

CONSUMER BEHAVIOR DURING THE COVID-19 PANDEMIC: THE IMPORTANCE OF COLLECTIVIST ORIENTATION

PONAŠANJE POTROŠAČA ZA VRIJEME PANDEMIJE COVID-19: VAŽNOST KOLEKTIVISTIČKE ORIJENTACIJE

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Dora Gaćeša^a, Ružica Brečić^b, Matthew Gorton^c

^a University of Zagreb, Faculty of Economics & Business, Trg J. F. Kennedyja 6, 10000 Zagreb, CROATIA, e-mail: dgacesa@net.efzg.hr

^b University of Zagreb, Faculty of Economics & Business, Trg J. F. Kennedyja 6, 10000 Zagreb, CROATIA, e-mail: rbutigan@net.efzg.hr

^c Newcastle University, Newcastle University Business School, 5 Barrack Rd, Newcastle upon Tyne, UK, e-mail: matthew.gorton@newcastle.ac.uk

Abstract

Purpose – The COVID-19 pandemic changed people's patterns of work and consumption substantially. This paper examines how cultural orientations and personality traits relate to adjustments in consumer behavior during COVID-19. Specifically, it considers whether individualism/collectivism, neuroticism, and collective self-esteem can help explain local food buying and stockpiling behavior.

Design/Methodology/Approach – A total of 187 consumers participated in this research, with data collection taking place during the first COVID-19 lockdown in Croatia from March to May 2020.

Findings and implications – Consumers with higher horizontal collectivism engaged in local food buying more than those with lower horizontal collectivism. Horizontal collectivism and, to a lesser extent, neuroticism predicted stockpiling behavior. Collective self-esteem moderated the relationship between horizontal collectivism and stockpiling, and between neuroticism and

Sažetak

Svrha – Pandemija COVID-19 bitno je promijenila obrascе rada i potrošnje ljudi. Ovaj rad ispituje kako su kulturnološke orijentacije i osobine ličnosti povezane s prilagodbama u ponašanju potrošača tijekom pandemije COVID-19. Konkretno, rad razmatra mogu li individualizam/kolektivizam, neuroticizam i kolektivno samopouzdanje pomoći u objašnjenju ponašanja kao što su kupovanje lokalne hrane i gomilanje zaliha.

Metodološki pristup – U ovom je istraživanju sudjelovalo 187 potrošača. Podaci su prikupljeni tijekom prvog trajanja mjere ograničenog kretanja (engl. lockdown) u Hrvatskoj od ožujka do svibnja 2020.

Rezultati i implikacije – Potrošači s višim horizontalnim kolektivizmom sudjelovali su u kupovini lokalne hrane više od onih s nižim horizontalnim kolektivizmom. Horizontalni kolektivizam i, u manjoj mjeri, neuroticizam predviđali su ponašanje gomilanja zaliha. Kolektivno samopouzdanje moderiralo je odnos između horizontalnog kolektivizma i gomilanja zaliha te neuroticizma i

local food buying. Fostering a sense of collective identity and emphasizing collectivist values may be a fruitful marketing strategy as a response to marketplace disruptions during a crisis.

Limitations – The study draws on a convenience sample of students and their household members, thereby limiting the generalizability of the study.

Originality – This paper uncovers the ways in which socio-cultural and personality-related psychological constructs relate to local food buying and stockpiling behavior while also highlighting the importance of cultural orientation for explaining consumer behavior during a major crisis.

Keywords – collectivism, neuroticism, stockpiling, local food buying, COVID-19

kupovine lokalne hrane. Poticanje osjećaja kolektivnog identiteta i naglašavanje kolektivističkih vrijednosti može biti plodna marketinška strategija kojom se odgovora na poremećaje na tržištu tijekom krize.

Ograničenja – Istraživanje se oslanja na prigodan uzorak studenata i članova njihovih kućanstava čime se ograničava generalizacija rezultata.

Doprinos – Ovaj rad otkriva kako su sociokulturni i psihološki konstrukti vezani uz osobnost povezani s ponašanjem kao što su kupovanje lokalne hrane i gomilanje zaliha te naglašava važnost kulturološke orijentacije u objašnjenju ponašanja potrošača tijekom velike krize.

Ključne riječi – kolektizam, neuroticizam, gomilanje zaliha, kupovanje lokalne hrane, COVID-19

1. INTRODUCTION

The COVID-19 pandemic is a macro crisis caused by factors external to individuals and their families. The pandemic created pressures and disruptions for people all around the world, dramatically changing how they work, interact, shop, and spend their leisure time (Kirk & Rifkin, 2020). Although populations worldwide have suffered similar disruptions and pressures, their consumer behavior has changed in different ways (Murphy et al., 2021). Understanding why people react differently to the same external crisis is important for marketing researchers and practitioners to be able to better react to similar situations in the future (Laato, Islam, Farooq & Dhir, 2020). The present paper approaches this question from the perspectives of marketing and also of psychology, given that the pandemic has created an uncertain, trying situation for which consumers need to develop coping mechanisms (Falchetti, Canniatti Ponchio & Poli Botelho, 2016).

The various COVID-19 measures imposed by governments, including lockdowns, strongly altered consumer behavior (Wang, An, Gao, Kiprop & Geng, 2020). Many consumers stockpiled products (Chenarides, Grebitus, Lusk & Printezis, 2020) in order to ensure adequate home supplies before store shelves became bare (Rizwan, Streimikiene, Rolle & Duc, 2020). Some consumers altered their purchases to prioritize cooking at home and making things from scratch to avoid restaurants and food delivery services (Kirk & Rifkin, 2020). Many began to shop for food online to avoid having to visit physical stores (Chenarides et al., 2020; Sheth, 2020) or they began to buy food from small neighborhood stores instead of large supermarket chains (Hobbs, 2020).

In many countries, the pandemic and lockdown conditions also altered the public mood and sentiments towards others. This included deeper reflections on the importance of family and local communities. However, not all consumers have reacted to the pandemic and the

government-imposed measures in the same way. Hence, the aim of this paper is to understand individual differences in consumer behavior during a crisis. In doing so, we address the following two gaps in previous work. First, a pandemic on the scale of COVID-19 has not been seen in a century, so there is a lack of empirical research that seeks to explain the differences in consumer behavior during such a worldwide crisis. Second, there is little evidence of the ways in which cultural orientations and personality traits are associated with stockpiling behavior and local food purchases during a pandemic. Hypotheses are tested, drawing on data for Croatia.

In this paper, the introductory part is followed by a review of relevant theoretical background on behavioral changes in consumers during previous crises. Then, the context of the present research and theories underpinning the hypotheses are described. Afterwards, data collection methods and results are reported. Finally, theoretical and practical implications are outlined, followed by limitations and directions for future research.

2. THEORETICAL BACKGROUND AND HYPOTHESIS DEVELOPMENT

People's responses to common external shocks vary, and a major objective of research in psychology is to explain such variations in consumer behavior (Prentice, Quach & Thaichon, 2022). For instance, at the outset of the COVID-19 pandemic, some consumers began to panic buy and stockpile food supplies (Kirk & Rifkin, 2020; Wang et al., 2020). However, other consumers did not alter their purchasing patterns (Prentice et al., 2022). In explaining these differences, extant research focuses largely on individual differences in psychological traits, but cultural factors may also be important.

Cultural factors may be particularly important in explaining variations in behavior towards others

in the same society who are not blood related (de Mooij & Hofstede, 2011). For instance, faced with a common, externally driven threat, such as a pandemic, some consumers may seek to help their fellow citizens, but others may not feel any such obligation. One way in which consumers can help others in their community is to buy locally. While the “local marketplace” has yet to be rigorously defined (Morris & Buller, 2003), studies typically regard local food buying behavior in terms of where the food is produced, sold, and consumed – either actually or according to consumers’ perceptions (Megicks, Memery & Angell, 2012; Pearson et al., 2011). In the present study, local food buying is defined as the instances in which consumers purchase food that they perceive to be locally produced.

To better understand individual differences in stockpiling and local food buying, this paper focuses on three distinct but interrelated psychological constructs: (a) “individualism/collectivism”, which is a cultural orientation; (b) “neuroticism”, which represents an aspect of personality; and (c) “collective self-esteem”, a personality trait deeply rooted in one’s cultural orientation. The rest of this literature review outlines each construct in turn, introducing appropriate hypotheses.

Individualism/Collectivism

Cultures differ along several dimensions, one of the more prominent of which is the position along the individualism–collectivism continuum (de Mooij & Hofstede, 2011). The fundamental distinction between individualism and collectivism can be illustrated by asking whether people perceive themselves more as an “I” or a “We” (Sivadas, Bruvold & Nelson, 2008). In an individualist society, people perceive themselves as independent individuals who act according to their own beliefs. In collectivist societies, people report being more dependent on their group and act according to group norms (Triandis, 1995). In order to describe behavioral patterns more fully, Triandis and Gelfand (1998) suggest analyzing four dimensions: “horizontal

individualism” (HI), in which autonomous individuals do not differ in status but rather believe that everyone in the group is equal; “vertical individualism” (VI), in which autonomous individuals are aware of inequality and strive for status; “horizontal collectivism” (HC), in which individuals do not aspire towards status, instead emphasizing equality of all group members; and “vertical collectivism” (VC), in which the group members are interdependent yet differ in status.

The present study involved consumers in Croatia, which is a collectivist country as measured on Hofstede’s continuum from collectivism to individualism. Specifically, in 2020, Croatia scored 33 on Hofstede’s continuum, compared to the less collectivist Japan (46) and the individualist UK (89) (Hofstede Insights, 2020). It is also a parliamentary democracy that emphasizes the importance of equality and fairness. Therefore, it is hypothesized that the predominant cultural orientation in this sample would be horizontal collectivism.

The pandemic and associated measures called on consumers to sacrifice their individual needs in order to protect and enhance the welfare of the group. Since people with a horizontal collectivist orientation value benevolence and assisting others (Torelli & Shavitt, 2010), it may be expected that the level of horizontal collectivism would affect the degree to which individuals modify their own behavior for the benefit of wider society. Since collectivist societies favor products from their own country, whereas individualist societies favor foreign products (Shavitt & Cho, 2016), the first hypothesis is proposed as follows:

H1: Consumers with higher horizontal collectivism buy more local food than consumers with lower horizontal collectivism.

Neuroticism

In addition to cultural orientation, individual personality traits also influence consumer behavior. Stressful events, including major crises such as the COVID-19 pandemic, may alter

consumers' preferences and behavior differently depending on their personality (Sneath, Lacey & Kennett-Hensel, 2009). In particular, negative life events have been linked to increases in neuroticism (Jeronimus, Riese, Sanderman & Ormel, 2014), which is one of the "Big Five" personality traits. Individuals with high neuroticism tend to experience anxiety, fear, stress, agitation, and loneliness (John & Srivastava, 1999), whereas those low in neuroticism tend to remain calm (Roccas, Sagiv, Schwartz & Knafo, 2002). It stands to reason that the COVID-19 pandemic and related government measures, including lockdowns, heightened psychological distress, particularly among individuals high in neuroticism.

The COVID-19 pandemic has caused many to consider how their behavior impacts on society (Krings, Steeden, Abrams & Hogg, 2021). Stressful and disruptive situations may trigger consumers with high levels of neuroticism to stockpile since they possess a lower ability to adapt to new situations (Dammeyer, 2020). Furthermore, people's sense of self can be divided into personal and social identity components (Turner, 1985), and one or the other component may predominate depending on the circumstances (Onorato & Turner, 2004). As the pandemic has given greater salience to social identity than to individual identity (Krings et al., 2021), it may lead people to stockpile food in order to fulfil the needs of family and local contacts. We hypothesize that these behaviors would be stronger among those with higher horizontal collectivism and that there will be a stronger relationship between stockpiling and cultural orientation than neuroticism as a personality trait. That is:

H2: Stockpiling is related more strongly to horizontal collectivism than to neuroticism.

Collective self-esteem

Collective self-esteem, a concept that grew out of social identity theory (Tajfel & Turner, 1979), describes an individual's self-worth based on his or her belonging to an in-group with which the individual shares norms and values (Luhtanen & Crocker, 1992). Collective self-esteem depends on

individuals' personal identities, based on beliefs of their own abilities (Tajfel & Turner, 1979); and on collective identity, which derives "from their membership in a social group (or groups) together with the value and emotional significance attached to that membership" (Tajfel, 1981, p. 255).

The present study evaluated collective self-esteem using implicit measures, which is an approach well-established in psychology but rarely used in marketing (Greenwald & Farnham, 2000; Yamaguchi et al., 2007). Self-esteem has historically been evaluated on the basis of self-report, where respondents are typically aware that they are responding to measures of positive self-regard. As a result, self-report measures may reveal less about self-esteem and more about how individuals manage their image towards others (Paulhus, 2002). To avoid this self-presentation distortion, self-esteem can be evaluated using the Implicit Association Test (IAT; Greenwald & Farnham, 2000; Greenwald, McGhee & Schwartz, 1998), which aims to bypass conscious cognitive processes and access automatic ones (Fazio & Olson, 2003). Insights from the IAT can predict behavior in social contexts, such as intergroup behavior (Greenwald, Poehlman, Uhlmann & Banaji, 2009). Therefore, the present study assessed collective self-esteem using implicit measurements on an IAT adapted for collective implicit self-esteem.

The influence of horizontal collectivism and neuroticism on consumer behavior may be moderated by a personality trait rooted in culture, i.e., collective self-esteem. Individuals with higher collective self-esteem feel a stronger connection with the group to which they belong (Luhtanen & Crocker, 1992), so they may be more likely to act in order to secure food supplies for their family and to help local producers from their environment. Therefore, we predicted that high collective self-esteem would strengthen the relationships of collectivism and neuroticism with stockpiling and local food buying. In other words:

H3: Collective self-esteem moderates the relationships of horizontal collectivism and neuroticism with stockpiling and local food buying.

3. METHODS

The Croatian government imposed a strict lockdown in spring 2020 in response to the global spread of COVID-19. Most commercial activity and nearly all hospitality activity had ceased by mid-March, and people's movements were restricted from March 29 until the beginning of May. Data were collected from a convenience sample of university students and their household members between April 21 and April 30, 2020. The students received course credit in exchange for their participation. In total, 187 respondents (131 female) with a mean age of 23.56 years ($SD = 7.72$) participated in the research. All respondents gave written consent for their data to be utilized. To broaden the generalizability of the results, a shopper-type variable representing respondents who are primarily responsible for food shopping ($n = 60$), who are partially responsible for food shopping ($n = 84$), as well as those who are not ($n = 43$) was included.

Measures

An online survey was conducted, with each respondent completing four self-report measures and one implicit measure.

Individualism/Collectivism

Individualism/collectivism were measured using 14 of the original 32 items of the INDCOL scale (Sivadas et al., 2008). This scale captures four dimensions of horizontal and vertical collectivism (four items each) as well as horizontal and vertical individualism (three items each; $\alpha = .711$). For each item, respondents rated their agreement with the statements provided on a 7-point Likert scale ranging from 1 ("strongly disagree") to 7 ("strongly agree"). Sample statements were "I am a unique individual" (horizontal individualism), "I enjoy working in situations involving competition with others" (vertical individualism), "My happiness depends very much on the happiness of those around me" (horizontal collectivism), and "I usually sacrifice my self-interest for the benefit of my group" (vertical collectivism).

The ratings for all the items of one dimension were averaged to yield a subscore for that dimension. The total score was obtained by summing the subscores for the four dimensions.

Neuroticism

Neuroticism was measured using the Neuroticism Subscale from the Big Five Inventory (John & Srivastava, 1999). The scale consists of eight items ($\alpha = .849$) describing how tense, moody, or anxious respondents perceive themselves to be. Respondents rated how much they agreed with the statements provided on a 7-point Likert scale from 1 ("strongly disagree") to 7 ("strongly agree"). Sample statements were: "I see myself as someone who is depressed, blue", and "I see myself as someone who remains calm in tense situations." Three items were reverse-coded. The final score for neuroticism was calculated as an average of all items (Table 1). Thus, greater values indicated that respondents were more prone to neuroticism.

Collective Implicit Self-Esteem

Collective implicit self-esteem was measured using a version of the original IAT (Greenwald et al., 1998) adapted for collective implicit self-esteem (Yamaguchi et al., 2007). The IAT is a sorting task that requires respondents to rapidly sort stimuli belonging to four categories using only two responses. Respondents are expected to sort the items faster and with fewer errors when they mentally associate two paired categories than when they do not. The IAT in the present study presented respondents with two target categories ("me" and "we") and two attribute categories ("pleasant" and "unpleasant").

The collective self-esteem IAT consisted of seven separate categorization tasks, called blocks. In each block, stimuli were presented in the middle of the screen and respondents sorted them into categories by pressing the "D" or the "K" key. The first two tasks were practice blocks. Category labels were presented on the left and right side of the screen as continuous reminders: for example, in the first block, "me" was

placed on the left side and “we” on the right; in the second block, “pleasant” was placed on the left and “unpleasant” on the right. The first two practice blocks (20 trials each) familiarized respondents with the categories and stimuli used in the test. In the third block, the two earlier tasks were paired together into a combined task for practice: one pair was “me” and “pleasant”, the other pair was *we* and *unpleasant*. This block consisted of 20 trials. The fourth block (40 trials) presented the combined task as the actual test, before which respondents were asked to sort stimuli as quickly and accurately as possible. The fifth block was another practice block in which the “pleasant” and “unpleasant” categories switched sides. The sixth block was a combined task for practice in which the pair of two categories shared the same response key (e.g., one pair was “me” and “unpleasant”). The seventh block was the final combined task as the actual test, in which respondents were asked to sort stimuli into paired categories as quickly and accurately as possible. The order of the left-right assignments of target categories and the order of combined task blocks were counterbalanced across subjects.

Respondents with higher collective implicit self-esteem were hypothesized to have a stronger mental association between “we” and “pleasant”, so they were expected to respond faster when “we” and “pleasant” were paired together. Conversely, respondents with lower collective implicit self-esteem were hypothesized to have a stronger mental association between “me” and “pleasant”, so they were expected to respond faster when “me” and “pleasant” were paired together.

Raw IAT scores were converted into *D*-scores, a standardized effect size for measuring association strength (Greenwald, Nosek & Banaji, 2003). The *D*-score was computed in two steps (Greenwald et al., 2003). First, the difference in average response times to complete each combined task block (practice + test) was calculated. Second, this difference was divided by the weighted average of the standard deviation for all four

combined task blocks. Positive scores indicated a stronger “we = pleasant” association, while negative scores indicated a stronger me = pleasant association. A score of 0 indicated an equally strong association of “me” and “we” with “pleasant”. The Cronbach’s alpha coefficient for collective implicit self-esteem was $\alpha = .835$.

Any respondent answering too quickly (< 300 ms) or too slowly (> 10,000 ms) in more than 10% of the trials was excluded from the analysis. Respondents were also excluded if they made too many errors on too many trials, with an overall error rate > 35% (Cvencek, Meltzoff & Greenwald, 2011).

Stockpiling

To evaluate stockpiling behavior during the pandemic, respondents answered *yes* or *no* to 14 statements ($\alpha = .749$) preceded by the question, “Which of the following stockpiling activities have you done since the coronavirus outbreak?” The sample statements for stockpiling were, for example, “bought more eggs” and “bought more sweets.” “Yes” answers were scored as 1, with “no” scored as 0. The scores for the 14 items were averaged to yield a score for stockpiling (Table 1).

Local Food Buying

To evaluate local food buying behavior during the pandemic, respondents were required to answer *yes* or *no* to four statements ($\alpha = .861$) preceded by the overall question, “Which of the following actions have you done since the coronavirus outbreak?” Statements for local food buying included, for instance, “I bought more local food because I want to help local producers.” Responses were scored as for stockpiling, and the scores for the four items were averaged to yield a score for local food buying (Table 1).

Common Method Bias

Since our data are cross-sectional in nature, we tested to see whether Common Method Variance (CMV) might be problematic (Fuller,

Simmering, Atinc, Atinc & Babin, 2016). CMV refers to the degree of shared statistical variance caused by the nature of the survey measurement method rather than the constructs that the items represent. To minimize Common Method Bias, we assured respondents of anonymity, pre-tested questions to avoid ambiguity, and used widely verified measures taken from the literature to measure psychological constructs. Post-hoc, we carried out Harman's single factor test with each item in the neuroticism and individualism/collectivism scales specified to load on one single factor. This single factor explained only 16.21% of the variance, indicating that CMV in our data does not occur at a biasing level. In addition, we undertook an Unmeasured Latent Method Construct test, which indicated that the shared variance between the method and the substantive constructs was only 2.25%.

Convergent Validity and Discriminant Validity Analysis

To further explore the data, we undertook Exploratory Factor Analysis (EFA), including all items measuring neuroticism and horizontal collectivism, followed by Confirmatory Factor Analysis (CFA). After removing two items from the neuroticism scale, the EFA yielded a two-factor solution, with all remaining neuroticism items loading on one factor and horizontal collectivism on the other. We ran CFA to assess Convergent Validity and Discriminant Validity, using STATA software and the CONDISC plugin (Mehmetoglu, 2015). For convergent validity, we followed the approach of Fornell and Larcker (1981) based on Average Variance Extracted (AVE). Convergent validity is demonstrated when 50% (.50) or more of factor variance is extracted. This was the case for both constructs (values of .504 for neuroticism and .619 for horizontal collectivism). Discriminant validity assumptions were satisfied given that the AVE for each factor was greater than its squared correlation between the pair of constructs (.07).

Data Analysis

For the purpose of hypotheses testing, data were analyzed in five stages. First, the mean values for the four dimensions of individualism/collectivism were compared using paired-sample *t* tests in order to determine which dimensions predominated in the sample. Second, potential relationships of neuroticism or horizontal collectivism with stockpiling and local food buying were explored using independent-samples *t* tests after stratifying the sample into those with "lower" or "higher" neuroticism or horizontal collectivism based on the respective median values of 3.57 or 5.63. Mean neuroticism (SD) was 4.55 (.77) in the higher neuroticism group, and 2.70 (.63) in the lower neuroticism group. Mean horizontal collectivism (SD) was 4.93 (.71) in the lower horizontal collectivism group, and 6.16 (.37) in the higher horizontal collectivism group.

Third, building on the previous step, hierarchical regression analyses were conducted to examine whether horizontal collectivism helped explain the observed stockpiling and local food buying behaviors beyond what neuroticism explained. The dependent variable was stockpiling in one hierarchical regression, and local food buying in another regression. Neuroticism was the predictor in Step 1, while horizontal collectivism was the predictor in Step 2.

Finally, to test whether collective implicit self-esteem moderated the relationships of horizontal collectivism and neuroticism with stockpiling and local food buying, four separate 3-step hierarchical regressions were conducted. In one 3-step hierarchical regression, the predictors were demographic variables in Step 1, horizontal collectivism and collective self-esteem in Step 2, and the interaction between horizontal collectivism and collective self-esteem in Step 3. Another 3-step hierarchical regression was performed in the same way, except that neuroticism replaced horizontal collectivism.

4. RESULTS

Horizontal and Vertical Individualism/Collectivism

The sample consisted of 187 consumers (131 women) in Croatia with a mean age of 23.56 years ($SD = 7.72$). In this sample, 60 respondents indicated that they were the primary individual responsible for food shopping for the household, 84 shared the responsibility for food shopping with others, and 43 had no responsibility for food shopping. After excluding

11 respondents because they met the exclusion criteria for raw IAT response times (section 4.1.3), a sample of $N = 176$ (126 female) was analyzed.

Only the mean for horizontal collectivism was significantly higher than the means for other dimensions of individualism/collectivism (t values > 3.95 , $p < .001$; Table 1). This finding is consistent with the notion that Croatia is a collectivist society, primarily characterized by a cultural orientation of horizontal collectivism. Therefore, subsequent analyses of cultural orientation focused solely on the horizontal collectivism dimension.

TABLE 1: Descriptive Statistics for All Dependent and Independent Variables

Variable	Mean	Standard Deviation	Range
Neuroticism (NEU)	3.68	1.17	5.50
Horizontal Collectivism (HC)	5.62	.82	5.00
Horizontal Individualism (HI)	5.25	1.07	5.00
Vertical Collectivism (VC)	4.44	1.03	4.75
Vertical Individualism (VI)	4.73	1.07	5.00
Collective Implicit Self-Esteem (CISE)	-.42	.36	1.77
Stockpiling	.36	.21	1.00
Local Buying	.55	.42	1.00

Note: $N = 176$

Neuroticism

Consumers higher in neuroticism engaged in stockpiling more than those lower in neuroticism [$t(174) = 2.04$, $p = .043$]. This result supports our hypothesis. In contrast, the level of neuroticism did not appear to correlate with local food buying ($p > .82$).

Relationships of Neuroticism and Horizontal Collectivism with Stockpiling and Local Food Buying

The level of horizontal collectivism showed a positive correlation with local food buying [$t(174) = 2.16$, $p = .032$] and stockpiling [$t(174) = 2.32$, $p = .021$]. The latter supports the hypothesis that consumers higher in horizontal collectivism, compared to those lower in horizontal collectivism, will stockpile food more.

The preceding analyses showed that consumers who were (a) higher in horizontal collectivism

and (b) higher in neuroticism tended to engage in more stockpiling behavior. What remained to be seen was whether horizontal collectivism related to stockpiling more strongly than neuroticism. To explore whether horizontal collectivism increased the ability to predict these behaviors beyond what neuroticism predicts, separate 2-step regressions with stockpiling and local food buying as dependent variables were conducted. Neuroticism was entered as a predictor in Step 1, and horizontal collectivism as a predictor in Step 2. Step 1 revealed no main effect of neuroticism on stockpiling ($\beta = .13$, $p > .05$) or local food buying ($\beta = -.05$, $p > .05$; Table 2). In Step 2, horizontal collectivism was capable of extending predictive power beyond neuroticism in the case of stockpiling ($\beta = .17$, $p < .05$) and local food buying ($\beta = .23$, $p < .01$). These results support the second hypothesis that horizontal collectivism is related more strongly to stockpiling than neuroticism.

TABLE 2: Hierarchical Regression to Examine Relationships of Neuroticism and Horizontal Collectivism with Stockpiling and Local Food Buying

Step	Predictor	Stockpiling			Local food buying		
		ΔR^2	<i>B</i> (SE)	β	ΔR^2	<i>B</i> (SE)	β
1	Neuroticism	.02	.02 (.01)	0.13	.00	-.02 (.03)	-0.05
2	Horizontal Collectivism	.03	.04 (.02)	0.17*	.05	.12 (.04)	0.23**

Note: ** $p < .01$. * $p < .05$

Moderating Effect of Collective Implicit Self-Esteem

Participants exhibited low collective implicit self-esteem, reflected in negative IAT scores that differed significantly from 0 [$t(175) = 15.12$, $p < .001$]. In other words, the association “me = pleasant” was stronger than the association “we = pleasant”. Four hierarchical regressions were conducted to test whether collective implicit self-esteem moderated the relationships of horizontal collectivism and neuroticism with stockpiling and local food buying (Table 3).

When stockpiling was entered as a dependent variable and demographic variables (participation in household shopping, income, age, and current employment status) were entered in Step 1, the demographic variables accounted for 7.6% of the variance in stockpiling. Only current employment status on its own was significant in predicting stockpiling ($p = .046$). When horizontal collectivism and collective implicit self-esteem were entered in Step 2, horizontal collectivism emerged as a significant predictor of stockpiling ($p = .037$), but collective implicit self-esteem did not ($p = .788$). Entering an interaction term between horizontal collectivism and collective implicit self-esteem in Step 3 accounted for an additional 5.6% of the variance in stockpiling [$\Delta R^2 = .06$, $\Delta F(1, 82) = 5.58$, $p = .021$].

Next, the 3-step hierarchical regression was repeated but using local food buying as a dependent variable and neuroticism as a predictor. In Step 1, the same demographic variables as above were included. Only participation in household shopping on its own was significant in predicting local food buying ($p = .033$). Entering neuroticism and collective implicit self-esteem in Step 2 did not account for significantly more variance in local food buying [$\Delta R^2 = .01$, $\Delta F(2, 83) = .41$, $p = .67$]. In contrast, entering an interaction term between neuroticism and collective implicit self-esteem in Step 3 accounted for an additional 6.7% of the variance in local food buying [$\Delta R^2 = .07$, $\Delta F(1, 82) = 6.53$, $p = .012$].

The interaction of consumers’ collective implicit self-esteem and their level of horizontal collectivism significantly predicted stockpiling behavior. This suggests that consumers higher in both horizontal collectivism and collective implicit self-esteem engaged more in stockpiling. In addition, the interaction of collective implicit self-esteem and the level of neuroticism significantly predicted local food buying, so those higher in both neuroticism and collective implicit self-esteem engaged more in local food buying. These results supported partially the hypothesis that collective self-esteem moderates the relationships of horizontal collectivism and neuroticism with stockpiling and local food buying.

TABLE 3: Hierarchical Regression to Examine the Moderating Role of Collective Implicit Self-Esteem in Relationships of Neuroticism and Horizontal Collectivism with Stockpiling and Local Food Buying

Step	Predictor	Dependent Variable					
		Stockpiling			Local food buying		
		ΔR^2	B (SE)	B	ΔR^2	B (SE)	β
1	Shopper Type	.08	0.02 (0.03)	0.06	.08	0.13 (0.06)	0.23*
	Income		> -0.001 (< 0.001)	-0.02		< 0.001 (< 0.001)	0.11
	Age		-0.00 (0.00)	-0.06		0.00 (0.01)	0.03
	Employment Status		-0.07 (0.03)	-0.27*		0.04 (0.07)	0.06
2	HC	.05	0.05 (0.03)	0.22*	.06	0.11 (0.05)	0.22*
	CISE		0.02 (0.06)	0.03		0.09 (0.11)	0.09
3	HC × CISE	.06	0.16 (0.07)	1.75*	.00	-0.08 (0.14)	-0.41
1	Shopper Type**	.08	0.02 (0.03)	0.06	.08	0.13 (0.06)	0.23*
	Income		> -0.001 (< 0.001)	-0.02		< 0.001 (< 0.001)	0.11
	Age		-0.00 (-0.00)	-0.06		0.00 (0.01)	0.03
	Employment Status		-0.08 (0.03)	-0.24*		0.04 (0.07)	0.06
2	NEU	.04	0.04 (0.02)	0.20	.01	0.02 (0.04)	0.05
	CISE		0.03 (0.06)	0.06		0.10 (0.12)	0.09
3	Neuroticism × CISE	.04	-0.10 (0.05)	-0.75	.07	-0.26 (0.11)	-1.04*

Note: * $p < .05$. **Respondents were asked whether they held no, partial, or full responsibility for food shopping for their household.

5. DISCUSSION

Understanding how consumers adjust their behavior during an externally caused crisis such as the COVID-19 pandemic is important for marketing practitioners and researchers alike. In this paper, the role of cultural and individual psychological constructs in explaining stockpiling and local food buying behaviors during the pandemic was examined on a sample of Croatian consumers. Three novel findings emerged. First, consumers with higher horizontal collectivism engaged in local food buying more than did consumers with lower horizontal collectivism. Second, horizontal collectivism influenced stockpiling behavior more strongly than neuroticism did. Finally, collective implicit self-esteem moderated the relationships between horizontal collectivism and stockpiling, and between neuroticism and local food buying.

Horizontal Collectivism and Local Food Buying

The pandemic stimulated consumers to engage in local food buying to a greater extent; this impetus has likely found more fertile ground in horizontal collectivist societies, where sociability and caring for one’s family and close community are generally assigned more value than in individualist societies (Shavitt & Cho, 2016). Indeed, the authors found on this sample that consumers higher in horizontal collectivism engaged more in local food buying, which is a way to demonstrate solidarity with, and support of, other members of the same society (Birch, Memery & De Silva Kanakarathne, 2018). The pandemic heightened consumer patriotism in many European countries (Lider Media, 2020), and these results suggest that Croatia is no exception.

Horizontal Collectivism Related to Stockpiling More Strongly Than Neuroticism

To maintain regular levels of supply in the marketplace, it is important to understand the stockpiling behavior encouraged by the pandemic. Results indicate that consumers higher in horizontal collectivism stockpiled more than did consumers lower in horizontal collectivism. The idea that group-oriented consumers may stockpile to provide for their extended family and neighbors in uncertain times is contrary to the assumption that stockpiling arises purely from selfishness (Garbe, Rau & Toppe, 2020) and provides insight into the reasons for this behavior from a cultural perspective. While stockpiling may be motivated by the need to ensure necessary supplies for in-groups, it can have negative consequences, including short-term product shortages, product waste, and price rises (Wang et al., 2020).

As indicated by the sample in this study, stockpiling was also related to neuroticism, an important Big Five personality trait. Consumers with higher levels of neuroticism engaged in stockpiling more than did consumers with lower levels of neuroticism. These results support the importance of neuroticism as a personality construct for explaining stockpiling (Dammeyer, 2020; Dozier & DeShong, 2022).

While both horizontal collectivism and neuroticism related to stockpiling behavior in this sample, horizontal collectivism was the more important driver. This suggests that cultural orientation may be of greater relevance than individual personality traits when seeking to explain stockpiling. These results suggest that attributing stockpiling behavior simply to a personal fear of shortages may be simplistic; rather, it is also important to consider the individual's cultural orientation. This is in accordance with self-categorization theory, which considers social identity to be more important than personal identity in certain situations, such as externally caused crises (Onorato & Turner, 2004).

Collective Implicit Self-Esteem Moderates the Relationships of Horizontal Collectivism and Neuroticism with Stockpiling and Local Food Buying

The relationship between horizontal collectivism and stockpiling was found to depend on the level of collective implicit self-esteem: the relationship was positive among the respondents with higher collective implicit self-esteem, but negative for those with lower collective implicit self-esteem. This further illustrates the importance of cultural orientation – more precisely, the collectivist dimension – in explaining stockpiling. Individuals who are high in collective implicit self-esteem may be protective of their group and feel the need to protect their collective identity, especially when the group faces a collective threat (Crocker & Luhtanen, 1990).

Although a direct relationship between neuroticism and local food buying was not detected, the two variables interacted in a way that depended on collective implicit self-esteem. These results suggest that being neurotic by itself may not significantly influence local food buying in a crisis, yet it can interact with broader social considerations to influence buying. This is consistent with the notion of two types of shopping motivation: one is self-centered and focuses on a positive impact for oneself; the other is selfless and focuses on a positive impact for the community (Birch et al., 2018). Presumably, the latter is more important for consumers high in collective implicit self-esteem, which may lead to greater local food buying.

Implications for Management and Public Policy

The results of this study suggest that marketers should appeal more to consumers' social identity than to their personal identity when designing communication campaigns to reduce supply chain shortages and increase support to the local community. Marketing strategies during a pandemic should focus on local products and emphasize collectivist values. Communications

that appeal to sociability, benevolence, and cooperation may encourage consumers to buy local products in order to feel a sense of supporting the local community.

Although food supply chains operated normally throughout the lockdown in Croatia from March to May 2020, stockpiling led to temporary shortages of certain food products (like yeast; Marjanović, 2020). Communicating to consumers that sufficient food supplies are available may help reduce the fear and anxiety that drive stockpiling. Also, public messaging should highlight the importance of not engaging in stockpiling as a way of belonging to, and supporting, the community, which may mitigate the negative effects of neuroticism on stockpiling, while also strengthening a sense of community. Therefore, the emphasis should be on in-group goals instead of personal goals. While public authorities may have little control over the emergence of a global pandemic, they can strive to communicate effectively in a way that fosters a sense of community in order to aid local producers and mitigate adverse effects on local economies.

Limitations and Future Research

This study has several limitations. First, the main limitation is related to the use of a convenience sample of undergraduates and their family members. Further testing of hypothesized

relations and drawing on samples from different populations are warranted. Specifically, our study drew on a sample from one collectivist society, so the results should be extended in studies involving other collectivist as well as individualist societies. Second, our work should also be validated and extended in longitudinal studies, which would allow for more robust conclusions and reveal changes in consumer behavior over time. Future work should investigate the behavior of local producers during an externally caused crisis, as they are becoming more sophisticated about selling food online. This may affect producers' resilience while leading to changes, for consumers, in the marketing channels patronized (e.g., local stores or large supermarket chains). It may be beneficial for future studies to examine different food categories as well as non-food categories of products. Finally, it may be interesting to examine how the variables explored here, particularly neuroticism, impact other consumer behaviors and even consumer well-being.

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