

## RESEARCH ARTICLE

# The same only different? How a pandemic shapes consumer organic food purchasing

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**Abstract**

Organic food consumption is seen as a key strategy to alleviate both environmental and health problems. Although consumer purchasing of organic food has regularly been studied, major gaps exist in the literature. Knowledge is missing on how contextual factors, such as pandemics (e.g., COVID-19 pandemic), affect individuals' purchasing of organic food. Therefore, the aim of this research is to examine the effect of a pandemic on organic food purchasing. To provide evidence on this effect, data collected at two points in time (before the COVID-19 pandemic and during the first wave of the COVID-19 pandemic) from 429 German consumers was analyzed with structural equation modeling. The results showed that pandemics positively influence both consumer quality consciousness ( $\beta = .116$ ) and health consciousness ( $\beta = .106$ ) and thereby enhance organic food purchasing. However, pandemics were not found to shape a consumers' environmental consciousness ( $\beta = -.005$ ). Additional analyses showed that the effects of a pandemic are not equal for all consumer segments and that consumers' income occupies—different than consumers' age, gender, and education—a decisive role. For instance, pandemics promote consumers' health consciousness only for consumers of lower than of higher income. These findings yield the diverse implications for practitioners and public policy.

## 1 | INTRODUCTION

Organic food (i.e., food which is free from artificial chemicals and pesticides; Hughner et al., 2007; Rana & Paul, 2017) is one of the most important product categories in the food market (Juhl et al., 2017; Olsen et al., 2014) as it offers key benefits to society. On the one hand, organic food, and its production aim to preserve natural resources while being more local and seasonal than the production of conventional food putting less pressure on the environment (Yadav & Pathak, 2016). In addition, the production of organic food supports animal health and welfare. On the other hand, organic food contains fewer synthetic fertilizers, and pesticides, and is free from hormones and antibiotics supporting peoples' health (Health Harvard, 2015).

Hence, organic food consumption is seen as a key strategy to alleviate both environmental and health problems (Thøgersen, 2017). Given the relevance of organic food, an in-depth understanding of the determinants of consumer organic food consumption and organic food purchasing, respectively, is needed.

Although consumer purchasing of organic food has regularly been studied (Hughner et al., 2007; Juhl et al., 2017; Kushwah et al., 2019; Rana & Paul, 2017), major gaps exist in the literature. Knowledge is missing on how contextual factors, such as pandemics (e.g., COVID-19 pandemic), affect individuals' purchasing of organic food. Scholars emphasize the need to study the effects of pandemics because “pandemics have been an unfortunate but consistent facet of human existence over centuries, threatening lives as well as livelihoods globally.

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Disconcertingly, their frequency persists, with four ‘major’ pandemics disrupting the planet in the last 65 years and more expected in the future.” (Das et al., 2021). In other words, pandemics have a global and profound impact and are, in turn, likely to exert a lasting effect on consumer behavior (Laato et al., 2020; Sheth, 2020). As such, pandemics are assumed to shape organic food purchasing in the one or the other way because (1) pandemics could augment organic food consumption because they pose major threats to individuals’ health, which consumers might want to compensate through organic food consumption (Accenture, 2020; White et al., 2019), and (2) pandemics could reduce organic food consumption because they shift consumers’ attention away from environmental factors which have also been found to motivate organic food consumption (Hüttel & Balderjahn, 2021). Current insights on the effects of a pandemic on consumer behaviors related to organic food purchasing are conflicting. On the one hand, research points on an increase in healthier food choices with the current COVID-19 pandemic (Boyle et al., 2022). On the other hand, Hüttel and Balderjahn (2021) provide evidence that the current pandemic has decreased consumers’ likelihood to engage in pro-environmental behaviors. Current insights from non-academic sources imply effects of the COVID-19 pandemic on organic food purchasing. Accordingly, the pandemic has led to an increase in organic food purchasing (AMI 2021; Bund Ökologische Lebensmittelwirtschaft e.V., 2021). Against this background, it is imperative to understand *how* pandemics, such as the COVID-19 pandemic, affect consumer organic

food purchasing. Overall, the psychological effects of pandemics are not well understood yet. Therefore, the aim of this research is to understand how pandemics shape organic food purchasing. In doing so, this research contributes to research on organic food purchasing and more broadly to consumer research and the role of pandemics.

## 2 | LITERATURE REVIEW

### 2.1 | Organic food purchasing

Organic food purchasing is a private sphere pro-environmental behavior. Like other pro-environmental behaviors, organic food purchasing involves doing something for the greater good (Hughner et al., 2007; Larson et al., 2015) and thus also offers benefits other than self-benefits (White et al., 2019). Given the importance of organic food purchasing, researchers have tried to understand which factors underlie individuals’ decision to purchase this food category. Research on the determinants of organic food purchasing has accumulated during the last decade. To structure the available knowledge, this research develops a conceptual model—inspired by research on consumer decision-making (Belk, 1975; Gifford & Nilsson, 2014; van Doorn & Verhoef, 2015; White et al., 2019; Yüksel, 2012)—explaining organic food purchasing with four groups of factors, namely the *contextual, situational, supply-side*, and *consumer or psychological* factors (Figure 1).

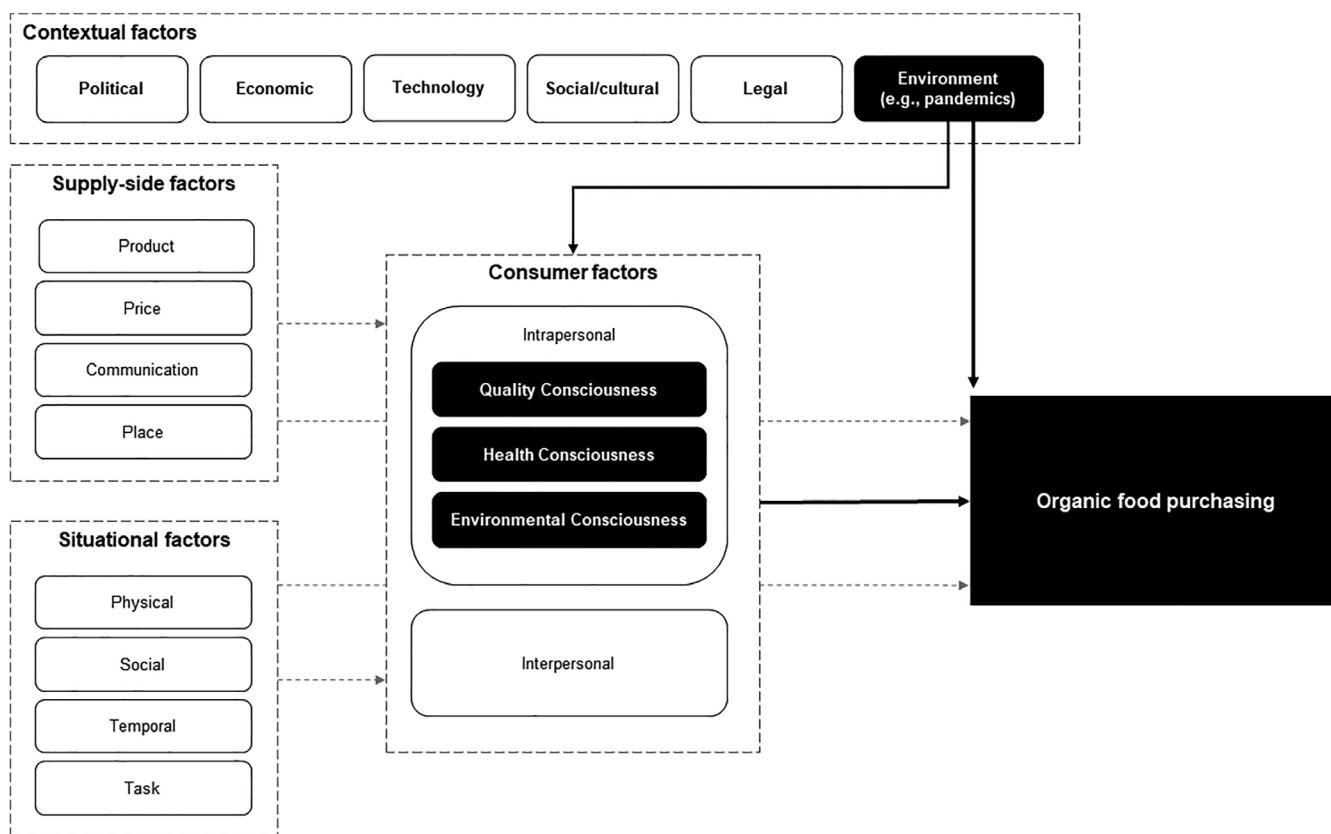


FIGURE 1 Conceptual model

Consumer research has focused on understanding organic food purchasing through the lens of consumer factors (Table 1). Among these, individuals' *perceptions* (i.e., anticipated, or experienced) of the context, the situation, the supply-side factors, or the organic food purchasing itself have been found to represent key determinants of organic food purchasing. In specific, existing research reveals that different motives become relevant to explain individuals' purchasing of organic food. Consensus exists that the decision to purchase organic food can be seen as a social dilemma (van Doorn & Verhoef, 2011). In other words, people weigh their interests like self-preservation (i.e., egoistic motives) against collective or "the wider good" interests like the protection of others (i.e., altruistic motives) when they decide to purchase organic food. Empirical works reveal that both motives influence individuals' decision purchase decision regarding organic food (Kareklas et al., 2014; van Doorn & Verhoef, 2011).

Less knowledge exists on how *objective* factors (i.e., supply-side, situational, and contextual factors) affect organic food purchasing.

Findings are particularly rare regarding the contextual factors. *Contextual* means in this regard an individuals' actual environment (i.e., life space) and thus the boundary conditions which define an individuals' daily life. Hence, these factors go beyond the *situational* factors which relate to a specific situation (i.e., "a discrete time and place occupied by one or more persons" Belk, 1975, p. 157). To specify the idea of contextual factors in this work, we refer to the PESTLE (i.e., political, economic, societal, and cultural, technological, legal, environment factors) framework. While the *political* context can be defined, for instance, by the political stability or the governmental policy, the *legal* context refers to the available laws and regulations. The *economic* context defines individuals' life space and means the economic performance (e.g., economic growth, unemployment rates) of, for instance, the country of residence. The *technological* context means the technologies (e.g., the degree of digitalization, access to high-speed internet) surrounding individuals in all day life. The *societal and cultural* context refers to the cultural and ethnic variations as well as, for

**TABLE 1** Review of literature on the determinants of consumer organic food purchasing

Contextual factors	
Environmental	<b>This study</b>
Political	—
Economic	—
Societal and cultural	Boobalan and Nachimuthu (2020); Molinillo et al. (2020); Olson et al. (2016)
Technological	—
Legal	—
Supply-side factors	
Product	Rana and Paul (2017); van Doorn and Verhoef (2015); Bezawada and Pauwels (2013); van Doorn and Verhoef (2011)
Price	Ma et al. (2020); Olson et al. (2016); van Doorn and Verhoef (2015); Vlontzos and Duquenne (2014); Bezawada and Pauwels (2013); Ngobo (2011)
Communication	Septianto and Kemper (2021); Ma et al. (2020); Meyerding et al. (2019); Ryan and Casidy (2018); Scholl-Grissemann (2018); Guyader et al. (2017); Daunfeldt and Rudholm (2014); Melnyk et al. (2013); Ngobo (2011)
Place	van Doorn and Verhoef (2015); van Herpen et al. (2012); Ngobo (2011)
Situational factors	
Physical	—
Social	Puska et al. (2016)
Temporal	Gidlöf et al. (2021); Guyader et al. (2017)
Task	Thøgersen and Alfinito (2020); Frank and Brock (2018)
Consumer psychological factors	
Intrapersonal	Mai et al. (2021); Ladwein and Romero (2021); Nagaraj (2021); Sadiq et al. (2021); Sahelices-Pinto et al. (2021); Septianto and Kemper (2021); Taghikhah et al. (2021); Talwar et al. (2021); Yu et al. (2021); Boobalan and Nachimuthu (2020); Hansmann et al. (2020); Molinillo et al. (2020); Tandon et al. (2020); Chiu et al. (2019); Hwang and Chung (2019); Prentice et al. (2019); Balderjahn et al. (2018); Chiu et al. (2019); Konuk (2018a); Konuk (2018b); Ryan and Casidy (2018); Juhl et al. (2017); Nuttavuthisit and Thøgersen (2017); Rana and Paul (2017); Hwang (2016); Yadav and Pavlou (2014); van Doorn and Verhoef (2015); Hauser et al. (2013); Thøgersen et al. (2012); van Doorn and Verhoef (2011); Tarkiainen and Sundqvist (2009); Krystallis et al. (2008); Honkanen et al. (2006)
Interpersonal	Taghikhah et al. (2021); Sadiq et al. (2021); Hansmann et al. (2020); Ma et al. (2020); Nuttavuthisit and Thøgersen (2017); Olson et al. (2016); Puska et al. (2016); Melnyk et al. (2013); Thøgersen et al. (2012); Ngobo (2011); Krystallis et al. (2008)

instance, to the age and income distribution characterizing the life space of an individual. Finally, the *environmental* context is defined by the availability of resources but also by aspects, such as weather and climate. In addition, the changes of climate as well as events, such as pandemics, define the environmental context.

## 2.2 | Pandemics

Pandemics are “large-scale outbreaks of infectious disease that can greatly increase morbidity and mortality over a wide geographic area and cause significant economic, social, and political disruption” (Madhav et al., 2017). Thus, like other natural disasters, a pandemic, such as the COVID-19 pandemic, is a life-threatening event (Zwanka & Buff, 2021). Before the COVID-19 pandemic, people had to deal with various pandemics or epidemics (e.g., SARS, Spanish flu). Different than other natural disasters, such as tsunamis and hurricanes, pandemics are global and their effects last for a longer period. For instance, memories about the SARS virus still induce fear among those who got in touch with the virus (Wu et al., 2009).

Pandemics have changed lives, have disrupted economic activities, and have fostered uncertainty and scarcity (Das et al., 2021). These changes have not only impacted organizations, but have also challenged individuals and have not seldom led them to waive their habits and adapt their behaviors (Sheth, 2020; Zwanka & Buff, 2021). Both the nature of pandemics and the regulations (e.g., social distancing, shutdowns) that are taken to mitigate the risks of pandemics raise individuals' health, societal and economic concerns which, in turn, induce behavioral changes at the individual level (Laato et al., 2020).

As such, the ongoing pandemic has been found to have affected consumer behavior significantly (Urban & Braun, 2022). For instance, consumers have intensified their online shopping behavior (Kirk & Rifkin, 2020), embraced novel services (e.g., store pick-up, cashless payment), and have overall increased their in-home consumption (Pantano et al., 2020). With its profound impact on the food system (e.g., low stocks, price hikes) (Carolan, 2021; Ranjbari et al., 2021) and consumers' lifestyle (e.g., in-home consumption) (Laato et al., 2020; Sheth, 2020), the COVID-19 pandemic has been found to affect food wastage behavior (Eger et al., 2021; Jribi et al., 2020), food choices (Marty et al., 2021), and eating behavior (Molina-Montes et al., 2021).

The COVID-19 pandemic with all its governmental measures has also had an observable, yet inconsistent effect on individuals' pro-environmental behaviors. On the one hand, people have reduced the use of carbon-intensive transportation like air travel. On the other hand, studies reported an increase in waste disposal (Cheval et al., 2020). In a similar vein, research has been conflicting regarding the effect of the COVID-19 pandemic on environmental attitudes (Hüttel & Balderjahn, 2021; Rousseau & Deschacht, 2020; Schiller et al., 2022). Overall, assumptions exist that the current pandemic can impact consumer pro-environmental behavior in the long run (Urban & Braun, 2022) because the COVID-19 pandemic is expected to have promoted collective processes that “can lead to new appraisals of and responses to the climate crisis and related policy

measures” (Reese et al., 2020). Sheth (2020) claims that pandemics range among the very few contexts which disrupt consumer habits and thereby can change consumer behavior sustainably. Thus, they require much more attention in consumer research.

## 3 | HYPOTHESES

The terror management theory (TMT) (Greenberg et al., 1986) posits that humans dispose of an inherent awareness for death. When this awareness of death is triggered, for instance, by specific events, such as a pandemic, people activate self-preservation mechanisms that buffer their anxiety of death (e.g., focus on the self, close relationships). In this way, pandemics are likely to shape human motivation and ultimately human behavior. Evidence exists that peoples' self-transcendence values (i.e., caring for others, nature etc.) have decreased with the advancing COVID-19 pandemic (Daniel et al., 2022). Moreover, scholars found that the COVID-19 pandemic has weakened consumers' consciousness of sustainable consumption (Hüttel & Balderjahn, 2021).

Taking this together, we expect that the presence of a pandemic positively influences self-oriented factors, such as quality consciousness and health consciousness, and negatively influences other-oriented factors, such as environmental consciousness. Further, we assume that pandemics impact organic food purchasing by directing consumers' health, quality, and environmental consciousness which, in turn, have been found to shape organic food purchasing (Kriwy & Mecking, 2012; van Doorn & Verhoef, 2015).

Quality consciousness means “the extent to which a consumer prefers high quality products rather than compromising on quality and buying at a low price” (van Doorn & Verhoef, 2015, p. 440). The fear of an infection and related governmental recommendations or restrictions led people to stay at home. Hence, in-home consumption including the own preparation of meals had increased significantly (Janssen et al., 2021). To compensate for the missing out-of-home consumption experiences, consumers are likely to develop a higher consciousness of the quality of products they are using. What is more, the consumption of food with higher (perceived) quality might reflect a type of reward in times where restaurants with similar experiences have been less accessible (Marty et al., 2021). To sum up:

**H1.** *The presence of a pandemic positively influences consumers' quality consciousness.*

Health consciousness means a “consumers' readiness to identify with and to undertake health actions” (Hansen et al., 2018). According to the terror management health model, a pandemic and the thereby activated thoughts of death can increase ones' health consciousness (Goldenberg & Arndt, 2008). During the current pandemic, improvements in healthy lifestyles (e.g., physical exercise) have been observed (Saah et al., 2021). People have also been found to prioritize their most basic needs, namely their personal health and the health of family and friends (Accenture, 2020). To overcome the pandemic-induced

health threats, consumers are likely to develop a higher health consciousness. Hence:

**H2.** *The presence of a pandemic positively influences consumers' health consciousness.*

Environmental consciousness refers to ones' concerns for the environment (Hansen et al., 2018). An increasing environmental consciousness has been found to be closely related to behaviors that go beyond self-interest (Jain et al., 2020). However, evidence exists that a pandemic drives peoples' self-interest (He & Harris, 2020), leading to behaviors, such as panic buying and hoarding. In general, humans dispose of a limited ability to develop concerns about different problems, such as the urgency of environmental problems and the existential threat induced by a pandemic, simultaneously (Rousseau & Deschacht, 2020). Hence, the pandemic might have shifted peoples' attention away from environmental harm. In other words:

**H3.** *The presence of a pandemic negatively influences consumers' environmental consciousness.*

As previous research has shown that consumers' quality, health and environmental consciousness impact sustainable behavior, including organic food purchasing (Kriwy & Mecking, 2012; van Doorn & Verhoef, 2011), we further hypothesize:

**H4.** *The presence of a pandemic positively influences organic food purchasing through an enhanced quality consciousness.*

**H5.** *The presence of a pandemic positively influences organic food purchasing through an enhanced health consciousness.*

**H6.** *The presence of a pandemic negatively influences organic food purchasing through an enhanced environmental consciousness.*

## 4 | EMPIRICAL STUDY

### 4.1 | Methods

For data analysis, we used a sample of 429 German consumers collected by a professional panel provider. Participants received a nominal compensation for taking part in the self-administered online survey. To test the effects of a pandemic on organic food purchasing, we used the COVID-19 pandemic as an example and thus collected data *before* ( $n = 249$ ) and *during* the COVID-19 pandemic ( $n = 180$ ). In this way, we were able to operationalize the exogenous variable in the research model, namely the presence of a pandemic (1 = presence, 0 = absence).

In 2020, we used the same questionnaire as in 2018: In this questionnaire, participants indicated their sociodemographic background (i.e., gender, age, education, income). The sociodemographic variables were integrated as controls in the model because prior research on organic food purchasing emphasized their relevance for organic food purchasing (Kriwy & Mecking, 2012; van Doorn & Verhoef, 2011; van Doorn & Verhoef, 2015). The data from before and during the COVID-19 pandemic had a similar sociodemographic background (e.g., age, gender, education). For instance, there were no statistically significant differences in the composition of the income groups (e.g., income:  $\chi^2_{[4]} = 1.092$ ,  $p = .895$ ). Although the sample reflected different age, education, and income groups, it did not represent the German population. For instance, the participants tended to be older than in the German population (Table 2).

Based on established multi-item scales (Table 3), study participants rated in this study's questionnaire their quality consciousness, health consciousness, and environmental consciousness. Participants indicated their organic food purchasing during the last 4 weeks for different organic food categories (Apaolaza et al., 2018; van Doorn & Verhoef, 2011; Vermeir & Verbeke, 2006). The questionnaire also

**TABLE 2** Sociodemographic background

	Overall %	June 2018 (n = 249) %	June 2020 (n = 180) %	Census Germany 2011 %
<b>Gender</b>				
Male	52.7	53.4	51.7	49.0
Female	47.3	46.6	48.3	51.0
<b>Age</b>				
18–24	4.2	5.2	2.8	9.2
25–34	10.5	11.2	9.4	21.2
35–44	16.3	16.1	16.7	20.7
45–54	30.1	29.7	30.6	23.7
55–65	38.9	37.8	40.6	25.2
<b>Education</b>				
Secondary school certificate	43.6	43.4	43.8	58.7
High school diploma	56.2	56.2	56.2	33.5
No school leaving certificate (yet)	.2	.4	0	.1
<b>Income</b>				
<€1001	4.4	4.4	4.4	10.3
€1001–€2000	16.1	16.0	16.1	27.3
€2001–€3000	27.3	26.9	27.7	24.5
€3001–€4000	24.0	25.7	21.7	15.6
>€4000	28.2	26.9	29.0	21.5

captured participants' tendency for vivid imagination. The variable that is theoretically unrelated to the variables in the research model was then used to test for a potential common method bias (Malhotra et al., 2006). Except for measuring the organic food purchasing

(1 = never; 6 = nearly always), all remaining constructs were measured using 5-point Likert scales (1 = strongly disagree, 5 = strongly agree).

## 4.2 | Results

We followed recommendations (Johns, 2006; Venkatesh, 2020) and examples (Hüttel & Balderjahn, 2021) in available literature on how to analyze the effects of contextual factors. Accordingly, we used structural equation modeling (SEM) implemented in the software Mplus version 7.4 (Muthén & Muthén, 2012) to test the hypothesized model of organic food purchasing integrating responses from *before* and *during* the COVID-19 pandemic.

Confirmatory factor analysis demonstrated that the employed measurement models fitted well with the data ( $\chi^2/df = 2.32$ , root mean square error of approximation (RMSEA) = 0.055, comparative fit index (CFI) = 0.933, Tucker-Lewis index (TLI) = 0.923, standardized root mean square residual (SRMR) = 0.045). Even though some of the standardized factor loadings were below the recommended threshold of 0.700, the considered measures showed overall good psychometric properties (Cronbach's alpha ( $\alpha$ )  $\geq .755$ , average variance extracted (AVE)  $\geq 0.521$ , composite reliability (CR)  $\geq 0.802$ ; Table 4). In addition, the employed latent variables discriminate from one another. Accordingly, the lowest AVE exceeds the highest squared inter-construct-correlation (Table 4). With correlations ranging from .070 to .229 between the tendency for vivid imagination and the key variables of the research model, all correlations were smaller than the recommended threshold of 0.300 (Lindell & Whitney, 2001). Thus, common method variance does not seem to exert an important effect on the results in this research.

The structural model showed an overall acceptable fit ( $\chi^2/df = 2.12$ , RMSEA = 0.051, CFI = 0.920, TLI = 0.911, SRMR = 0.052). In specific, the analysis revealed that the presence of a pandemic positively influenced consumers' quality consciousness ( $\beta = .116$ ,  $p = 0.023$ ), supporting H1. In support of H2, the results showed that the presence of a pandemic positively impacted consumers' health consciousness ( $\beta = 0.106$ ,  $p = 0.030$ ). However, the pandemic did not affect consumers' environmental consciousness ( $\beta = -0.005$ ,  $p = 0.924$ ). Hence, H3 cannot be supported (Table 5).

A bootstrapping algorithm ( $n = 10,000$ ) was used to test the indirect effects of the pandemic on organic food purchasing. The results

**TABLE 3** Measures

	Factor loadings
<b>Organic food purchasing</b> (Apaolaza et al., 2018; van Doorn & Verhoef, 2011)	
Fruits and/or vegetables	0.782
Meat	0.761
Fish	0.688
Milk and/or milk products	0.779
Cereals	0.716
Eggs	0.686
Bread products	0.810
Coffee	0.667
Non-alcoholic beverages	0.731
Dry goods (e.g., pasta, rice)	0.784
Alcoholic beverages	0.574
Sweets	0.648
<b>Health consciousness</b> (Gould, 1988)	
I reflect about health a lot.	0.918
I am aware of the state of my health as I go through the day.	0.830
I am very self-conscious about my health.	0.734
<b>Quality consciousness</b> (van Doorn & Verhoef, 2015)	
When shopping, I always strive for the best quality.	0.763
Quality is decisive for me while buying a product.	0.895
Sometimes I save money on groceries by buying products of lower quality. (reversed)	0.598
<b>Environmental consciousness</b> (Dunlap et al., 2000)	
When humans interfere with nature, it often produces disastrous consequences.	0.744
Humans are severely abusing the environment.	0.841
The balance of nature is very delicate and easily upset.	0.622
If things continue their present course, we will soon experience a major ecological catastrophe.	0.716

**TABLE 4** Convergent and discriminant validity

#	Construct	Mean	SD	$\alpha$	CR	1	2	3	4
1	Health consciousness	3.30	0.93	.856	.869	<b>.690</b>			
2	Environmental consciousness	4.36	0.60	.819	.823	.142	<b>.540</b>		
3	Quality consciousness	3.73	0.75	0.755	.802	.184	.142	<b>.580</b>	
4	Organic food purchasing	2.36	1.05	.928	.928	0.332	.123	.325	<b>0.521</b>

Note: Average variance explained (AVE) is shown on diagonal in bold type, correlations are shown below the diagonal. Abbreviations: AVE, average variance explained; CR, composite reliability; SD, standard deviation.

**TABLE 5** Results of the effects of a pandemic on organic food purchasing

	Estimate	SE	p-value	Estimate	SE	p-value
H1: Pandemic → quality consciousness	0.116	0.051	0.023	0.117	0.051	0.023
H2: Pandemic → health consciousness	0.106	0.049	0.030	0.106	0.049	0.030
H3: Pandemic → environmental consciousness	−0.005	0.054	0.924	−0.005	0.054	0.923
Pandemic → organic food purchasing	−0.012	0.045	.787	−0.023	0.047	0.618
Quality consciousness → organic food purchasing	0.211	0.052	0.000	0.271	0.052	0.000
Health consciousness → organic food purchasing	0.272	0.047	0.000	0.278	0.051	0.000
Environmental consciousness → organic food purchasing	0.095	0.049	0.054	0.045	0.050	0.374
Age → organic food purchasing	−0.114	0.045	.010			
Gender <sup>a</sup> → organic food purchasing	0.179	0.046	.000			
Income <sup>b</sup> → organic food purchasing	0.075	0.044	.090			
Education <sup>c</sup>	0.166	0.048	.001			
R <sup>2</sup> organic food purchasing	.244			0.185		

Abbreviation: SE, standard error.

<sup>a</sup>0 = male, 1 = female.

<sup>b</sup>Five categories (1 = lowest, 5 = highest).

<sup>c</sup>0 = no school leaving certificate, 1 = secondary school certificate, 3 = high school diploma.

**TABLE 6** Future research

#### Contextual factors

- When does a crisis affect consumer's organic food purchasing? Which role does the type of a crisis (e.g., economic- vs. health-related) play?
- Why and when do major political orientations in a country affect individual's organic food purchasing?
- Why and when does the degree of digitalization in a country influence individual's organic food purchasing?
- Why and when does the degree of well-being in a country affect individual's organic food purchasing?

#### Contextual factors and consumer factors

- How does a natural disaster affect consumer beliefs about the environment and thus organic food purchasing? Which lay beliefs about the sources of environmental harm or climate change emerge during compared to before and after a natural disaster?
- When does a natural disaster strengthen the effects of nature relatedness on organic food purchasing?
- When does a health-related crisis strengthen or weaken the effects of health consciousness on consumer's organic food purchasing?

#### Contextual factors and situational factors

- How does the presence of others affect organic food purchasing before compared to after a health-related crisis (or before compared to after a major life event)?
- When does social crowding promote organic food purchasing during a pandemic?

#### Contextual factors and supply-side factors

- Which type of communication framing (e.g., promotion- versus prevention-focus) is most beneficial to promote organic food purchasing in a crisis compared to before or after? Which boundary conditions determine its effectiveness?
- How should the pricing of organic food be adapted to political measures in a crisis to promote organic food purchasing? When can price promotions help to overcome social disparities in a way to promote organic food purchasing?

revealed that the pandemic indirectly influenced organic food purchasing through quality consciousness ( $\beta = .025$ , CI 95% [0.008; 0.050]), health consciousness ( $\beta = .029$ , CI 95% [0.007; .056]), but not through environmental consciousness ( $\beta = 0.000$ , CI 95% [−0.012; 0.007]). Hence, H4 and H5 can be supported, while H6 cannot be supported.

### 4.3 | Additional results

As the effects of a pandemic might vary for different consumer segments, we further analyzed the moderating role of the sociodemographic variables (i.e., gender, age, income, and education) on the hypothesized effects of a pandemic in this study. To do so, in a first step, we created interaction terms reflecting the interaction between the pandemic and the individual sociodemographic variables. Then, we included these interaction terms into our structural model (see Appendix A for results<sup>1</sup>) and estimated the model in the same way as before. The model showed an overall good fit ( $\chi^2/df = 1.88$ , RMSEA = 0.045, CFI = 0.928, TLI = 0.915, SRMR = 0.039). Age, gender, and education did not moderate the effect of a pandemic. However, the results revealed that consumers' monthly net household income moderated the effects of the pandemic on health consciousness. In specific, an increasing income dampens the effect of the pandemic on health consciousness.

Based on these results, we conducted an in-depth analysis and computed the hypothesized structural model for a group with lower income (less than €3000) and for a group with higher income (more than 3000 Euros). To test for the statistical significance of differences at the path level, we employed multi-group analysis. Before testing for

<sup>1</sup>To check the robustness of these results, we also analyzed the role of the moderators with PROCESS (Model 1) which yielded similar results.

potential statistical differences in the path coefficients, we examined whether the measurement models were invariant across the two groups. The  $\chi^2$  difference test was not statistically significant ( $\Delta\chi^2_{[18]} = 24.11, p = .151$ ), indicating full metric invariance. Further analysis revealed that the effect of a pandemic on health consciousness was stronger for consumers with lower ( $\beta = 0.355, p = .006$ ) as compared with higher ( $\beta = 0.019, p = .781$ ) income ( $\Delta\chi^2_{[1]} = 4.396, p = .036$ ). By contrast, the effect of a pandemic on quality consciousness was marginally weaker for consumers with lower ( $\beta = 0.043, p = 0.648$ ) as compared to higher ( $\beta = 0.187, p = 0.013$ ) income ( $\Delta\chi^2_{[1]} = 2.805, p = 0.094$ ) (Appendix B).

## 5 | CONCLUSION

### 5.1 | Summary and discussion

Overall, our results showed that a pandemic shapes both consumers' quality and health consciousness and thereby indirectly enhances consumers' organic food purchasing. This finding supports recent research demonstrating that the COVID-19 pandemic shifted consumers to purchase healthier food options (Boyle et al., 2022).

Further, our study demonstrated that the presence of a pandemic did not direct consumers' environmental consciousness. While Hüttel and Balderjahn (2021) found that the presence of a pandemic decreases a consumers' consciousness of ecological sustainable consumption, our study examined the response of environmental consciousness from a broader and product-unrelated perspective which might explain the differences in the results. Moreover, a pandemic with all its drastic public and private measures is likely to foster a self-focus in some areas (He & Harris, 2020). Even though people have shown different types of helping behaviors during the pandemic, topics around the environment might have been viewed as less urgent or even as distractive in a health-related crisis (Reese et al., 2020; Rousseau & Deschacht, 2020), explaining in a first step the missing impact of a pandemic on environmental consciousness.

Similar to the findings of Hüttel and Balderjahn (2021), we found no direct effect of the presence of a pandemic on green purchasing but an indirect effect through the consumers' quality and health consciousness. The difference to previous work is that our work provided evidence for a positive effect of pandemics on pro-environmental behavior, such as organic food purchasing. As previous research has not examined organic food purchasing, these contradicting findings might be explained by the type of pro-environmental behavior considered in the respective research.

Most interestingly, our results showed that the examined effects of a pandemic are not equal for all consumer segments and that consumers' income occupies—different than consumers' age, gender, and education—a decisive role. In specific, a pandemic promotes consumers' health consciousness only for consumers of lower than of higher income classes. This might be explained by the fact that consumers of higher than lower income might have had a higher health consciousness before the pandemic. Moreover, consumers with lower

income might have been more impacted by a pandemic-caused part-time employment or reduction of weekly working hours than consumers of higher income. This, in turn, might have led to consumers of lower income classes to perceive a higher impact of the pandemic which, in turn, might have triggered their health consciousness.

The consumers' income was found to marginally direct the effect of a pandemic on consumers' quality consciousness. For consumers of higher income this effect was slightly stronger than for consumers of lower income. One explanation might relate to the fact that before the pandemic consumers of higher income might have visited restaurants etc. more often than consumers of lower income. Hence, consumers of higher income might have been more challenged to organize themselves in this regard and to compensate for previous higher quality experiences. Further, they might have had more the possibility to satisfy their need for quality because of freed household budgets.

### 5.2 | Implications

This study's implications are threefold. First, this research has implications for consumer research as it provides evidence for the effect of the presence of a pandemic on consumer behavior through changes in consumer consciousness. Hence, although a direct change in consumer behavior might not be observable during the pandemic, it is likely that important differences at the unobservable level, namely regarding the psychological origins of consumer behavior, occur. To be more specific, this study's findings demonstrate the disruptive potential of a pandemic in humans' motivation system directing human behavior. These results, in turn, challenge existing knowledge on organic food purchasing as they emphasize the need to consider contextual variables to fully understanding organic food purchasing. In specific, the current study reveals that the motives for making organic purchase decisions are shaped by the context, namely by pandemics. In this way, the current study underlines the importance to account for the so far overlooked contextual factors when it comes to understand consumer organic food purchasing. In summary, this research contributes to both consumer research in general and research on organic food purchasing in specific.

Second and most importantly, this research has implications for both retailers and producers of organic food. In harmony with this study's findings, they should consider the contextual circumstances (e.g., presence of a pandemic) when predicting consumer organic food purchasing. Overall, the pandemic has had a positive impact on organic food purchasing. Hence, assuming that there will be a moving back to the situation before the pandemic, marketers should conduct further research including the in-depth understanding of the consumers' updated purchasing motives to avoid a drop in organic food sales. For the situation of a health crisis, marketers should know that such a crisis impacts consumer segments differently. For consumers of lower income, it is important to consider their heightened health consciousness during the promotion of organic food. By contrast, for consumers of higher income, it is important to consider their enhanced quality consciousness for the sales of organic food.



Third, public policy can also learn from this study's findings. Public policy might be particularly interested in raising individuals' pro-environmental behavior, such as organic food purchasing. Among others, promoting pro-environmental behavior at the individual level represents one way in addressing the "European Green Deal," of which the significance has been outlined during the pandemic (Simon, 2020). However, shaping individuals' pro-environmental depends—as this study illustrates—on contextual factors, such as a pandemic, and is thus much more complex to manage than previously expected. Public policy is therefore well-advised to initiate context-related research initiatives to gain a better understanding of the consumers' context as a complexity-enhancing determinant of consumer behavior.

### 5.3 | Limitations and future research directions

The current research has several limitations that future research should address. First, this research is focused on the study of organic food purchasing. Future research should investigate other pro-environmental behaviors because the available knowledge is inconclusive about the effects of a pandemic on consumer pro-environmental behavior (Hüttel & Balderjahn, 2021). Second, although we controlled for several factors that might provide an explanation for the effects of a pandemic, an additional qualitative study could provide further understanding. Third, this research collected data for measuring the presence of a pandemic in June 2020 which was directly after the first lockdown. To provide answers to the question how the stages of a pandemic (Das et al., 2021) affect consumer behavior or organic food purchasing, additional research is required. In addition to that, our samples are convenience samples. Therefore, we suggest that future research uses data presenting a more representative sociodemographic background. Finally, future research avenues can also be derived from our review of the literature on consumers' organic food purchasing. As research on the role of contextual factors is still in its infancy in this realm, Table 5 provides several ideas for potential research questions. These are not limited to the direct effect of contextual factors on organic food purchasing, but also account for both the indirect effects of contextual factors through the consumer factors and the interaction between contextual and supply-side or situational factors (Table 6).

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#### CONFLICT OF INTEREST

The authors declare no conflicts of interest.

#### DATA AVAILABILITY STATEMENT

The authors confirm that the data supporting the findings of this study are available within the article.

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## APPENDIX A

## A.1 | MODERATING EFFECTS OF SOCIODEMOGRAPHIC VARIABLES

	Estimate	SE	p-value
Pandemic → quality consciousness	−0.002	0.265	.993
Pandemic → health consciousness	0.294	0.261	.260
Pandemic → environmental consciousness	0.248	0.295	0.401
Pandemic → organic food purchasing	−0.230	0.248	0.353
Quality consciousness → organic food purchasing	0.208	0.051	.000
Health consciousness → organic food purchasing	0.275	0.048	.000
Environmental consciousness → organic food purchasing	0.102	0.049	.039
Age → quality consciousness	0.126	0.066	.057
Gender <sup>a</sup> → quality consciousness	0.031	0.068	.643
Income <sup>b</sup> → quality consciousness	0.240	0.081	.003
Education <sup>c</sup> → quality consciousness	0.046	0.070	.510
Age × pandemic → quality consciousness	0.054	0.176	.760
Gender <sup>a</sup> × pandemic → quality consciousness	0.036	0.082	.665
Income <sup>b</sup> × pandemic → quality consciousness	0.104	0.181	.565
Education <sup>c</sup> × pandemic → quality consciousness	−0.062	0.174	.723
Age → health consciousness	−0.039	0.069	.575
Gender <sup>a</sup> → health consciousness	0.059	0.070	.398
Income <sup>b</sup> → health consciousness	0.108	0.080	.177
Education <sup>c</sup> → health consciousness	0.000	0.080	.996
Age × pandemic → health consciousness	0.086	0.184	.642
Gender <sup>a</sup> × pandemic → health consciousness	−0.045	0.081	.577
Income <sup>b</sup> × pandemic → health consciousness	−0.346	0.175	.048
Education <sup>c</sup> × pandemic → health consciousness	0.081	0.181	.655
Age → environmental consciousness	0.087	0.066	.187
Gender <sup>a</sup> → environmental consciousness	−0.018	0.064	.776
Income <sup>b</sup> → environmental consciousness	−0.015	0.064	.817
Education <sup>c</sup> → environmental consciousness	−0.119	0.066	.073
Age × pandemic → environmental consciousness	−0.219	0.202	.279
Gender <sup>a</sup> × pandemic → environmental consciousness	−0.001	0.086	.995
Income <sup>b</sup> × pandemic → environmental consciousness	−0.171	0.189	.364
Education <sup>c</sup> × pandemic → environmental consciousness	0.114	0.192	.553
Age → organic food purchasing	−0.162	0.055	.003
Gender <sup>a</sup> → organic food purchasing	0.053	0.055	.335
Income <sup>b</sup> → organic food purchasing	0.108	0.060	.069
Education <sup>c</sup> → organic food purchasing	0.229	0.056	.000
Age × pandemic → organic food purchasing	0.227	0.179	.206
Gender <sup>a</sup> × pandemic → organic food purchasing	0.041	0.071	.566
Income <sup>b</sup> × pandemic → organic food purchasing	0.197	0.145	.174
Education <sup>c</sup> × pandemic → organic food purchasing	−0.212	0.147	.150
R <sup>2</sup> organic food purchasing	.282		

<sup>a</sup> 0 = male, 1 = female.

<sup>b</sup> 5 categories (1 = lowest, 5 = highest),

<sup>c</sup> 0 = no school leaving certificate, 1 = secondary school certificate, 3 = high school diploma.

## APPENDIX B

## B.1 | MODERATING ROLE OF CONSUMER INCOME

	Lower income (n = 205)			Higher income (n = 224)			$\Delta\chi^2_{(1)}$
	Estimate	SE	p-value	Estimate	SE	p-value	
Pandemic → quality consciousness	0.043	0.093	.648	0.187	0.076	.013	2.805*
Pandemic → health consciousness	0.355	0.130	.006	0.019	0.069	.781	4.396**
Pandemic → environmental consciousness	0.034	0.092	.715	-0.035	0.074	.635	0.387
Pandemic → organic food purchasing	-0.194	0.181	.284	0.051	0.065	.429	1.547
Quality consciousness → organic food purchasing	0.462	0.148	.002	0.239	0.069	.001	0.247
Health consciousness → organic food purchasing	0.443	0.105	.000	0.233	0.070	.001	0.055
Environmental consciousness → organic food purchasing	0.052	0.179	.770	0.145	0.071	.041	0.842
Age → organic food purchasing	-0.057	0.070	.414	-0.187	0.069	.007	1.909
Gender <sup>a</sup> → organic food purchasing	0.077	0.174	.659	0.111	0.060	.063	1.266
Education <sup>b</sup> → organic food purchasing	0.389	0.172	.024	0.237	0.056	.000	0.684

Abbreviation: SE, standard error.

<sup>a</sup> 0 = male, 1 = female.

<sup>b</sup> 0 = no school leaving certificate, 1 = secondary school certificate, 3 = high school diploma.

\* $p < .100$ , \*\* $p < .050$ .