

Article

Influence of COVID-19 on Environmental Awareness, Sustainable Consumption, and Social Responsibility in Latin American Countries

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Abstract: This article aims to investigate the effect that COVID-19 has on environmental awareness, sustainable consumption, and consumer social responsibility. Although some recent research focused on this phenomenon, there are still no studies applied to Latin American consumers. In this study, the data comes from 1624 responses from Latin American consumers who also represent different generations, equitably distributed in 400 from Chile (24.6%), 421 from Colombia (25.9%), 401 from Mexico (24.7%), and 402 from Peru (24.8%). Data were collected through self-administered questionnaires using an online survey via Google Forms through email and social networks (Facebook, LinkedIn, Instagram, and WhatsApp) from July 2021 to September 2021. This study uses a quantitative methodology using a structural equations model (SEM) to examine the cause–effect relationships of the explanatory model of this study. The main findings indicate that consumers from these countries declare that their behaviors have become ecologically and socially responsible. In addition, these respondents indicated that they had increased their interest in sustainable consumption and in acquiring environmentally friendly products to reduce waste and negative impacts on the environment derived from consumption. Based on the results, this research provides useful information to change or re-direct the communication and strategies of governments, brands, organizations, and society to promote actions and behaviors that help reduce the negative impact on the environment derived from consumption in a Latin American market. Managerial implications are provided.

Keywords: COVID-19; environmental awareness; social responsibility; sustainable consumption



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1. Introduction

Environmental awareness and sustainable consumption have been interesting topics of study and discuss in recent decades. Since 2020, the emergence of COVID-19 has been defined by the World Health Organization as a global pandemic [1] and quickly transformed into a humanitarian and economic crisis worldwide [2,3]. Considering the above, governments and international organizations have proposed strategies to promote changes in behavior related to sustainable consumption and production. The pandemic has been a phenomenon that has generated several environmental effects (positive and negative) [4–8]. In this sense, academic discussions have emerged to address these issues concerning the effects of COVID-19 on sustainability and the challenges for the planet [3,9,10]. Therefore, analyzing the development and evolution of the pandemic to understand these social changes in ordinary life and their effects becomes necessary [6,7]. For instance, it has been argued that the effects of COVID-19 can be felt on the housing market demand and the

perception of the environmental features and the physical features of flats/houses because the needs for domestic spaces have significantly modified buying, selling, and renting decisions [11,12]. In addition, the increase in online purchases generated by the pandemic and the quarantine measures involved the government, companies, and consumers. Indeed, household purchases were delivered with wrappers and boxes, increasing household waste [13]. On the opposite side, COVID-19 has also positively affected the ecological aspects of the environment. For example, the pandemic reduced water consumption and noise pollution due to home confinement and travel restrictions [14]. According to Cohen [5], the pandemic is the beginning of a new era focused on sustainable consumption behavior manifested by a society more aware of making responsible and environmentally friendly purchases to care for the future of our planet [7].

Alfonso et al. [15] have argued that there have been previous environmental awareness initiatives in Latin America. For instance, the Lima Convention, an agreement signed by Chile, Peru, Colombia, Ecuador, and Panama to protect the coastal areas of the South Pacific and its marine life from pollution. However, although some favorable consequences of COVID-19 have been identified, today, it is essential that the different spheres of government, companies, the scientific and academic world, consumers, and society in general, focus on the effects, challenges, and changes of paradigms that the pandemic has generated. The aforementioned is relevant because of the rise of environmental awareness changes affects consumer behavior [16]. Indeed, environmental awareness is considered a predictor of pro-environmental behavior. Therefore, it is a significant variable affecting human consumption behavior, sustainability, and environmental care [17,18]. Thus, sustainable consumption/production is defined as: “the use of services and products that respond to basic needs and contribute to a better quality of life, minimizing the use of natural resources and toxic materials, as well as waste emissions, and pollutants throughout the life cycle of the service or product so as not to endanger the needs of future generations” [19]. Additionally, the concept of green purchasing is focused on avoiding purchasing and consuming products/services that are harmful to the environment [20]. Therefore, green purchasing is considered an indicator that consumers and customers would be environmentally responsible with their purchasing behaviors of ecological products/services to reduce environmental damage [21].

In this context and perspective, the research question of our article is supported on what effect or influence COVID-19 generates on environmental awareness, sustainable consumption, and social responsibility? Several theories support the phenomenon to be investigated and proposed in this work directly or indirectly, such as the theory of reasoned action and the theory of planned behavior (TPB) [22], which was proposed by Ajzen [23] and has been used by researchers over the past twenty years and shown to be able to predict a variety of intentions and behaviors. As well as the theory of activation of the norm that explains the altruistic intention and behavior of people based on prosocial motives [24,25], which has been applied to the explanation of various eco-friendly intentions/behaviors [25–27] and the value–belief–norm theory, which is the expanded version of the norm activation theory for a better prediction of one’s environmentally responsible intention/behavior [28]. Unlike the norm activation theory, which was designed to capture the entire prosocial behavior, the value–belief–norm theory was specifically developed to account for an individual’s pro-environmental intention/behavior [29,30].

Though the notion of sustainable consumption has been studied for the last decades [31], there is still a theoretical research gap from how the COVID-19 pandemic is immersed in this phenomenon and can generate positive or negative influences on environmental awareness, sustainable consumption, and social responsibility in Latin American cultures. Some researchers are giving answers to how COVID-19 has also changed people’s lifestyles; caused extensive job losses; and threatened the sustenance of millions of people (based in the US, Europe, Asia, and Africa) as businesses have shut down to control the spread of the virus. Other studies have highlighted the challenges facing solid waste management during the pandemic as they have been one of the main causes of concern during this

crisis. Recently, there was a study focused on exploring the gap between the purchase intention and purchase experience, comparing between recycled and upcycled fashion products applied to Korean consumers by evaluating how environmentally responsible behavior can be best supported in megaprojects by first identifying the motivational factors involved, based on the theory of planned behavior (TPB) being applied in China. Regarding consumer concerns about endangering the needs of future generations, the BBMG's Conscious Consumer Report showed that nearly nine in ten Americans say the words "conscientious consumer" describe them as more likely to buy from companies that make energy-efficient products (90%), promote benefits for health and safety (88%), support fair trade and labor practices (87%), and commit to environmentally friendly practices (87%) if the products are of equal quality and price. This report indicated that 51% of Americans are willing to pay more for products with a high environmental quality, and 67% agree it is important to buy products with environmental benefits [32]. Furthermore, a study by Deloitte in the Netherlands in 2021 noted that although sustainability is not rated as highly as health in terms of importance when compared to price—only 29% will choose sustainability over affordability—it is striking that 70%+ claim to be willing to accept a price that is 5% higher or more for foods that are sustainably sourced [33]. Another interesting piece of information that the Conscious Consumer Report points out is that 62% of Australians agreed with this statement: "During Covid, I've re-evaluated my priorities in life. If I must buy a product or service, I'm more likely to buy it from a company that's doing some good" [34]. Therefore, the global trend even before the pandemic is that consumers are more aware of consuming and buying environmentally friendly products. However, most studies and data come from European and English-speaking countries, limiting an adequate understanding of the phenomena by not considering different social contexts.

Therefore, this manuscript contributes, on the one hand, to a theoretical research gap since this study examines the phenomenon of sustainable consumption within the context of COVID-19. Additionally, this article is one of the few investigations that examine the effect of COVID-19 on environmental awareness (EA), sustainable consumption (SC), and social responsibility (SR) from the consumer's perspective. On the other hand, this research contributes to the practical and empirical gap because this is the first study that provides evidence of the abovementioned variables applied to the Latin American consumer market. Both theoretical and practical contributions are expressed by the following research questions: what is the effect of COVID-19 on environmental awareness, sustainable consumption, and social responsibility in Latin American countries? Are there differences between the countries studied (Chile, Peru, Colombia, and Mexico)? Are there differences in perceptions between the generations and the different income levels between countries concerning environmental awareness, sustainable consumption, and social responsibility? Thus, this research enriches previous studies [7,35] by adding observations and new results that reinforce previous findings and raise other questions and future research in sustainable marketing. Therefore, the motivation of this study lies in the fact that different research scenarios or markets can strengthen the few results already found and provide new findings and distinctive elements found in Latin America better to understand the effect of COVID-19 on the population.

Hence, this research has focused on five objectives and contributions: (1) to examine the effects of COVID-19 on environmental awareness, sustainable consumption, and social responsibility, (2) to compare which of these variables (EA, SC, and SR) on the effect of COVID-19 is more incident, (3) to compare if there are differences between Latin American countries (Chile, Mexico, Colombia, and Peru), gender, age, and income when we examine the effect of COVID-19 in Latin America, (4) to evaluate the functioning of the conceptual model proposed by Severo et al. [7] through an analysis and adjustment by a structural equations model (SEM) to examine the cause–effect relationships and multigroup analysis applied to Latin American, and (5) to provide managerial implications for companies, brands, organizations, government, and consumers in Latin America and other regions. The sample data for this investigation were collected in Chile, Colombia, Mexico, and Peru

further to explore the impact of COVID-19 on their behavior. For the sample under study, the effect tests were performed on the differences in country, gender, age, and income.

Finally, this article continues with the following structure: a theoretical framework with a critical review of the literature on environmental awareness, sustainable consumption, and social responsibility and their respective relationship or consequence with COVID-19, providing the background concepts and research hypotheses. Next, we explain our methodology and provide a description of the sample. Then, the findings and results of the study are presented. Finally, this article provides the main conclusions, managerial and governmental implications, study limitations, and future research.

2. Theoretical Framework

According to this research's context and objectives, the conceptual background is based on the framework proposed by Severo et al. [7] who suggested that environmental awareness, sustainable consumption, and social responsibility appear to be closely linked to the effects of the COVID-19 pandemic (Figure 1). Therefore, it is appropriate to establish a theoretical framework that supports the constructs that are the basis of our hypotheses and theoretical model, which is discussed below:

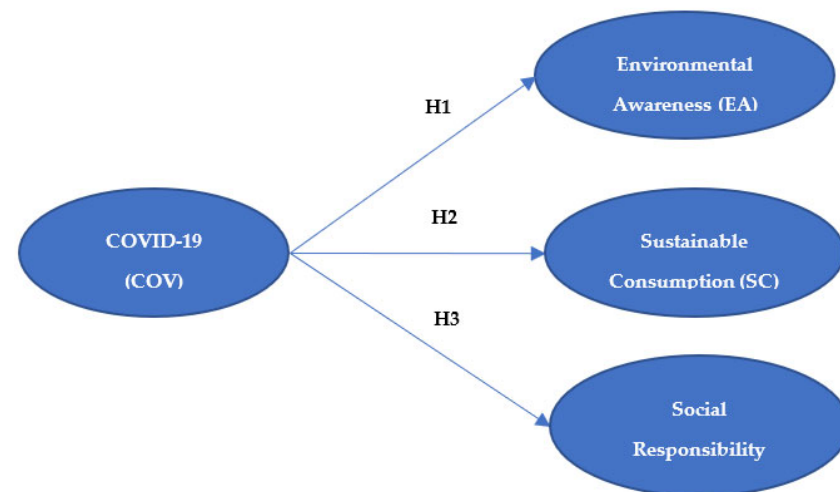


Figure 1. Framework and integrated model.

2.1. Conceptualization of Dimensions

2.1.1. COVID-19 Pandemic (COV)

The World Health Organization has defined COVID-19 as a global pandemic [1]. It was determined in December 2019, when the first cases of COVID-19 were presented in the city of Wuhan, China. This disease is caused by the SARS-CoV-2 virus, which is considered highly contagious [14]. The first confirmed case of locally transmitted COVID-19 in Latin America was in Brazil on 25 February 2020 [36]. According to López-Feldman et al. [37], at the beginning of the pandemic, the expansion of contagion and death of COVID-19 was slow, affecting a small proportion of the world. However, in June 2020, the situation changed dramatically; the number of confirmed cases was 1.51 million in Latin America, with data close to 1.19 million in the European Union, and 2.02 million in the United States. In this context, governments and authorities in Latin America began to communicate different messages to the population. For example, in Mexico, the President believed that this pandemic would only cause the simple flu. For that reason, there was no need to implement restrictions on the mobility of individuals. In the same vein, President Bolsonaro ordered the states not to impose a quarantine on Brazil. Instead, he invited citizens to go out every day [36]. COVID-19 has rapidly transformed into a humanitarian and economic crisis worldwide [2,3], and a phenomenon that has generated environmental effects [4–8]. Since the beginning of the global COVID-19 pandemic, different positive and negative

impacts have emerged in the global environment, which has been addressed by a scientific discussion to enlighten the challenges of COVID-19 for the planet [3].

2.1.2. Environmental Awareness (EA)

This concept was formalized in the 1960s as a phenomenon inherent to human nature [38]. Kaiser & Shimoda [19] state that environmental awareness predicts pro-environmental behavior. Therefore, it is considered a relevant factor that affects human consumption, actions, sustainability behavior, and the care of the environment [17,18]. The concept has been associated with integrating environmental sensations and specific objectives that encourage pro-environmental behavior [7,39,40]. Moreover, environmental awareness is understood through ecological practices, such as the use and destination of garbage, the reduction in water and energy consumption, and the care of natural resources, among others [40–42].

2.1.3. Sustainable Consumption (SC)

Sustainable consumption has been a topic of study and discussion in the last decades as a strategy to resolve multiple social crises (e.g., economic, environmental, and health, among others). This topic results from neglected consumption and production behavior at various levels of society [43]. Moreover, its importance is reflected in governments' and international organizations' efforts to promote and commit to reaching the needed behavioral changes concerning sustainability in the context of consumption.

2.1.4. Social Responsibility (SR)

During the last decades, social responsibility has been defined as a critical aspect in the definition and further implementation of corporate strategies and it is considered to be an essential element for evaluating business performance [44,45]. Nevertheless, there is a lack of attention on social responsibility from the standpoint of society and its impact on individuals as social actors and consumers. This research analyzes social responsibility as a strategy to protect, safeguard, and promote the quality of life of individuals and the environment [4,7].

2.2. Conceptual Model and Research Hypothesis in the Context of the COVID-19 Pandemic

2.2.1. COVID-19 Pandemic (COV) and Environmental Awareness (EA)

When it comes to analyzing the effect of the COVID-19 pandemic on environmental awareness, scholars have recognized the impact of this dimension and its importance [4,7]. The pandemic has caused a slowdown in the world economy, which has driven positive and negative externalities in society and organizations from an environmental point of view [46]. Specifically, COVID-19 has affected environmental behavior towards biodiversity, water use, waste generation, air pollution, forests, and wildlife [7,46]. For instance, Alfonso et al. [15] have stated that plastic production, use, and waste generation in Latin America and the Caribbean has increased in the pandemic, resulting in more than half of this waste being non-recycled garbage, producing pollution in the oceans and on land. In the same vein, Neyra et al. [47] have pointed out that food consumption and its direct waste generation (packaging) have increased during COVID-19. Another element is air pollution effects [7]. It has been manifested in the positive impact on the environment because of the pandemic contingency strategies implemented by different countries, showing significant improvements in air quality and environmental noise reduction [8]. Similarly, relevant decreases in air pollution have been reported due to the economic slowdown affected by different industrial activities [6]. Hence, it is possible to assume that COVID-19 and all of the surrounding circumstances that emerged in this pandemic scenario can be the starting point of broader sustainable awareness, giving hope for future human and animal life on the planet [5,6].

In Latin American countries, public policies are intended to contribute to environmental awareness. For instance, the Cartagena and Lima Conventions have promoted environmentally conscious recycling. In addition, Alfonso et al. [15] reported that differ-

ent countries had enacted measures to care for the environment and create awareness in society. For example, plastic reduction in straws, plastic bags, and polyethylene has been promoted in Mexico and Chile. Further, Yang et al. [48] identified thirty-nine countries that promote environmental awareness among their populations with a favorable feeling of pro-environmental consumer behavior; specifically, Brazil, Chile, Uruguay, and Peru are the Latin American countries that carry out these practices. Therefore, based on this assumption and on the theory explained above, hypothesis number one is presented:

Hypothesis H1 (H1). *The COVID-19 pandemic (COV) has positively impacted environmental awareness (EA).*

2.2.2. COVID-19 Pandemic (COV) and Sustainable Consumption (SC)

The international health crisis of COVID-19 has been a natural experiment to empirically examine any changes in behavioral consumption related to sustainability [6]. The main research findings to date are summarized in two main groups: (1) the effect of waste emissions and pollution, and (2) the effect on individual consumption. First, regarding the effect on production, the evidence of the initial periods of confinement in different cities and countries showed a relevant decrease in the pollution in urban and rural zones [49,50]. For example, recent research suggests that lockdowns and other restrictions related to COVID-19 have had a positive impact on terms of air quality in countries such as China [51,52], Italy [53,54], Portugal [50], the United States [49], India [55], and Malaysia [56]. In this vein and linked to the idea of sustainable consumption and emissions of waste and pollutants, scholars have suggested that the control of governments, manifested in restrictions on industry emissions and transport, can be the bridge to reaching environmental goals regarding air quality [56]. Nonetheless, those findings should be assessed with caution because they are concluded under exceptional circumstances. Thus, once the confinement measures or mobility restrictions are finished, individuals and industrial activities should return to pre-pandemic levels [51]. These findings should be re-evaluated under the conditions of that future scenario.

Second, there is still little research that has explored the effect of COVID-19 on consumer behavior. However, by considering novel findings, the evidence indicates an initial positive impact on the sustainable aspects of individual consumption. For instance, Severo et al. [7] argued that individuals who had increased their environmental awareness during the pandemic had manifested this by reducing waste production and behavioral changes to the preference for sustainable and eco-friendly products [7]. Similarly, Jribi et al. [57] found that in the initial weeks after the first lockdown in Tunisia, individuals changed their consumption habits positively, particularly regarding food wastage. On the other hand, scholars have argued the negative perspective of the pandemic and sustainable consumption. In this regard, Zambrano-Monserrate et al. [8] argued that waste generation had increased, mainly by the expansion of new delivery systems in the food industry that use inorganic packaging. Moreover, the movement restrictions and the closure of recycling centers have negatively impacted waste recycling.

Instead of the lack of research in Latin American countries, global evidence suggests the initial positive impacts of COVID-19 on sustainable consumption. In this regard, exploratory studies have provided novel findings suggesting variations toward sustainable consumption. Furthermore, building upon Cohen [5], a traumatic event with catastrophic consequences can catalyze social change processes. Therefore, it seems reasonable to evaluate if there is any effect of COVID-19 on sustainable consumption in Latin America. Accordingly, hypothesis number two is presented:

Hypothesis H2 (H2). *The COVID-19 pandemic (COV) has positively impacted sustainable consumption (SC).*

2.2.3. COVID-19 Pandemic (COV) and Social Responsibility (SR)

Few studies have evaluated this area under unprecedented circumstances, such as the case scenario of COVID-19, allowing the opportunity to empirically explore how this context can affect its understanding and development [58]. COVID-19 has affected society, and people have changed how they support each other and come together in times of crisis [6]. Similarly, countries have implemented policies to call the population's attention to a self-perception of responsibility to one's neighbor and the environment [59,60]. Additionally, Ali et al. [4]. pointed out that the pandemic context has impacted social responsibility and generosity among community members. Undoubtedly, the global crisis of COVID-19 has caused a significant change in behavior and the social awareness of society and life [61]. For instance, different organizations have carried out programs focusing on the distribution of food and clothes in schools [62,63] and business-level programs for the social and economic development of a country [64,65].

According to Ahmed et al. [59], not all countries have similar conditions to prevent COVID-19. For instance, low-income countries have more difficulties controlling the pandemic due to their social and economic needs and vulnerability [66,67]. Based on the above, it is necessary to worry about the effectiveness of these actions in developed countries and those most disadvantaged to implement social responsibility campaigns. Consequently, it is necessary to work on new proposals and social changes for a society's economic development and governance facing another world crisis [6,68].

Finally, Severo et al. [7] have proposed that the pandemic has made society more aware of socially vulnerable people. Likewise, Kondilis et al. [69] have pointed out that the pandemic has shown how groups of citizens and immigrants have been affected more intensely in socioeconomic and medical aspects than in previous years. Therefore, the government and citizens' support are necessary for appropriate assistance to the most disadvantaged in our society. In this sense, it is possible to suggest that this pandemic has generated a culture with a more significant concern about community behavior, specifically towards greater social awareness [70]. Therefore, to investigate the influence of COVID-19 on social responsibility in Latin American countries, the following hypothesis is proposed:

Hypothesis H3 (H3). *The COVID-19 pandemic (COV) has positively impacted social responsibility (SR).*

3. Research Methodology

This research aims to investigate and deepen the knowledge about the influence of COVID-19 on environmental awareness, sustainable consumption, and social responsibility from the perspective of consumers in several Latin American countries through a quantitative approach. Specifically, the data of this study were obtained from Mexico, Colombia, Peru, and Chile. A quantitative and cross-sectional research method was used through a self-administered survey [71]. The questionnaire was prepared with established scales [9] and was translated from English to Spanish using established back-translation procedures [72].

3.1. Sample and Procedure

The sample is non-probabilistic and by convenience [73]. This technique is commonly used in consumer behavior studies [74–78] because it is a low-cost technique for researchers and it is easy to find participants who are willing to participate [71]. The survey could not be taken in person because of the COVID-19 pandemic [79]. For this reason, the authors collected the data using an online survey by Google Forms through email and various social networks (Facebook, LinkedIn, Instagram, and WhatsApp) from July 2021 to September 2021. This study employed the online technique because of its several advantages, including simplicity, timeliness, and broad sample reach [80,81]. The sample of the research comes from 1624 valid responses with the perceptions of the consumers from different generations

and Latin American countries equitably distributed in 400 from Chile (24.6%), 421 from Colombia (25.9%), 401 from México (24.7%), and 402 from Perú (24.8%). Therefore, the data collection meets the sample size requirements [73].

Respondents are aware that the data are used exclusively for academic purposes. The research used the modified snowball method [9] through social networks [79], which is ad hoc to mitigate respondents' risk in the context of a pandemic. Furthermore, social networks and the internet contribute to the randomness and diversity in the respondents' characteristics. Table 1 provides a summary of descriptive information from the respondents.

Table 1. Sample profile.

	Country			Civil Status	
	<i>n</i>	%		<i>n</i>	%
Chile	400	24.6	Single	991	61.0
Colombia	421	25.9	Married	421	25.9
México	401	24.7	Cohabiting	116	7.1
Perú	402	24.8	Other	96	5.9
Total	1624	100	Total	1624	100
	Gender			Age	
	<i>n</i>	%		<i>n</i>	%
Men	670	41.3	18–29 years old	737	45.4
Woman	943	58.1	30–50 years old	697	42.9
I prefer not to say	11	0.7	50 years and over	190	11.7
Total	1624	100	Total	1624	100

3.2. Measures

The questionnaire presented 21 questions, 8 were related to the profile of the respondents and 3 were about behavior due to COVID-19, and 21 statements were divided into the following constructs: (i) COVID-19 pandemic (COV) with five items; (ii) environmental awareness (EA) with six items; and (iii) both variables of sustainable consumption (CS) and social responsibility (SR) with five items, based on the authors Severo et al. [7] (Table 2). All measures were translated from English to Spanish using established back-translation procedures [72]. Additionally, the questionnaire was reviewed by an expert panel of academics from Chile, Mexico, Colombia, and Peru to check that the language comprehension was the same in these four countries. After this, we apply a pretest with people from the four countries to verify the understanding and proper functioning of the questionnaire before applying the survey. The items were written as statements to be evaluated using a 5-point Likert scale (1: totally disagree to 5: totally agree). Therefore, all participants interviewed could understand the questions and answer them.

Compared with the scale applied in the study of Severo et al. [7], our study eliminated only two items from the COVID-19 dimension based on the low factor loadings (COV4: I believe that in 2020 an effective vaccine will be found for the treatment of COVID-19: 0.506; COV5: I believe that COVID-19 pandemic prevention campaigns have reduced the number of infected people: 0.523).

3.3. Statistical Analysis

The reliability and validity of the model was tested in the first analytical procedure, followed by the Cronbach's alpha method, to measure the reliability of latent variables and the internal consistency of the items used in the instrument. The confirmatory factor analysis was then applied to confirm the fit of the measurement model. This was followed by a check of the convergent and discriminant validity utilizing IBM SPSS Statistics software. Finally, this research employed a multi-group structure equation modelling (SEM) using AMOS software to test the proposed hypotheses. This method is highly recommended to

analyze cause–effect relations and/or descriptive models [82]. Therefore, an SEM is an ideal approach to test the hypotheses of dependence relationships and correlations and is helpful for estimating the effect of moderating variables [83].

Table 2. Constructs and items.

Dimension	Item
COVID-19 pandemic (COV)	COV1) The COVID-19 pandemic makes me worried about the future life.
	COV2) The large number of people infected with COVID-19 made me change my social behavior.
	COV3) The large number of deaths related to COVID-19 has scared me.
	COV4) I believe that in 2020 an effective vaccine will be found for the treatment of COVID-19. (Eliminated for the analysis)
	COV5) I believe that COVID-19 pandemic prevention campaigns have reduced the number of infected people. (Eliminated for the analysis)
Environmental awareness (EA)	EA1) The COVID-19 pandemic has made me increase the separation of organic and recyclable waste.
	EA2) The COVID-19 pandemic has caused me to reduce water consumption further, as this is a finite environmental resource.
	EA3) The COVID-19 pandemic made me worry even more about the natural resources for future generations.
	EA4) The COVID-19 pandemic made you realize the reduction in air pollution.
	EA5) The COVID-19 pandemic made me realize, even more, the environmental impact caused on the planet.
	EA6) The COVID-19 pandemic has increased my environmental awareness.
Sustainable consumption (SC)	SC1) The COVID-19 pandemic caused me to change my consumption habits to be more sustainable.
	SC2) The COVID-19 pandemic made me buy even more environmentally friendly products.
	SC3) The COVID-19 pandemic caused me to reduce waste production through prevention, reuse, and recycling.
	SC4) The COVID-19 pandemic has reduced atmospheric impacts by reducing gases (CO ₂) that cause the greenhouse
	SC5) The COVID-19 pandemic has reduced deforestation and loss of biodiversity.
Social responsibility (SR)	SR1) The COVID-19 pandemic has made me even more sensitive to issues of social vulnerability.
	SR2) The COVID-19 pandemic made him donate food or clothes.
	SR3) The COVID-19 pandemic caused me to make a financial donation to needy people or entities.
	SR4) The COVID-19 pandemic made me consume products/services from companies known for practicing social responsibility.
	SR5) The COVID-19 pandemic contributes to welcoming people who are socially vulnerable.

Source: self-elaboration based on Severo et al. [7].

4. Results and Analysis

4.1. Reliability and Validity Analysis

To evaluate the psychometric analysis of the data's reliability and validity, a dimensionality analysis were performed for each of the scales. For the computations performed in this paper, the statistical packages of IBM SPSS Statistics and Amos, version 25, were used.

Firstly, an exploratory factor analysis (EFA) and several reliability analyses such as Cronbach's alpha (CA), composition reliability (CR), and average variance extracted (AVE) were performed. The Cronbach's alpha (α) index presents a range between 0 and 1, and values greater than 0.7 are considered adequate. For validity, measured by the mean extracted variance (AVE), acceptable values equal to or greater than 0.5 are considered [84]. In this research, all the latent variables show a good level with Cronbach's alpha and the composition reliability (CR), with values higher than 0.7. For the mean extracted variance for the dimensions of the COVID-19 pandemic and environmental awareness, results equal to 0.5 were shown and for sustainable consumption and social responsibility, values higher than 0.6 were shown. Thus, Table 3 shows the results of the scale items used, factor loadings, composite reliabilities, and average variance extracted. Likewise, Appendix A shows the correlation matrix that indicates the degree of linear relationship between each pair of variables. Correlation values can be between -1 and $+1$; if the two variables tend to increase or decrease at the same time, the correlation value is positive. We can see that in our conceptual model, all relationships show positive and significant correlations with 95% confidence (p -value 0.05). The results show that COVID-19 (COV) would have a greater effect on social responsibility (SR) (0.322 **), environmental awareness (EA) (0.317 **), followed by sustainable consumption (0.29 **). In addition, the results show a notable correlation between EA and SC of 0.79 **, which would indicate that the discriminant

validity occurs to a lesser degree between these concepts. Therefore, although the variables of environmental awareness and sustainable consumption are scales or dimensions that address different conceptualizations, some items could be perceived in a similar way by the consumer surveyed, as often occurs with the variables of purchase intention and consumption, belonging to the buying behavior process.

Table 3. Scale items, factor loadings, composite reliabilities, and average variance extracted.

Constructs	Items	Mean	SD	Loading Factors	Regression Weights	KMO	CA	CR	AVE
COVID-19 pandemic (COV)	COV1	4.12	1.133	0.791	0.649	0.678	0.729	0.732	0.478
	COV2	4.18	1.074	0.794	0.656				
	COV3	3.89	1.193	0.832	0.763				
Environmental awareness (EA)	EA1	2.8	1.311	0.724	0.726	0.841	0.865	0.854	0.500
	EA2	2.59	1.317	0.693	0.666				
	EA3	3.27	1.316	0.843	0.841				
	EA4	3.62	1.26	0.723	0.542				
	EA5	3.71	1.235	0.784	0.616				
	EA6	3.56	1.254	0.872	0.802				
Sustainable consumption (SC)	SC1	3.2	1.236	0.875	0.895	0.808	0.902	0.893	0.631
	SC2	3.07	1.243	0.877	0.907				
	SC3	3.11	1.268	0.877	0.87				
	SC4	3.24	1.237	0.813	0.635				
	SC5	3.2	1.262	0.796	0.609				
Social responsibility (SR)	SR1	3.67	1.258	0.786	0.727	0.873	0.892	0.886	0.609
	SR2	3.36	1.341	0.864	0.782				
	SR3	3.17	1.35	0.852	0.762				
	SR4	3.13	1.344	0.821	0.814				
	SR5	3.31	1.31	0.854	0.814				

Source: self-elaboration. Note: SD = standard deviation; KMO = Kaiser–Meyer–Olkin; CA = Cronbach’s alpha; CR = composite reliability; and AVE = average variance extracted.

Furthermore, discriminant validity is also assessed with Fornell and Larcker’s test [85] and the heterotrait-monotrait ratio (Tables 4 and 5). Assessing the discriminant validity has become a generally accepted prerequisite for analyzing relationships between latent variables. For structural equation modeling based on variances, partial least squares, the Fornell–Larcker criterion, and cross-load testing are the most widely used approaches to assess discriminant validity (see Table 4). However, the authors Henseler, Ringle, and Sarstedt [86] showed through a simulation study that these approaches do not reliably detect discriminant non-validity in common research situations. Therefore, these researchers propose an alternative approach, based on the multitrait-multimethod matrix to assess discriminant validity named the heterotrait-monotrait correlation ratio (HTMT). Henseler, Ringle, and Sarstedt [86] demonstrated the superior performance of this approach using a Monte Carlo simulation study, in which these authors compared the new approach with the Fornell–Larcker criterion and cross (partial) loading evaluation. Finally, they provide guidelines on how to handle discriminant validity problems in variance-based structural equation modeling. Therefore, in this study, we have complemented our data with the heterotrait-monotrait criterion to assess the discriminant validity. If the HTMT value is below 0.90, discriminant validity has been established between two reflective constructs. (See Table 5).

Table 4. Fornell–Lacker criteria for discriminant validity.

Variables	COV	EA	SC	SR
COVID-19 pandemic (COV)	0.283	0.488	0.457	0.477
Environmental awareness (EA)	0.488	0.707	0.911	0.670
Sustainable consumption (SC)	0.457	0.911	0.794	0.687
Social responsibility (SR)	0.477	0.670	0.687	0.780

Source: self-elaboration.

Table 5. Heterotrait-monotrait ratio for discriminant validity.

Variables	COV	EA	SC	SR
COVID-19 pandemic (COV)				
Environmental awareness (EA)	0.391			
Sustainable consumption (SC)	0.397	0.841		
Social responsibility (SR)	0.303	0.647	0.658	

Source: self-elaboration.

Checking the questionnaire is essential to rule out the presence of common method bias (CMB) generated by common method variance (CMV) and is evaluated using Harman's single-factor test, providing a variance value of 45.45%. When the percentage is below 50%, it can be suggested that there is no bias in the variance of the significant common method of the data [87]; the CMB is clear to indicate whether there is CMV bias [88]. Furthermore, we have used the common latent factor (CLF) to determine whether a common factor can significantly influence the results [89]. Even after using the CLF, it is possible to observe that the CR and AVE scores are sufficiently solid and acceptable values for each dimension (Table 3). Therefore, CMB does not significantly affect the measurement model in this investigation. The results are summarized in Tables 6 and 7. The results show that the variance is not concentrated in a single factor and the first single factor explains 43.566% of the total variance, discarding the presence and influence of common method bias in the results.

Table 6. Total variance explained (Harman's single-factor test).

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative%	Total	% of Variance	Cumulative%
1	8.636	45.450	45.450	8.278	43.566	43.566
2	1.79	9.42	54.870			
3	1.611	8.478	63.348			
4	1.167	6.145	69.493			

Source: Self-elaboration.

Table 7. Indicators of Harman's single-factor test.

Indicators	Values
Kaiser–Meyer–Olkin sampling adequacy measure	0.932
Bartlett's sphericity test	20,104.114
Df	171
Significance grade	0.00

Source: self-elaboration.

4.2. SEM Estimations of the Proposed Hypothesis

The measurement model rendered a good adjustment level with the χ^2/df (chi-square/degrees of freedom) providing a return value of 7856 (1062.057/131). The root mean square error of approximation (RMSEA) index returns a value of 0.064, hence complying with a threshold value of 0.08, indicating a good sample size. The fit indices of the model indicate a comparative goodness of fit as the CFI = 0.954; the normed fit index (NFI) = 0.947; and the Tucker–Lewis index (TLI) = 0.944. The parsimony goodness of fit, the PNFI, shows a good value of 0.776.

Regarding the effect of the COVID-19 pandemic (COV) on environmental awareness (EA), the results show a positive and significant relationship (0.956 ***). Concerning the influence of the COVID-19 pandemic (COV) on sustainable consumption (SC), this is positive and significant (0.951 ***). Related to the effect of the COVID-19 pandemic (COV)

on social responsibility (SR), the results also present a positive and significant relationship (0.716 ***). Thus, our hypotheses H1, H2, and H3 are supported (Table 8 and Figure 2).

Table 8. SEM estimations of the proposed hypothesis.

Hypothesis	Structural Path	Estimate	p-Value	SE	CR	Decision
H1	COV → EA	0.956	***	0.275	11.14	Supported
H2	COV → SC	0.951	***	0.278	11.16	Supported
H3	COV → SR	0.716	***	0.182	10.57	Supported

Source: self-elaboration. Note: COV = COVID-19 pandemic; EA = environmental awareness; SC = sustainable consumption; and SR = social responsibility. p-value = *** $p < 0.01$.

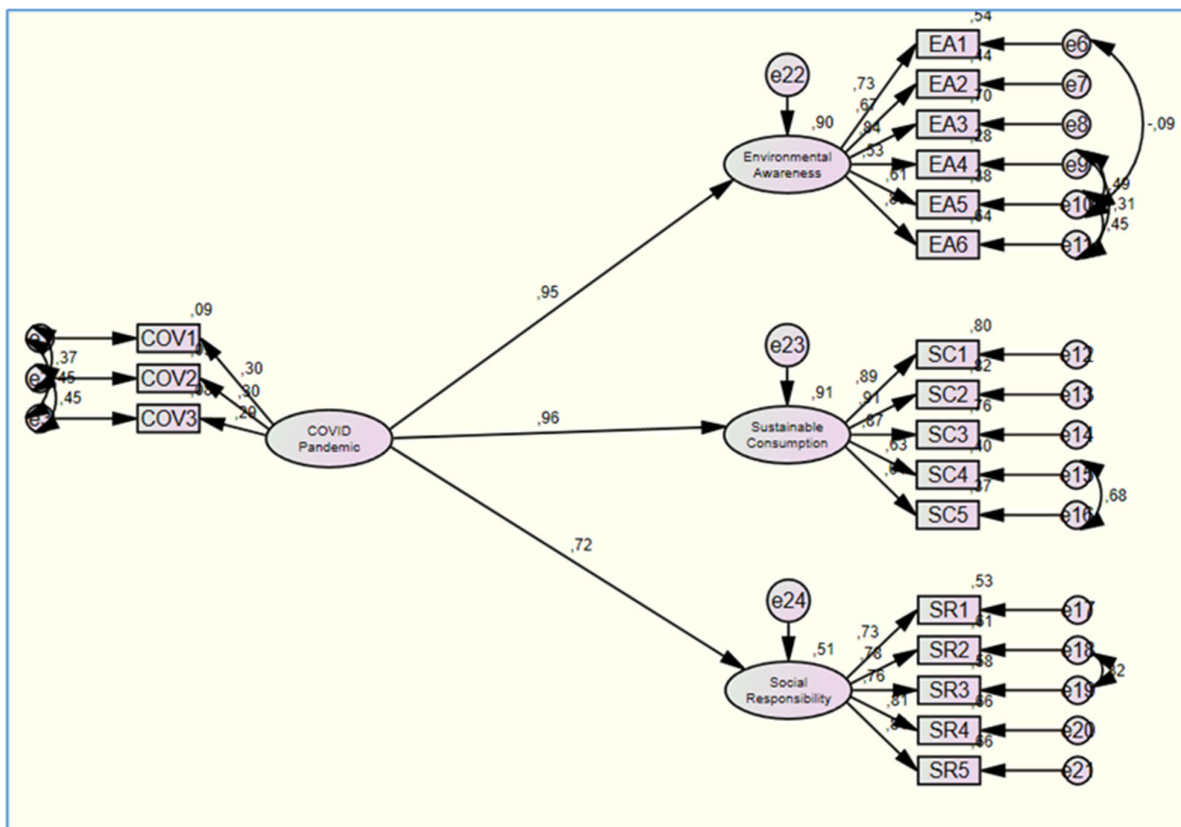


Figure 2. Structural model.

4.3. Control Effect Variables

In this study, we also evaluate some sociodemographic variables that could affect the results of the relationships proposed in the model, such as country, age, gender, and income (Table 9). For these variables, the results show that there are no significant differences between the relationships. In more detail, the findings show no statistically significant differences when examining the impact of the country. It can be stated that the four countries have similar characteristics by supporting all the hypotheses in the model. It also determines that gender does not produce distinctions; males and females support all the model hypotheses. Therefore, this study affirms that the effect of gender does not influence the proposed model. When analyzing the effect of age, the three age groups approve all of the model’s hypotheses. However, the group “more than 50 years” is the only one presenting a statistically significant difference. As a result, the age difference of the participants does not have an affect. There is a similar situation with “income”, because the results show that the difference in income does not affect the magnitude of the model’s relationship.

Table 9. Control effect variable.

	Variable	Hypothesis	Structural Path	Estimate	p-Value	SE	CR	Decision
Country	Chile	H1	COV à EA	0.962	0.008 **	2.709	2.669	Supported
		H2	COV à SC	0.965	0.008 **	2.565	2.671	Supported
		H3	COV à SR	0.675	0.008 **	1.410	2.633	Supported
	Colombia	H1	COV à EA	0.928	***	0.279	7.803	Supported
		H2	COV à SC	0.921	***	0.269	7.812	Supported
		H3	COV à SR	0.77	***	0.230	7.326	Supported
	Mexico	H1	COV à EA	0.927	***	0.702	4.619	Supported
		H2	COV à SC	0.963	***	0.724	4.592	Supported
		H3	COV à SR	0.711	***	0.447	4.381	Supported
	Peru	H1	COV à EA	0.955	***	0.961	4.389	Supported
		H2	COV à SC	0.949	***	1.018	4.356	Supported
		H3	COV à SR	0.711	***	0.685	4.271	Supported
Gender	Male	H1	COV à EA	0.916	***	0.380	7.145	Supported
		H2	COV à SC	0.986	***	0.404	7.138	Supported
		H3	COV à SR	0.749	***	0.279	6.816	Supported
	Female	H1	COV à EA	0.967	***	0.45	7.969	Supported
		H2	COV à SC	0.93	***	0.441	8.01	Supported
		H3	COV à SR	0.693	***	0.268	7.564	Supported
Age	18–29 years	H1	COV à EA	0.968	***	0.366	7.505	Supported
		H2	COV à SC	0.941	***	0.370	7.507	Supported
		H3	COV à SR	0.720	***	0.256	7.117	Supported
	30–50 years	H1	COV à EA	0.929	***	0.436	7.698	Supported
		H2	COV à SC	0.974	***	0.420	7.723	Supported
		H3	COV à SR	0.727	***	0.264	7.23	Supported
	More than 50 years	H1	COV à EA	0.941	0.003 **	1.350	2.937	Supported
		H2	COV à SC	0.899	0.003 **	1.402	2.93	Supported
		H3	COV à SR	0.691	0.004 **	0.890	2.845	Supported
Income	No income	H1	COV à EA	0.999	***	0.661	4.488	Supported
		H2	COV à SC	0.942	***	0.674	4.515	Supported
		H3	COV à SR	0.753	***	0.479	4.315	Supported
	Up to 1 minimum income	H1	COV à EA	0.931	0.012 **	2.362	2.52	Supported
		H2	COV à SC	0.978	0.011 **	2.379	2.528	Supported
		H3	COV à SR	0.769	0.012 **	1.730	2.499	Supported
	1 to 2 minimum incomes	H1	COV à EA	0.948	***	0.400	6.616	Supported
		H2	COV à SC	0.919	***	0.382	6.644	Supported
		H3	COV à SR	0.824	***	0.303	6.234	Supported
	2 to 4 minimum incomes	H1	COV à EA	0.921	***	0.359	6.228	Supported
		H2	COV à SC	0.975	***	0.390	6.178	Supported
		H3	COV à SR	0.607	***	0.214	5.304	Supported
	4 to 5 minimum incomes	H1	COV à EA	0.929	***	0.687	3.746	Supported
		H2	COV à SC	0.954	***	0.735	3.695	Supported
		H3	COV à SR	0.689	***	0.403	3.39	Supported
	More than 5 minimum incomes	H1	COV à EA	0.949	***	0.88	3.923	Supported
		H2	COV à SC	0.954	***	0.838	3.872	Supported
		H3	COV à SR	0.663	***	0.505	3.715	Supported

Source: self-elaboration. Note: COV = COVID-19 pandemic; EA = environmental awareness, SC = sustainable consumption; SR = social responsibility; p-value = *** $p < 0.01$; ** $p < 0.05$; SE = standard error; and CR = composite reliability.

5. Discussion and Conclusions

Based on the aims of this research, which are to investigate and deepen the knowledge about the influence of COVID-19 on environmental awareness, sustainable consumption, and social responsibility from the perspective of consumers in four Latin American countries with equitably distributed respondents of by having 400 from Chile (24.6%), 421 from Colombia (25.9%), 401 from México (24.7%), and 402 from Perú (24.8%) with a total of 1624 valid responses, our study provides findings that have important implications for both research and practice.

5.1. Implications for Research

Our research findings provide strong evidence that supports the idea suggested in previous studies about the impact of COVID-19 as a phenomenon that has several psychological effects on the population [88,90–92], and our findings add nuance to the prior art by developing this study in the neglected research context of Latin America. Moreover,

differently to preceding studies [4,7], the results contribute to a better understanding of this phenomenon among scholars, specifically by refining the dimension “COVID-19 pandemic”, with a focus on the items related to the perceptions of individuals regarding their mental health, but avoiding the beliefs of the participants related to the evaluation of strategies to control the health crisis or expectations about potential positive consequences of the vaccination programs in this construct.

Therefore, unlike the existing research proposed by Severo et al. [7] on the pro-environmental effects at the beginning of the COVID-19 pandemic, our study contributes to the field by offering a refined research framework applied in Latin America focused on the middle of the pandemic (between the third and fourth waves), providing a better understanding of the effects of COVID-19 in consumer behavior and sustainable consumption.

Furthermore, Severo et al. [7] claimed in their findings that their fit model, reliability, validity, and structural model are adequate for data measurement and evaluation. However, the fit model can be improved. For example, the original study’s fit model has lower values than ours (RMSEA = 0.085, NFI = 0.821, TLI = 0.794, and CFI = 0.827). Our results have the best model fit (RMSEA = 0.064, NFI = 0.947, TLI = 0.944, and CFI = 0.954). Similarly, our research enhances Cronbach’s alpha of all variables (Table 3). For instance, Cronbach’s alpha value (0.472) in the COVID-19 pandemic (COV) variable has been improved. Our alpha indicates a value of 0.678, which is closer to the value of 0.7 recommended by the literature [77].

Likewise, our results confirm previous research related to the effect of normative influences and altruism [24], which consequently generates an impact on behavioral intention [25]. In this vein, our evidence reveals that in the context of COVID-19 among a Latin American population, individuals have developed changes in behavior triggered by concerns that go beyond the immediate impact of consumption, which focuses on the effects that their actions have on society.

5.2. Implications for Practice

Regarding the evaluation of the three hypotheses researched, the results support the stance about the positive impact of COVID-19 on environmental awareness, sustainable consumption and social responsibility in Latin America.

First, the research findings confirm that the COVID-19 pandemic context has positively influenced individuals to increase their general environmental awareness [4,7]. Furthermore, from the analysis, it is possible to identify that this impact has a higher value related to the acknowledgement of the environmental damage generated on the planet and the concerns about access to natural resources for the future. However, in line with prior studies [8], this influence has a less intense value in specific behaviors such as recycling, a reduction in water consumption, and air pollution. The latter is challenging, given that studies have reported an increase in the generation of garbage (specifically plastic). Therefore, even when there is a more significant individual perception regarding environmental awareness as a consequence of the pandemic, this would not be enough to be able to counteract the negative externalities generated in this context. For instance, an important issue is the generation of household garbage due to the change in delivery systems in different retail and food industries [13]. Following the stance of Cohen [5], these findings show the initial transition process towards practical actions. Therefore, it is possible to suggest that this scenario can be expected to predict a starting point for environmentally friendly behaviors [93].

Second, concerning sustainable consumption, the results also support the stance that COVID-19 has positively impacted individual behavior. In this vein, individuals reported changes in consumption habits towards environmentally friendly products, consistent with the findings related to environmental awareness. Likewise, considering the advice of scholars to examine the pandemic effects in similar scenarios to pre-pandemic levels [51], our research contributes to providing these findings by collecting data between 18 and 21 months after the beginning of the crisis, in moments where most of the local restrictions

were reduced in the countries where the study was carried out. It supports previous studies that reported initial changes in sustainable consumption weeks or a few months after December 2020 [4,7]. Nonetheless, even though it gives a new perspective on a potential change of conduct that is still reported months after the beginning of the crisis, sustainable consumption from individuals should also be manifested in behaviors that solve the waste problems generated in this new dynamic of interaction between companies and consumers. Considering our evidence, it is not intended to establish whether this behavioral change will be permanent or only temporary, considering the context of the pandemic. Therefore, we are cautious in not providing short-term or long-term implications. However, taking into consideration our results, we can argue that there are changes in behavior reported at the time of the study, such as recycling and changes in habits towards sustainability, such as the purchase of more environmentally friendly products. Likewise, we propose that it is relevant to consider that the results show an effect at the individual level related to attitudes such as awareness of the future state of the planet and its relationship with different spheres of sustainability. In this vein, it is possible to suggest that if individuals maintain their concerns about the environment and society, the effect of the pandemic could manifest in long-term behavior. Third, our results also confirmed that COVID-19 positively impacted social responsibility [4,7]. In this sense, it can be argued that the principles of solidarity and equity have emerged as an answer to not leaving behind people with economic or social needs [70]. It has been manifested in different countries through social campaigns related to the donation of food [62,63] as well as business-level programs for social assistance in the countries for marginated people [64,65]. In our study, participants reported similar personal actions, such as donations in their local contexts, suggesting that, from an individual perspective, there is an emergence of social awareness that needs to be understood differently from the corporate perspective of social responsibility.

Unlike prior studies [7], our results did not reveal a statistically significant difference in the confirmation of our hypothesis among the participants' countries. This last point suggests that the context of Latin America is more equivalent to making a comparative analysis than doing a similar examination between countries of different continents with different levels of development.

In addition to the analysis by country, our study also has important demographic implications that must be considered for practice. First, our results confirm that the impact on EA, SC, and SR does not differ between gender (male and female). Second, our results show that people of all ages (over 18 years old) have been impacted in terms of their EA, SC, and SR by the pandemic, without distinguishing a particular generation that is excluded from the phenomenon. Third, the study confirms that these effects are observed in the participants regardless of their income levels. These three elements provide valuable information for the definition of cross-cutting pro-sustainability commercial campaigns for all of the groups under study.

Based on the above, it is possible to provide managerial implications. In this sense, our results provide strong evidence of social changes experienced in Chile, Perú, Colombia, and Mexico in the COVID-19 pandemic, which allows us to discuss practical actions for governments and businesses. Local governments should consider this social scenario and encourage activities that positively impact our planet from a national perspective. Furthermore, based on the experience and learning of this crisis [56], the authorities should implement policies that facilitate the process of change, which should be related to reducing pollutants and incentives for recycling or efficient water consumption. Similarly, companies must understand this change and offer products and services that respond to clients' preferences. For example, companies that sell food must consider that the pandemic has facilitated the generation of a conscious consumer that connects health and sustainability priorities, where the purchase decision is influenced by factors related to sustainably sourced production processes or how these affect the health of the consumers [33]. An example of a strategy that can guide different countries is the front-of-package nutrition labelling policy successfully implemented in Chile. Even when the objective of this strategy

was to provide nutritional information to customers, an accessible, simple, viewable, and interpretable information system regarding sustainable factors that are key to the purchase decision, such as the use of natural resources, waste generation, the footprint of carbon or others that provide information regarding the environmental commitment of companies, could be promoted in different industries and countries. Similarly, the delivery industry must address a critical challenge regarding the environmental impact of the waste they cause with inorganic packaging [8]. In addition, considering the recommendations related to COVID-19 of frequent hand washing and the use of masks, the related industries must be able to develop products that do not contaminate water or that are biodegradable [94], since these characteristics are valued by their potential customers in Latin America.

5.3. Limitations and Future Research

Concerning limitations and future research avenues, the type of non-probabilistic trial sampling according to the objective of the investigation and simple cross-section used in the study may restrict the conclusions obtained. In addition, the responses from the respondents are only opinions and statements of their intentions in their consumption and purchase behavior. On the other hand, this study only included four Latin American countries. Therefore, it would be interesting to expand the sample to include other countries of the region, such as Argentina, Brazil, or Uruguay from the Atlantic side of the continent; including Panama and Costa Rica as representative countries of Central America; and even including countries outside America with similar cultural structures such as Spain, Portugal, and Italy, following previous studies on cross-country analysis [95,96]. By including more countries in future studies, there is also an opportunity to develop cross-cultural analysis [97,98] and explore theoretical models related to basic human values (such as Schwartz's model [99]) that could influence consumer behavior based on geographical distances [98]. Thus, this limits the generalizability of the results. Therefore, it is suggested to carry out an extension of this study using a stratified random sample to, for example, compare Millennial vs. Generation X consumers or to compare more countries and also apply measurement invariance in cross-country consumer research [100]. This would allow greater certainty in the analysis and conclusions of the study.

Furthermore, this study is not representative of consumer behavior. Many consumers have a positive attitude and declare their purchase intention toward sustainable products; however, these users commonly end up not buying them. Therefore, a study that is focused on exploring the gap between the purchase intention and the purchase experience in sustainable products needs to be addressed.

Another additional limitation of the research is the number of variables that have been analyzed. For example, this research investigated only three effects of COVID-19 on the sustainability context. Other areas of study from the marketing perspective could include new variables for understanding consumer behavior from different points of view. For instance, it is possible to explore the abovementioned variables and their relationship with brand loyalty, image, personality, and identity. Consequently, new research questions could be proposed based on this study.

An example is, what is the influence of COVID-19 on the perception and image of eco-friendly companies? Or, what is the impact of the COVID-19 pandemic on society and organizations, personality, and identity on sustainability topics? Based on this research, this pandemic not only affects public health. Instead, it is an event that it affects social, humanitarian, economic, and environmental aspects of our lives. Therefore, COVID-19 is a challenge for society and organizations regarding their behavior towards and protection of the environment.

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references. E.E.G.-S.: data collection and survey. All authors have read and agreed to the published version of the manuscript.

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Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: Data availability can be requested by writing to the corresponding author of this publication.

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Appendix A

Table A1. Correlation Matrix.

	Mean	S.D.	COV	EA	SC	SR
COVID-19 pandemic (COV)	4.06	0.91	1	0.317 **	0.29 **	0.322 **
Environmental awareness (EA)	3.26	0.99	0.317 **	1	0.79 **	0.579 **
Sustainable consumption (SC)	3.16	1.06	0.29 **	0.79 **	1	0.611 **
Social responsibility (SR)	3.33	1.1	0.322 **	0.579 **	0.611 **	1

Source: self-elaboration. Note: ** $p < 0.01$.

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