety→Submissive	**0.050***	**0.050***
Self-confident→Compulsive buying behavior	−0.081	–
Optimistic→Compulsive buying behavior	0.014	–
Seeking of social support→Compulsive buying behavior	−0.014	–
Helpless→Compulsive buying behavior	**0.389***	**0.280***
Submissive→Compulsive buying behavior	0.043	–
Helpless→Intolerance of uncertainty	–	**0.403***
Intolerance of uncertainty→Compulsive buying behavior	–	**0.172***

* $p < 0.05$.

statistically significant (β = 0.278 z = 3.35, $p < 0.05$). When the mediating variable was included to the model, in the relationship between mediating variable and dependent variable since $p < 0.05$ and as for the effect of independent variable on dependent variable β coefficients fell from 0.389 to 0.280 it is suggested to take partial mediating effect into account. Accordingly, H3e hypothesis is supported whereas other hypotheses are not supported.

4. Conclusion and implications for theoretical and practice

In this study, the effect of anxiety experienced by consumers due to Covid-19 pandemic on their stress-coping strategies as well as the effect of stress-coping strategies on compulsive buying behavior were explored. Further to these objectives, it was aimed to determine mediating role of intolerance of uncertainty on compulsive buying behavior as one of the stress-coping strategies.

As has been attested termination of production works during COVID-19 process in a myriad of countries, deciding to shrink due to financial ambiguity in the future and layoffs directly impacted economic life. As a result of all these reasons, changes occurred in the income level of individuals and modifications took place in their monthly budget reserved for basic needs, spending and consumption habits. It is seen that some participants have a decrease in their total income level during pandemic process compared to pre-pandemic process and those individuals have difficulty in meeting their basic needs. Similarly, it has been observed that those who do not have any decrease in their income levels have difficulties in meeting their basic needs and therefore took loans or borrowed money. This finding indicates that compared to pre-pandemic process during COVID-19 pandemic a climb in the basic needs of participants was witnessed but conversely there was a backlash in their buying power. It has been demonstrated that the biggest proof of the backlash in their buying power is that despite the rising demand especially for food, cleaning and health products and similar basic needs, there was deficiency of goods in the market and prices of these products escalated outrageously (OECD, 2020). The climb in relation to participants' spending during pandemic process was evaluated with respect to product categories compared to pre-pandemic process. As expected, the

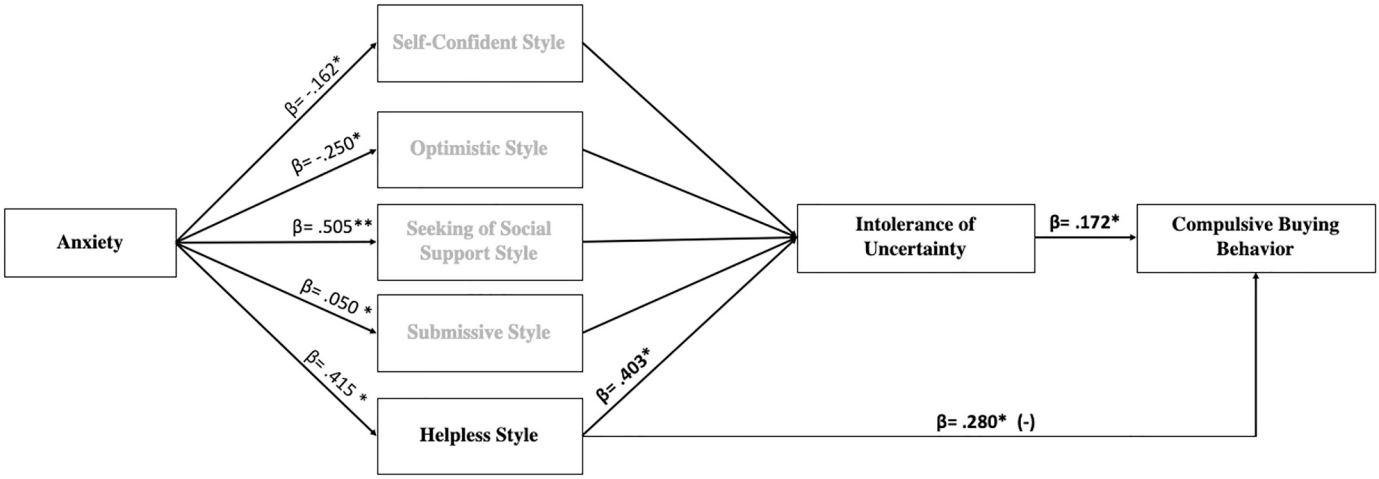

Fig. 3. Mediating model (Model 2).

first category was food products. Additionally, it has been observed that some participants stocked up in this category. At this point, in the face of excessive demand for food and cleaning products, it is suggested that marketing directors in the retail sector develop the kind of strategies to control stockpiling management during such periods of crises. Furthermore it is worth remembering that in such times of uncertainty, unfair high prices labeled to products would not only negatively affect consumers' already-high anxiety level but would also trigger loss of trust for the product/brand.

As we take a closer look at the psychological roots of stockpiling, there has not yet been any consistent literature study on anxiety level. That being said stockpiling is employed as a mediator for people to raise the odds for survival under stress and subdue elevated anxiety level or escape from anxiety itself (Krafft et al., 2020; Tolin et al., 2011). From that point of view in relation to COVID-19 pandemic's effect on mental health the finding exhibited that it significantly climbed individuals' anxiety and depression levels (Salari et al., 2020). Likewise in our study 62.8% (n = 210) of our participants reported that during pandemic process they were inflicted with a critical level of symptoms (GAD7 score > 6) on common anxiety disorder. In addition, it was observed that there was a statistically significant difference from the anxiety levels of the people who stocked by making excessive, compulsive buying behavior (t (332) = 2.06, $p < 0.05$). As a result of the independent groups T-Test, it was concluded that the mean score of those those having bought more than needed (M = 2.62, SD = 0.867) was higher than those consumers not having bought more than needed (M = 2.32, SD = 0.880). From this point of view, anxiety levels that heightened in pandemic process and stockpiling ratios appear to be consistent with literature.

In this research, firstly it was determined that as a result of Covid-19 disease having emerged suddenly and unexpectedly, anxiety in individuals caused negative effect on self-confident approach and optimist approach, which are among stress-coping strategy dimensions of people; yet a positive effect on their helpless approach and submissive approach. It is evident that self-confident or optimist coping strategies failed to save people in a pandemic process; rather they adopted a coping strategy based on helplessness and acceptance. As stated earlier, stress-coping strategies are closely related with past experiences and results of these experiences. Particularly speaking, lower age range of our participants, not having witnessed in near past any large-scale pandemics like COVID-19, ignorance of participants on how to cope in the face of such a mishap could most likely have caused a negative effect on the obtained result. This viewpoint draws a parallel with participants' attempt to solve this process by adopting a helpless and submissive approach. Noting particularly the fact that in COVID-19 stressor is a virus and failure of individuals to directly interfere with the stressor could have surpassed active coping mechanisms. Related studies highlighted that as anxiety level climbed, frequency of using submissive and helpless coping mechanisms correspondingly escalated (Endler and Parker, 1990; Carver et al., 1989).

Secondly, it was attested that in the five-dimensional stress-coping strategy there was a positive effect measured in only compulsive buying behavior of helpless approach whereas not any significant effect was identifiable for other dimensions. In relevant literature, despite the absence of any findings indicating that helpless coping strategy directly augmented compulsive buying behavior, it has still been acknowledged that anxiety respectively escalated the frequency of employing helpless coping strategy(Endler and Parker, 1990; Carver et al., 1989) and prevalence of compulsive buying (Darrat et al., 2016; Davenport et al., 2012). From that perspective, even though helpless coping mechanism is a passive coping strategy, people who resort to this strategy would abstain from acting in a way to directly remove stressor. Rather they would prefer it to somehow alleviate the level of experienced stress and anxiety. One of the maladaptive methods chosen to reduce the level of experienced anxiety is compulsive buying behavior (Sneath et al., 2009). During the ongoing health crisis as a consequence of experienced anxiety and the coping strategy selected as a response to this stress people, as can be argued, would fail to control their purchase behavior and tend to shop more than ever and purchase more goods. In parallel with this finding, in order to detect if during the conditions of pandemic there was any divergence with respect to stress-coping strategy dimensions between those having purchased and not purchased more than actual monthly needs, independent groups t-test was conducted. Results of this test manifested that there was a difference in terms of self-confident attitude dimension (t(332) = 2.44, $p < 0.05$); and the mean score (M = 1.83, SD = 0.654) of those reporting not to have purchased more than needed or stockpiled was relatively higher. Furthermore, between those having bought and could not have bought more than needed, there was also a significant difference in terms of helpless approach dimension (t(332) = 2.44, $p < 0.05$). Nonetheless, it was concluded that mean score of those having bought more than needed (M = 1.95, SD = 0.66) was higher than those consumers not having bought more than needed (M = 1.65, SD = 0.63).

At the end of the analyses conducted to measure mediating effect, we detected that in the effect of helpless attitude which is a stress-coping strategy dimension on compulsive buying behavior, intolerance of uncertainty played a partial mediating role. In line with this finding it is safe to claim that the strategy consumers employed to cope with stress by adopting helpless approach dimension had an indirect effect on their compulsive buying behavior. To put this statement differently, the effect

of the helpless approach dimension on compulsive buying behavior could vary depending on intolerance for uncertainty. This hypothetical finding suggests that Corona pandemic forced the consumers to face uncertainty; and since people feel unsecure about the end date of this disaster they tend to buy excessive quantities of products under the influence of an extreme, uncontrollable and repeated drive to buy; which is reportedly a means to save on their basic needs. Besides, supply disruption which refers to any reduction in the regular supply of products in supply chain has been a common scenario experienced during calamities or other unforeseen disasters (Shou et al., 2013) which could explain consumers' motive to engage in higher levels of purchase behavior. In accordance with this proposal it is suggested that marketing directors in the sector pay more attention to supply chain management during this process and conduct analyses that could address the needs of consumers in a timely fashion.

In this study, the compulsive purchasing behaviors of individuals, who are essentially consumers, in both psychology and business disciplines, which are social sciences, were discussed with an interdisciplinary perspective. For this reason, the conclusions that will be supported in addition to their own literature in both disciplines contribute to the view of the theories from a wider perspective. In addition, it was seen that both the anxiety level and the dimensions of coping with stress are the processor variables that affect the compulsive buying behavior. These results are thought to contribute to the development of marketing discipline and marketing literatur.

5. Limitations and further research

The study has some restrictions, as it is the case with every research. The convenience sampling technique was used for the selection of the sample and the survey was conducted online. Besides, there is a small sample size. The foremost is the homogeneity of the sampling group. In addition, knowing the fact that COVID-19 pandemic directly affected millions of people globally and indirectly affected even higher ratios of people psychologically, it can be argued that sampling quantity may be inadequate for representation. Consequently, it should be acknowledged that the findings of this study cannot be generalized.

In general, this study recommends that there is a need for further and deeper research to be conducted on the factors that influence consumers'attitudes or behavior towards epidemic diseases especially Covid 19. Further research should be conducted to investigate the issue in greater depth by examining wider geographic areas. Furthermore, collaboration with sectors such as retailers will be needed in order for future research to reach a much larger number of consumers/participants within the target population and future researchers should obtain data from random sampling methods.

As was already noted in the introduction part, there is a wide range of adaptive and maladaptive mechanisms to deal with anxiety and cope with stress. In here we have only analyzed five basic mechanisms and compulsive buying behavior. Hence it is suggested that future studies elaborate what kind of a change could emerge in other coping strategies.

Role of funding sources

The author(s) received no specific funding for this work.

Declaration of competing interest

We have no known conflict of interest to disclose.

Acknowledgements

The study was ethically approved by Turkish Ministry of Health Scientific Research Platform and Zonguldak Bulent Ecevit University Non-Interventional Clinical Trials Ethics Committee.

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