

# **A Real-Time Experiment to See How Resilient Online Shoppers are in The Face of a Pandemic Before, During, and After A COVID-19 Shutdown**

**By**

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## **Abstract**

Covid-19's influence on the retail industry is leading to increased internet purchasing. This research is all about studying the causes and effects of this shift. The COVID-19 crisis, customer behavior literature and COVID-19 research are used to explain how online purchasing habits have evolved. The study aimed to identify the changes in consumers' internet purchase habits. We conducted descriptive single-case research to examine internet customer behavior. Consumers who completed online purchases within the time frame of the research were used as the study's unit of analysis. Results suggest that online users respond, cope, and ultimately adapt when confronted with stressful circumstances, proving the effectiveness of the react-cope-adapt paradigm for limited consumer behavior. Academics and merchants alike may utilize our results in the case of future crises to enhance their product selection, advertising, and distribution to better understand customer behavior in these times.

**Keywords:** Covid-19 pandemic, electronic commerce, environmental restrictions

## **1. Introduction**

Companies and consumers alike have felt the effects of the COVID-19 outbreak. The effects of COVID-19 on businesses and their digital transformation have been studied, while the effects on consumers and their purchasing behaviors have received far less scholarly attention (Yin et al., 2021). Industry statistics and consumer surveys demonstrate that e-commerce was already on the rise before the current recession hit (Nanda et al., 2021). The fear of the pandemic has drastically altered consumers' perceptions of the economic and environmental benefits of e-commerce platforms (Raza & Khan, 2021). SARS pandemic in China in 2002–2003 and subsequent digitalization of the marketplace have some authors predicting structural changes in consumption after the pandemic ends (Kaijalainen, 2021), similar to those observed in China during the pandemic (Toubes et al., 2021). This study examines how buying behavior has changed before, during, and after a COVID-19 lockdown, an early attempt to fill this void in the research. The following research issue is addressed in this study: During the COVID-19 epidemic, how did consumers' internet purchase habits change?

## **2. Literature Evaluation and Conceptual Framework**

### **2.1 Internet purchase limitations**

Researchers have been increasingly interested in their effect as consumers face more stressful and time-constrained situations. The COVID-19 pandemic and the current economic downturn are both factors that are likely to further speed this up (Notteboom et al., 2021).

(Pouye, 2021), (Vermeer et al., 2022), and (Lewit et al., 2022) are among the few researchers that have examined how online consumer purchase behavior changes during times of limitation, such as during the SARS epidemic or the COVID-19 pandemic (Gunay & Can, 2022). In recent studies, it has been shown that customers are resilient. Research on resource scarcity, option limitation, social comparison, and environmental unpredictability might help explain how financial restrictions affect consumer behavior, according to (Cavallo et al., 2020). After first responding to a new limitation, consumers adopt coping mechanisms to get around it. Their consumption patterns alter with time, making them less reactive and tolerant of stress. If I were to put it into three words: it represents quick responses, short-term remedies, and long-term adaptations. Consumer behavior during the COVID-19 epidemic was studied using the RCA model (Usas et al., 2021). Consumers may respond to a pandemic by accumulating products they perceive are rare and essential. They may reject the behavioral demands of social distance and mask-wearing altogether in certain situations. These acts are a reaction to the epidemic and an effort to reclaim liberties that have been lost. Customers learn to deal by adjusting their behavior and regaining control over other elements of their life.

In the face of product shortages and shifting brand loyalties, consumers resort to strategies such as maintaining social networks, using online communication tools, adopting a pet, and taking on do-it-yourself projects. Long-term shifts include things like people spending more time at home, making more purchases online, and spending less time with friends and family in stores. Reducing one's consumption and activity levels is an organized strategy for handling stressful situations (Jones et al., 2021). Fig. One example of the RCA framework is seen in Figure 1. Furthermore, similar findings have been reported in the scholarly literature. Proactive health-mind shopping, reactive health management, pantry preparation, quarantined living preparation, restricted living, and living a new normal are all steps proposed by a market research firm's examination of global consumer products marketplaces. The sixth and final phase of the RCA framework is adaptation. The first stage, response, is followed by three phases of coping. Customer responses to the COVID-19 pandemic have also been described using the Stimuli Organism-Response (SOR) paradigm. According to the SOR model, consumers' moods and actions (responses) are influenced by the stimulus environment (Pandita et al., 2021). In the retail and e-commerce literature, this method has been used to successfully explain customers' responses to online environmental cues (Li et al., 2021; Wu et al., 2021). Recent study (Laato et al., 2020) used the SOR framework to examine the impact of early exposure to online information sources (stimuli) on a consumer's level of cyber chondria and the likelihood that they would make unconventional purchases (Cyber and Intention to Buy) Following the end of the data collection period for this study, customers quickly adjusted to the new normal brought about by COVID-19 and subsequently pushed for more longitudinal studies to evaluate the ways in which habits change over time. To examine how people's usage of the internet evolved during the COVID-19 epidemic, we will use the RCA model.

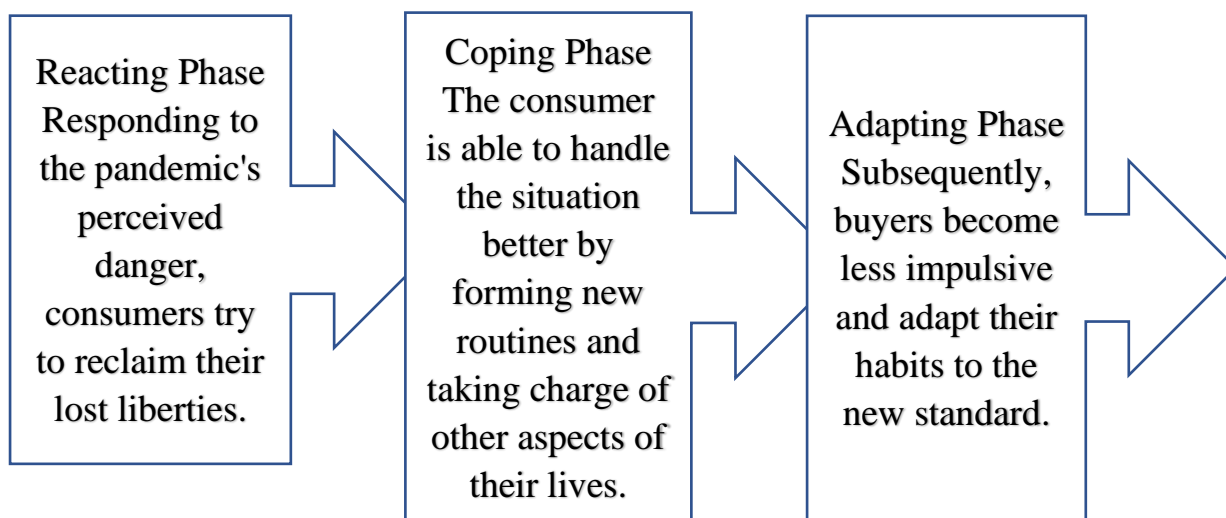
## ***2.2 COVID-19 online shopping behavior trends.***

The COVID-19 pandemic, according to (Loxton et al., 2020), influenced consumption and consumer behavior immediately since it encouraged hoarding. Consequently, before the epidemic, individuals started storing basics like toilet paper, water, and disinfection goods (Roşu et al., 2021). COVID-19 saw a wide range of unusual purchase patterns throughout the globe due to anxiety about future product supply (Yuen et al., 2022). (Omar et al., 2021) suggest that if rare commodities are considered significant and the danger of continuous availability is substantial, customers would strive to recover control by hoarding. University workers and students in Finland exposed to the COVID-19 epidemic were observed to exhibit aberrant buying behavior because of a desire to isolate themselves and high levels of fear about

their health. The fear of losing out on a great offer is heightened using social media and government regulation. Products that people are collecting for future pandemics have been identified and explained in light of the possibility of further COVID-19 outbreaks (Atolani et al., 2020). According to Hong Kong's largest online store, cleaning supplies like bleach showed a dramatic increase in demand during the SARS outbreak (Hamilton et al., 2020). Purchasing disinfectants and antibacterial products may be necessary for those concerned about their health during a crisis. A pandemic may lead to an upsurge in the buying of health supplies.

**2.3 Purchasing habits of COVID-19 attendees while shopping online**

The second step of a response to a limitation is called coping. Constraints become less of a problem for customers when they adapt their behavior and way of thinking (Nabi et al., 2022). They take action on the issue and learn to deal with the new situation less stressfully when they adopt problem-focused coping methods. Psychological or problem-oriented coping might be utilized similarly (Bhatti et al., 2020). Online shopping was a lifeline for people in the Country during the SARS outbreak. People bought necessities like hand sanitizer and disinfectants as well as rice oil, pork, seafood, and veggies (Kumar & Abdin, 2021). Consumers are reassessing their spending habits because to the persistent nature of COVID-19. In the coping phase, only spending on basics has any positive effect (McKinsey & Company, 2020). Supplies for dealing with a pandemic would have to include things like potable water, food, cooking utensils, protective clothing, and cleaning supplies (Yang, 2021).



**Figure 1.** *React, Cope, and Adapt: The Framework's Phases*

Emotion-focused coping methods center on the feelings and emotions of the individual engaging in them and are usually used to distract from a problem. When people are coping, they may acquire self-care and well-being goods to concentrate on their well-being. Religion, therapy, or distraction are a few ways to cope with adversity (Moore & March, 2022). Another way to cope is to seek out social ties with other people and living species (Christley et al., 2021). According to reports, more people in the United States are now grooming their pets themselves after the COVID-19 lockdown (Ipsen et al., 2021). As stores were regularly shuttered during lockdowns, pet owners began to shop online for groceries and medical treatments for their pets (Di Crosta et al., 2021).

**2.4 COVID-19 saw a rise in adaptive online shopping behavior**

Consumers' long-term behavioral alterations and lifestyle adjustments in response to terrorist attacks, natural disasters, and pandemics (Museba et al., 2021). The COVID-19

pandemic, lockdown, and social distancing strategies caused consumers to experiment with new channels and develop new routines. Customers tried out new brands and channels as a result of the recession, favoring digital and contactless services like curbside pickup and delivery and online buying with in-store pickup (Torrise et al., 2021). Most shoppers were counting on being able to keep shopping multichannel or digitally when the crisis subsided. According to one market research firm, the changes brought about by the Chinese epidemic, such as the greater dependence on the internet and smaller, locally owned businesses, have become the norm.

Internet shopping and home delivery may appeal to customers for various reasons, not the least of which is that it allows them to escape the anxiety that comes with implementing new hygienic requirements and limitations in retail establishments. Customers' behavior may change if they are concerned about contamination beyond the confinement period (Lin et al., 2021). The virus may influence consumer behavior by encouraging previously wary internet users to take the plunge and purchase. This may help individuals overcome their initial apprehensions about making internet purchases, which may encourage them to continue doing so after the pandemic has stopped. Latecomers to internet buying tend to be customers over the age of 50. (Ibrahim, 2020).

### ***2.5 Proposal for analysis***

Based on our literature analysis, we propose that online consuming behavior follows three phases. We anticipate seeing the following pattern: To recapture their lost rights in the wake of the pandemic, consumers begin stockpiling products that lessen the possibility of infection. Customers react by changing their habits and taking charge of other areas of their life, including their health. At last, consumers grow more accepting of the new standard and their online shopping habits.

### ***2.6 Investigational Strategy***

We conducted descriptive single-case research during the epidemic to examine internet customer behavior. Consumers who completed online purchases within the time frame of the research were used as the study's unit of analysis. It is appropriate to use a case-based approach while working in a new or unexplored field (Hitch et al., 2022), even more so when it comes to online activity during times of emergency. For the COVID-19 problem, there have also been recommendations for further empirical research and descriptions of consumer behavior (Seidel & Watson, 2020).

### ***2.7 Plan and create a case study***

Descriptive research attempts to establish causation by analyzing and defining associations between explanatory and responsive variables. Descriptive designs are driven by questions like "how is this variable different from that other variable?" "how does this variable relate to that other variable?" (Ahani & Dadashpoo, 2021). Prior to formal testing via explanatory research, comprehending relationships is aided by such descriptive, causal conceptions. For this reason, case studies are often the backbone of descriptive research. It is common practice for academics to choose cases that provide light on important context and processes (Kar & Dwivedi, 2020). Case study research is most effective when the research question is "how" or "why," when there is no need to control variables, and when the emphasis is on events that are happening right now. Boyd et al. (2018). Our investigation took place at Cyber Pharma, a leading French online pharmacy, health and beauty supply store, and wellness destination.

According to (Charef et al., 2021), a single case study might be justifiable if its objective is to depict the conditions and circumstances of ordinary or typical happenings because of its representative character. The company was selected as a sample example of an online retailer for the purpose of this research. The study team found that Cyber-Pharma's revenue, product range, staff composition, and business procedures were all typical of an e-commerce firm. Cyber-Pharma's upper management wanted to look back on how customers behaved during the Covid-19 issue, and they granted access to all of the company's internet search and transactional data. A major argument against research based on isolated cases is that it cannot be extrapolated to similar situations. The goal of a single-case study is not generalization based on statistics, but rather generalizability based on theory or analysis. The purpose of this research was to evaluate the viability of the RCA framework to characterize online buying behavior during a pandemic, hence a single case technique using a representative instance was selected. Second potential source of concern is the Cyber Pharma rep. Though the company was selected because it would serve as a suitable case study for theory development, studies of other firms in other fields might be fruitful in the future.

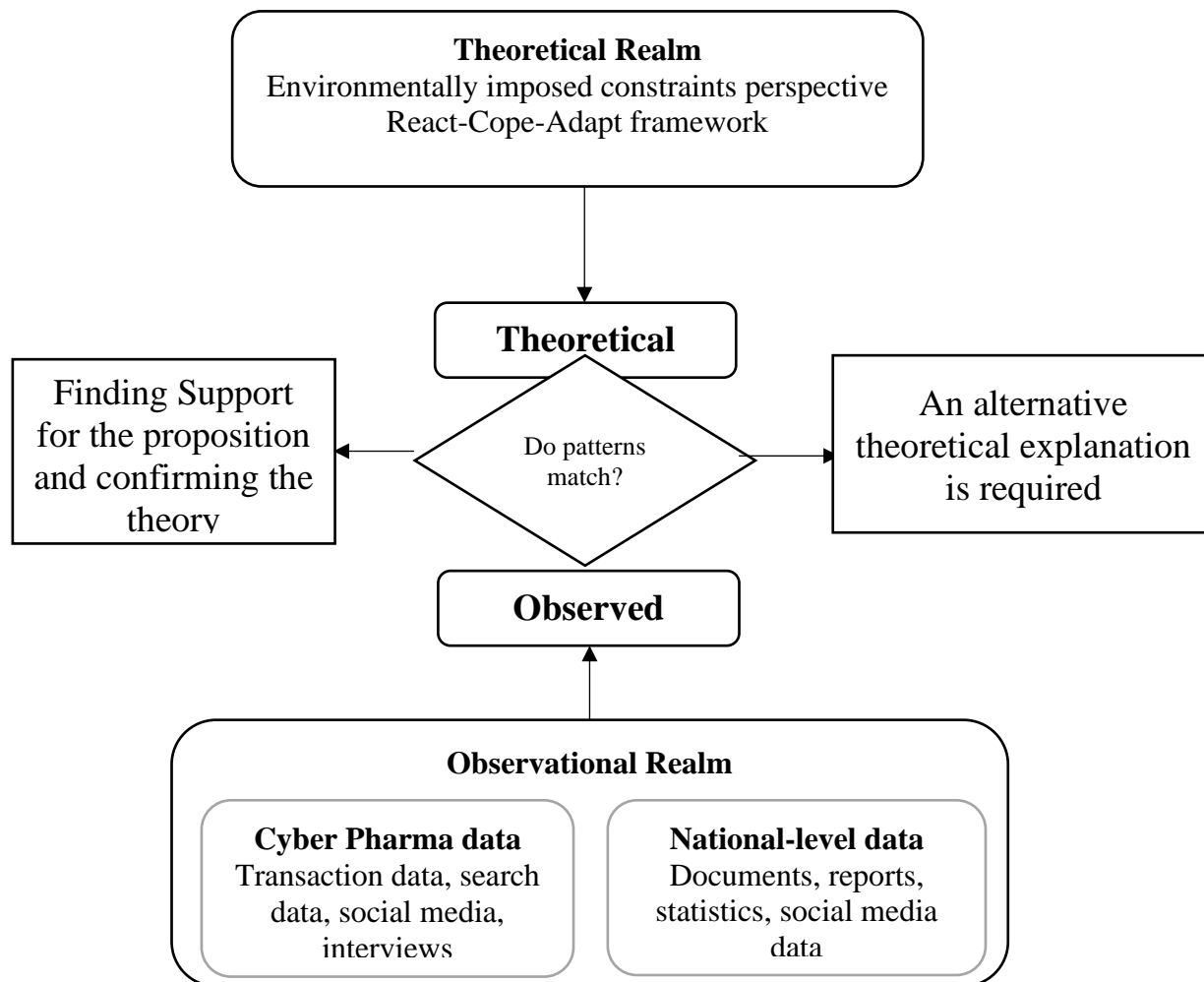
We used a wide variety of data sources to provide a comprehensive picture of how people used the internet to shop throughout the pandemic (Sinkovics, 2018). The theoretical framework was put to the test by using a pattern-matching approach. The term "pattern matching" refers to the process of comparing an ex-post pattern of behavior from case data with an ex-ante pattern of conduct given in the literature (Zhang et al., 2022). When evidence contradicts a theory, it's time to look for a new one (Brüssow, 2021). This is in contrast to when a case study demonstrates a statement and lends credence to the theory. If you look at Fig. 2, you can see a representation of the pattern-matching process. If our study hypothesis holds, we should see the following behavior pattern: Consumers first respond to the perceived danger posed by the epidemic by striving to recapture lost freedoms; then, they learn to manage by adopting new habits and expressing control in other areas; finally, they adjust their consumption patterns to the new normal and continue shopping online.

Our research included collecting and analyzing data on two different scales. To begin, information on COVID-19 infection and death rates, consumer sentiment, and online shopping habits in France was collected from a wide variety of sources at the national level. The RCA framework was used to sentiment data in order to construct a periodization, and e-commerce data was used to verify that Cyber Pharma's activity was representative of the national trend. Second, information on the customers who frequented Cyber Pharma's website during that time period was collected and analyzed to reveal a set of consistent patterns in their online activities. Cyber Pharma management offered both transaction and search data. After the obligatory shelter-in-place restrictions in France were abolished, data on online sales was gathered from the first month of the pandemic (January 2019) to the second month (July 2020). All search terms submitted by users throughout the seven months beginning in January 2020 and ending in July 2020 were evaluated. Since all customer information was obscured, no one customer could be traced back to their specific transaction history. Management was interviewed and the company's social media activity was analyzed to better comprehend the organizational challenges brought on by the crisis.

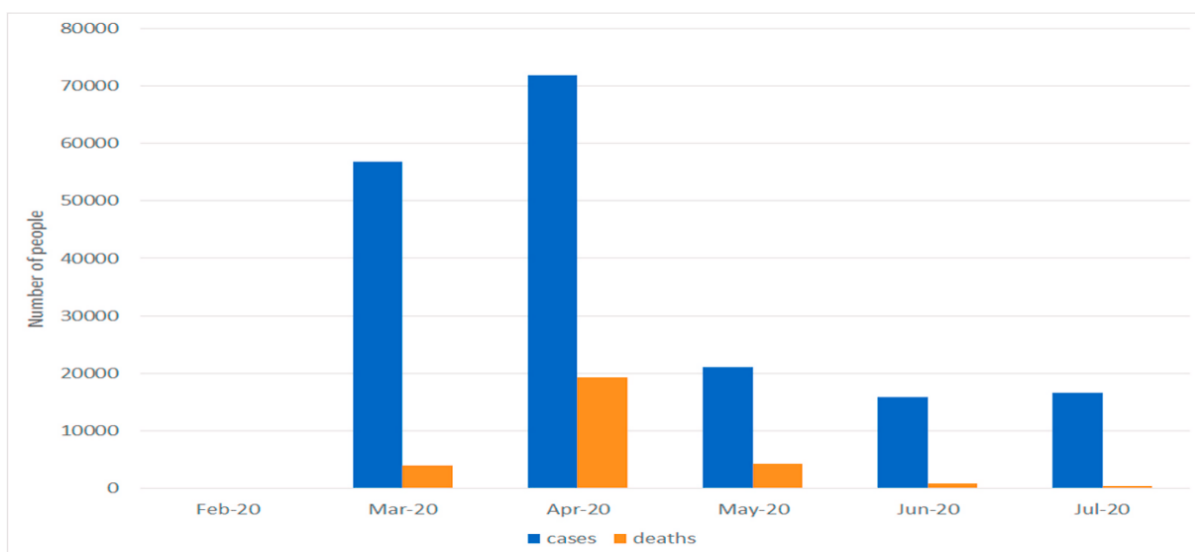
### **3. Results**

The next part provides an overview of the first six months (February–July 2020) of the COVID-19 pandemic in France, including the virus's effect on national consumer mood and online sales. This time frame includes the onset of the pandemic as well as the first imposition

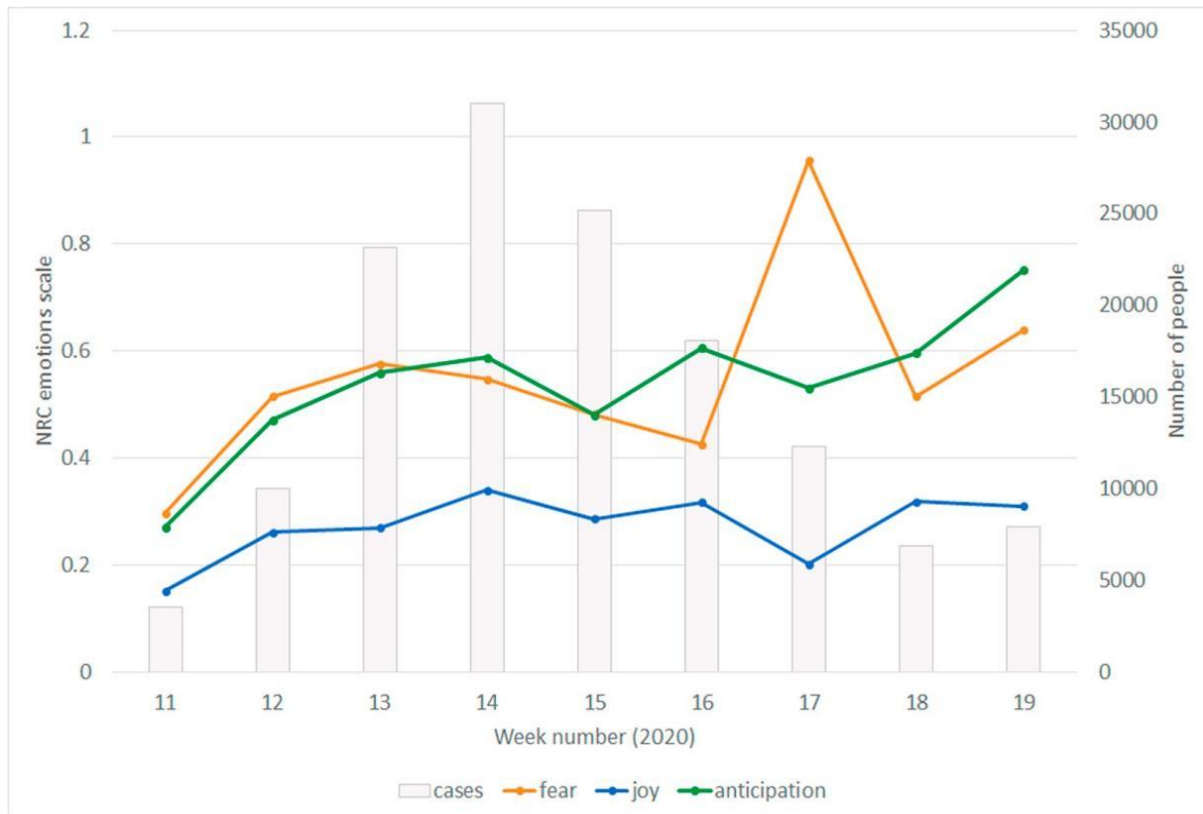
of shelter-in-place orders. Data about Cyber Pharma's online spending, keyword use, and social media engagement is then presented and examined (Abosedra et al., 2021). We describe the observed pattern after using our pattern-matching method, and then we compare it to the expected pattern derived from the available literature.



**Figure 2.** The procedure of pattern matching.



**Figure 3.** (COVID-19): monthly incidence and mortality rates in France (2020)



**Figure 4.** *How did people's feelings change during the confined period?*

In a functional approach to emotions, people think about the good and bad things that happen to them in their surroundings and then react to those thoughts and feelings ("emotions") by doing things to deal with the stimulus. It has been shown that emotions have a substantial impact on consumer behavior and decision-making as part of a complex chain of responses that may be useful for an individual in coping with a variety of issues or crises in life (Azadegan & Dooley, 2021). In this research, the react-cope-adapt periodization was constructed using a kind of typology described by Kim et al. (2021).

According to (Krammer, 2022), fear is the most fundamental human emotion, a reaction to a perceived environmental threat. To deal with stress, people undergo a coping phase in which they adopt new behaviors and engage in new activities. If you have just gained a unique and valuable object or resource, you may feel delighted as the primary basic emotion. Consumers adjust their behavior during the adjusting phase. "New terrain" may elicit feelings of anticipation in consumers as they begin to "map" their environment's transformation, according to Young (2021) and Kruspe et al. (2020). During confinement, the word occurrences of dread, joy, and anticipation in the Twitter dataset were tracked (Figure 4).

All three of these feelings changed a lot over the season, reaching a crescendo or hardening suddenly when it was revealed that shelter-in-place orders would be extended in mid-April. Fear increased throughout the first month of confinement (weeks 11–13), peaked during weeks 14–15, and then started to decrease during weeks 16–17. (week 17). An emotional inclination would suggest that the responding phase continued until March. Beginning in Week 11, the euphoria level gradually increased until the end of March, when it peaked and then leveled out. Early in April, customers started to experience joy as a result of coping mechanisms, which often entailed learning about new pursuits and opportunities, such free time. Weeks 11–14 in March had the highest levels of anticipation, which subsequently

declined in early April before rising again as the confinement period came to an end (weeks 16 and 19). Following the conclusion of the lockdown period in the second half of May or early June, consumers may have started planning out their new surroundings.

Similar findings were obtained in a study of 80,000 geotagged English-language tweets that also included a COVID-19 phrase (La Fratta et al., 2018). As the research period draws to a close, [positive] sentiment is rising across all nations (April 2020). A shift in perspective towards the epidemic might portend future events. We suggest the following periodization based on how perceptions have changed throughout the first five months of the epidemic across the nation:

- Phase of reaction: March 2020.
- Phase of adjustment: April and May 2020.
- Phase of adaptation: June and July 2020.

The introduction of monthly delimiters simplifies data interpretation even if there can be some overlap between these phases since several emotions might be experienced at once (Qi et al., 2021).

### ***3.1 E-commerce is a significant industry***

All non-essential shops were shut down during the lockdown time (March to May 2020), which boosted online shopping, as seen in Figure 5. Most online stores saw a fall in traffic and revenue in March 2020. The last week of March and the beginning of April witnessed a recovery in e-commerce, however, thanks to a few product categories that saw spectacular growth. Online sales of non-food items fell historically during the third week of March compared to the week before to the financial crisis. The decrease started the same week that the first restrictions on sheltering in place were announced, on March 9. The gap widened the next week when limitations were implemented and shops closed. Near the end of March, the sales curve started to climb once the shock of containment had subsided.

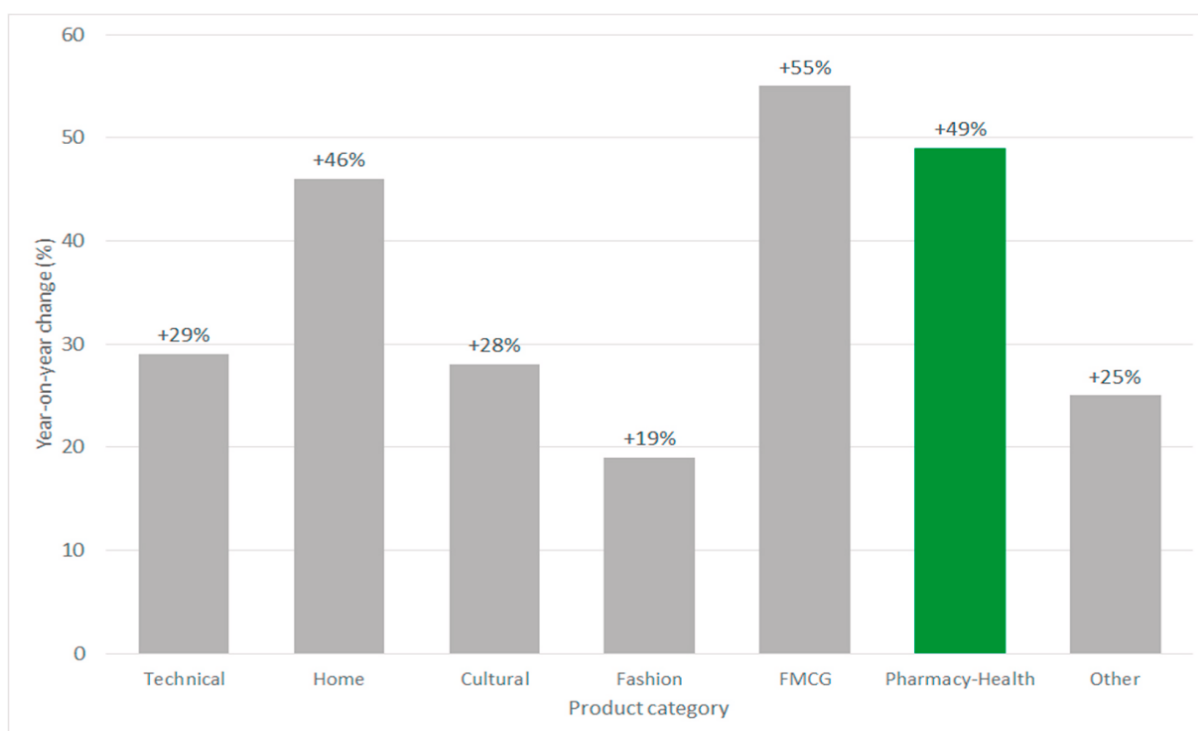
Sales spiked (30%) in the week after confinement began for IT, indoor hobbies, and gardening before leveling down for the next two weeks. This recovery was mostly driven by these goods. Fast-moving consumer goods sales climbed dramatically year over year (by 60%), pharmacy and health care sales increased by 50%, and home goods sales increased by 47% during the lockout (Fig. 6). (Das, 2022) claims that the online grocer Shop had a substantial increase in sales during the SARS pandemic "increase, then remain constant over time. Online purchases of essentials remained steady during the lockdown, while sales of apparel, accessories, cultural goods, and tools for home renovation returned to their pre-lockdown levels.

According to a poll of consumers done both during and after the confinement, the majority of online purchases were motivated by the stress and limitations associated with the COVID-19 issue. Their goals are closely related to the healthcare environment. Online shopping has made it feasible for many individuals to buy essentials (31%), deal with confinement (32.3%), and prevent health hazards (51.4%). 13% of online buyers think their purchasing patterns have altered as a result of the lockout. According to the survey, consumers want to make more frequent online purchases to be secure throughout this protracted health crisis. Home delivery services are anticipated to be used by 75% of customers in the future "adjusting their standards for small, neighborhood companies. Thus, some Internet users may have been persuaded to shop online as a result of this uncommon event.





**Figure 5.** Online sales have grown yearly (June 2019 to June 2020)



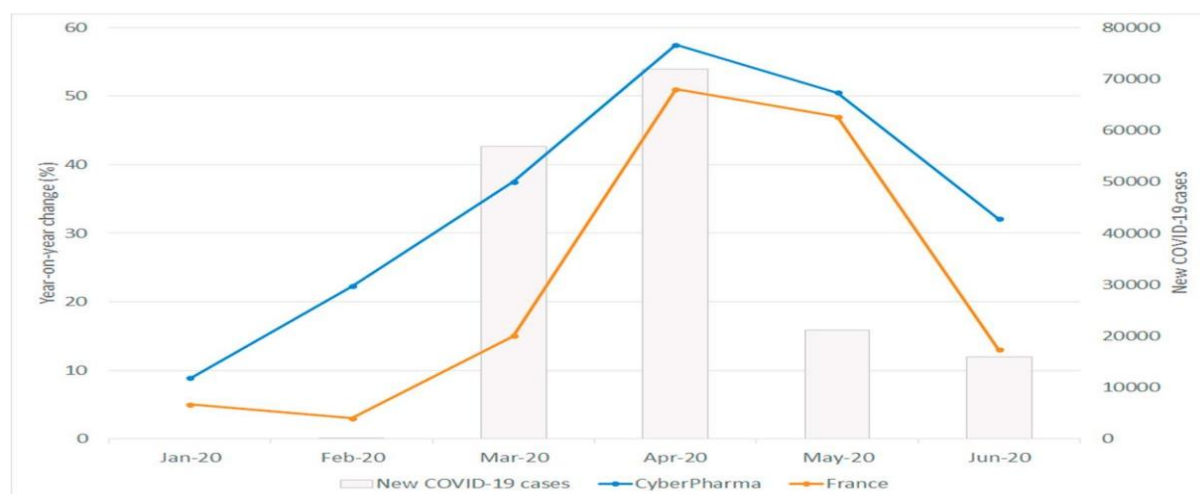
**Figure 6.** During the lockout, the following industries grew yearly e-commerce sales: (March to May 2020)

### 3.2 Cyber Pharma's pandemic activity

Cyber Pharma was established by two pharmacists. The business offers a variety of goods under fifteen product groups (Table 2). As a consequence, it has grown to be a multimillion-dollar enterprise. Fig. 7 displays monthly orders in stark contrast to the rising trend in reported COVID-19 case numbers. Online orders increased significantly in February (+15%), March (25.8%), April (35.6%), May (37.4%), and also when restrictions were loosened in June (22.3%) and July (+16.3%). (23.6 percent).

**Table 2.** *Cyber Pharma distributes product families through the internet*

Product family	Bestselling categories	% Turnover
Health	Urinary, circulatory, and joint comfort, as well as natural defenses, vitality, sleep, and digestive vitamins.	24%
	Studying food and nutrition	19%
Aesthetics maintenance	Hydrating and nourishing creams, makeup removers, cleansers, anti-aging and anti-wrinkle serums, and so on.	14%
Mother & baby.	Wipes, diapers, and baby care. Children's toothpaste, gels, and creams.	11%
Organic and natural.	Aromatherapy, herbal remedies, organic skincare, precious stones, and more	11%
Personal cleanliness	In addition to standard toothbrushes and pastes, there are also a wide variety of shower and bath gels, oils, creams, soaps, scrapes, exfoliants, bubble baths, and salts.	6%
Body care	Towel and toothpaste Products for hydration, atopic skin care, stretch marks, cellulite, cleansing, nourishing, and repairing, period protection, intimate wipes, and gynecological needs.	5%
Haircare	Repairing and nourishing hair products are included in this category.	5%
Equipment and Accessories	Compresses, masks, and gloves are also available— measurement and testing tools for incontinence-related illnesses.	3%
Makeup and perfume	Face and eye makeup remover and other beauty products for all skin types.	3%
Suncare	Sunscreens, sun care supplements, and post-sun care are all ways to shield oneself from the sun's rays.	3%
Veterinary	Insecticides (flea/tick/worm) for pets.	3%
Men	Various products may be used for shavings, such as shaving gel, shaving foam, shaving gel aftershave, and razors.	2%
Sexuality	Gels, lubricants, dietary supplements, and hormonal birth control are all examples of this class.	2%
Sport	Products for muscular and joint discomfort and amino acid supplements like creatine and whey protein.	2%



**Figure 7.** *Countering COVID-19 instances with e-commerce and cyber pharmacy (January to June 2020).*

Similar trends emerge when looking at average order value and average transactional items (Fig. 8). In March, it rose; in May and July, it stabilized; and in August, it fell back to March's levels. As the infection spread across France, consumers bought more each order (reacting phase). Management at Cyber Pharma reacted swiftly to the epidemic, increasing their capacity to handle an influx of internet orders. Unlike Cyber Pharma's statistics, e-commerce performance tanked in March before bouncing back and leveling out in April and May. Fairly (see Fig. 6), pharmacy and health items saw a strong year-on-year rise all through the relevant time period (compared to the previous year).

### 3.3 Administration's Reaction to the Pandemic

Cyber Pharma's online sales, number of returning customers, and average order value have all grown. CEO and HDA interviews were conducted to get insight on the company's response to the epidemic.

You don't need to go out and stock up on moisturizers and vitamins every month. Thanks to COVID, we've been able to double the number of new customers we've added to our database this year, and in April, our retention rate (the proportion of customers we've managed to keep around from one month to the next) hit 10%. During the months of March and April, we had a 10% rise in new clients and a 50% increase in repeat business. The typical purchase for both new and returning customers has grown. July 22nd, 2020 HDA.



**Figure 8.** In terms of Cyber Pharma's transaction volume and average order value (January to July 2020)

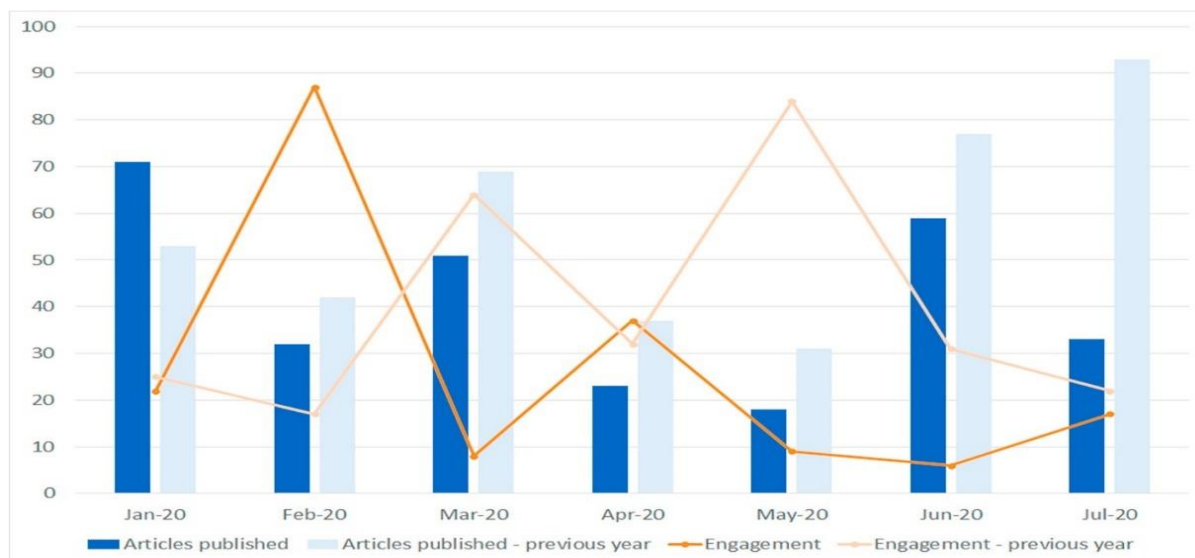
Cyber Pharma's management decided to focus on order fulfillment rather than marketing and promotional efforts in February. The company hired 110 pickers in the first two months of the pandemic because of the rapid increase in orders. Picking is locating and gathering products in preparation for packing and shipping. We quickly realized that we were well above our forecast, he said. As a result, we attempted to determine how many additional employees we would need to fulfill the influx of orders. As a result of implementing new technologies and process simplification, the company believes it has reaped the benefits of its move to a new warehouse. It was much more difficult for someone to locate the products and know which ones to choose in the old days. Finding and reading printed information about their inventory was challenging, as all warehouse areas looked nearly identical. It cannot be scaled up. One of the reasons we survived COVID was because we used radios that told us what to

do. The company relocated to a new warehouse to prepare for dealing with customers in an emergency. The good news is that we have already been through crises we brought on ourselves. Moving while you are still running a business can be a nightmare, especially if you have many products on hand or in the warehouse. It was helpful preparation for the challenges we had with COVID, especially in terms of crisis management and communicating with customers. During the lockdown, we reduced all marketing, advertising, and social media activities. Customer service and social media managers heard me yell, "Stop everything!" Now is the moment to be quiet. It's enough that people know we're still there and trying to help those who need it. Period.' Even our phone service was cut off during the turmoil. No more information will be shared formally." Why? Simply stating, "yes, we realize we are late" would have sufficed. During the emergency, we sent out a pre-programmed email that said, we are aware that we have not yet sent your item. Our apologies for the inconvenience. The situation is currently being handled by us.

As soon as we have finished, we will email you to let you know.' This was also very helpful. "Thanks" or "Good luck" were the most common responses from customers. A look at Cyber Pharma's social media and website activity shows that the company has shifted its focus to crisis communications, resulting in decreased publications. Since last year, social media engagement has decreased significantly, i.e., the number of likes and shares. In April, a post titled "Antibacterial disinfectant gel, hydro-alcoholic gel" drew many customers' attention. The company's management claims that the widespread challenges that e-commerce encountered in general helped clients to tolerate the company's fulfillment difficulties throughout the crisis. That tactic was successful since it coincided with Amazon's decision to switch from two-day to two-week shipping times, letting customers know that something was wrong. They knew what was going on and didn't seem to mind at all. Our ability to articulate things like "This is solid" and "This is the scenario" was really valued by them. It was irrelevant and showed that you ignored their primary complaint about the saturation of their inboxes with mundane advertising and social media promotion. We'll examine the evolution of internet commerce in the next part.

### 3.4 Cyber Pharma's customers' online purchasing habits

Table 3. The report dissects sales data by category and finds that the personal hygiene category had the most growth throughout the crisis response period.



**Figure 9.** Consumers of online media (news, blogs, etc.) (January to July 2020)

**Table 3.** *Percentage increase in annual sales during the COVID-19 pandemic for each product class*

Product family	Jan-Feb	March	April-May	June-July
Mother & baby	12%	39%	25%	17%
Organic and natural	13%	47%	51%	31%
Hair care	14%	27%	60%	34%
Body care	8%	39%	68%	34%
Men	-3%	-4%	46%	17%
Personal hygiene	23%	56%	106%	49%
Makeup and perfume	11%	20%	50%	28%
Equipment and accessories	32%	48%	59%	86%
Nutrition and dietetics	17%	40%	38%	32%
Health	17%	48%	44%	33%
Sexuality	0%	-1%	26%	13%
Sun care	3%	-22%	71%	10%
Sport	10%	-6%	14%	21%
Veterinary	70%	22%	189%	88%
Face care	6%	25%	64%	22%

#### Legend

+	+	<b>10-25% change</b>
+	-	<b>25-50% change</b>
+	+	<b>&gt;50% change</b>

**Table 4.** *The top ten most popular search terms (month-on-month percent growth)*

Search term domain	Feb	March	April	May	June	July
Hydro-alcoholic gel	6.8	<b>59.1</b>	32.7	25.5	6.4	5.6
Personal grooming	1	1.4	1.8	1.7	1.5	1.4
Masks	6.2	9.5	17.3	<b>18.9</b>	2	3.8
Immunity	2.1	<b>4.2</b>	3.6	2.7	2.2	2.1
Thermometer	2.9	<b>19.1</b>	14.1	13.6	5.5	4.8
Gloves	2.7	33.1	<b>57.8</b>	44.7	10	.6
Paracetamol	2.3	<b>8.6</b>	3.7	2.6	2.1	2.3
Aromatherapy	2.1	<b>4.7</b>	3.4	2.7	2.3	2.2
Mother and baby	1.9	2.2	<b>2.5</b>	2.3	2.1	1
HydroXychloroquine	1213.6	<b>7214.6</b>	487.6	50.2	8.7	23.6

Consumers purchased more health-related items during the "reacting" phase (March). Soaps and hydro-alcoholic hydro-alcoholic gels, two types of hand care products, had very high sales growth during this time period (+100%). (474 percent). There was significant rise year over year for several product categories in April and May. Sales of protective equipment including face masks, gloves, and boots increased by 76% in the equipment and accessories category. Soaps and hydro-alcoholic gels (up 100 percent) and disinfectants and sanitizers (up 99 percent) were also heavily stocked up on during this coping time (April–May). A 17.2% and 56.7% increase in mask and glove searches, respectively, were seen over the adjusting period (April and May).

Additionally, there was a dramatic rise in "Organic and natural" (+15%), "Haircare" (+10%), "Body care" (+16%), "Make-up and perfume" (50%) and "Face care" (64%), are the "product families with Year-over-Year growth above 50% during April and May." Online sales of veterinary products increased by more than 189% between April and May. More than half of the increase in sales came from products for cats (up 164.2%), dogs (up 19%), and other pets (up 165.7 percent).

During the reacting phase in March, website visitors looked for products like a hydro alcoholic gel (58.2%), thermometers (18.2%), gloves (32%), paracetamol (7.5%), and hydro Chloroquine (7.5%). These temporal trends are supported by the increasing specificity of search terms used by website visitors; see Table 4, most substantial growth in bold (7421.5 percent). Customers' likelihood of placing repeat orders increased as the pandemic wore on, as shown in Table 5, which displays the percentage of customers who placed repeat orders in the months following their initial purchase "The increase in reorders started in February and picked up speed in March and April. For instance, online spending by customers acquired in April was higher in May (2.8 percent), June (1.1 percent), and July (1.0 percent) than it had been the previous year. Therefore, whether or not consumers will maintain their new routines during this time of transition is yet unknown. This phase of change will begin in May and June.

The reorder rate has dropped, but not as much as the head of data analytics had hoped. More data points are required to corroborate this trend. Until the end of September, it is too soon to make any conclusive judgments. After the epidemic, Cyber Pharma saw a little change in their customer. Table 6 shows how age and gender distributions have changed significantly over time. Over the course of six months, the percentage of customers aged 60 and over increased, while the proportion of customers aged 18 to 34 decreased. The "over 65" age group showed a clear pattern of adaptability and resilience.

### **3.5 Pattern recognition**

In conclusion, we discovered that consumers will react to the perceived pandemic threat at first, then adjust by adopting new habits and exercising control over other areas, and then adapt to the new normal for consumer behavior. As time went on, we were able to distinguish between three distinct phases of emotional development, each of which was accompanied by distinctive shopping habits. We hypothesize that customers' erratic shopping habits will be a direct result of the future unknown of product availability. Between March and April of 2020, the average quantity and value of items purchased increased, reached a high, and then declined. Disinfectants, sanitizers, soap, and hydro-alcoholic gels had the greatest increase in sales as compared to the previous year. Searches on the internet seeking methods to lessen health risks rose month over month in March. These numbers suggest that customers will increase their purchases of disinfectants and sanitizers in the event of a public health emergency. Consumers were put on notice that they would need to make changes in their habits and take more personal responsibility in order to weather the storm. The sales and demand for disinfectants and protective equipment, two essential "problem-oriented" pharmaceutical items, have increased significantly year-over-year. The hope was that "emotionally oriented" items like "organic and natural beauty products," "hair, body, face care products," and "other" would make customers feel good about themselves, and so make them stop thinking about the issue. Customers were supposed to "become less reactive and adjust their consumption behaviors to the new norm" during the adaptation phase (June-July). This pattern was seen in many of the studies. Since consumers are less likely to take drastic action while adjusting, it was predicted that their "purchases of protection and well-being items would plummet in June and July. According to the predicted pattern of modified consumption behavior, an increasing number of senior

citizens have been making online purchases and making repeat transactions throughout the crisis. It is impossible to tell whether or whether these changes will remain when the confinement period ends (June). More information is required to determine whether the third phase of the crisis had any long-lasting effects on people's actions.

**Table 5.** Reorder percentage change for each month during the last year

Reorder delay	Jan	Feb	March	April	May	June
	-0.3%	0.4%	1.4%	2.8%	0.7%	0.2%
	0.4%	0.3%	0.9%	1.1%	0.9%	
3 months	-0.3%	0.3%	0.0%	1.0%		

**Legend**

+	-	<0.5% change
+		0.5-1% change
+		>1% change

**Table 6.** Customers' profiles have changed over time

Age bracket	Jan-Feb	March	April-May	June-July
18 to 24				
25 to 34				
35 to 44	0.1%		0.1%	
45 to 54	0.8%	0.0%	0.0%	0.3%
55 to 64	0.7%	0.7%	0.7%	0.8%
over 65	0.8%	2.9%	2.0%	1.7%

**Table 7. Findings by response step in the pattern matching process**

Stage	Expected Pattern	Observed pattern	Result
Reacting March 2020	People try to regain their independence despite the perceived danger posed by the epidemic. They have resorted to stockpiling goods and buying more sanitizers and disinfectants in an effort to lessen the spread of disease.	Ordering many items in one transaction is increasing daily—increased sales of cleaning items such as soap and disinfectants.	Match
Coping April–May 2020	New habits and other forms of self-control are often used to deal with the stress of financial difficulties in the beginning. People purchase items to reduce stress and promote a positive outlook. In addition, they seek other living organisms with whom to create social relationships.	Sales of protective equipment such face masks, gloves, disinfectants, sanitizers, soaps, and hydro-alcoholic gels and solutions are up. There has been a rise in demand for products that are all-natural, organic, and biodegradable.	Match
Adapting June– July 2020	As the new normal is established, consumers' buying habits shift accordingly. Due to the lack of concern about new hygienic rules in brick-and-mortar establishments, they continue to purchase online. Some individuals have yet to accept online shopping fully.	A rise in demand has led to rising prices in the veterinary supply sector. Sales of personal protection and disinfection products have fallen." "In the months after their initial purchase, more customers are making further purchases. When customers reach age 65, their personalities change in three distinct stages.	Partial Match

## 4. Discussion

During life-altering situations like the COVID-19 crisis, we want to understand more about how individuals purchase online. Thus, the underlying motives and causal processes were examined by conducting descriptive case studies. Our results include theoretical and managerial implications.

### 4.1 Practical and theoretical consequences may be found

As a result, we postulated that people's online purchasing behaviors reveal how they respond to and recover from adversity. Our study hypothesis is validated by the data acquired



during the COVID-19 pandemic, and we gain insight into how to improve our response, our ability to cope, and our ability to adapt to future pandemics.

Following the outcomes of this study, we recommend that the RCA framework be extended to encompass other sorts of online coping methods, such as the ones put forward. We found that internet users' coping mechanisms are problem- and emotion-focused. At this point in the adaptation process, more essential pharmaceutical goods were bought because they immediately addressed the health condition or made life less stressful for the consumer, which is consistent with a problem-focused approach. When dealing with the epidemic, several people ordered personal care and well-being goods online to help them deal with their emotions. To distract themselves from the COVID-19 crisis, some customers turn to all-natural and organic items, including cosmetics, gemmotherapy, and herbal remedies like essential oils and aromatherapy. Our discoveries have added to the growing knowledge of how stressful life events like pandemics may cause people to make online purchases to deal with their emotions and solve problems.

An investigation exploring the relationship between internet purchasing and hoarding needs to be completed. A substantial body of research is being conducted on "unregulated purchasing," such as the online impulsive, unanticipated, and compulsive purchases we discovered (Desai et al., 2020). In the early days of the pandemic, individuals bought disinfectants and hydro-alcoholic gels to lower the chance of infection. Consumers may be storing vital pharmaceuticals in anticipation of scarcity if the average number of products per purchase rises throughout March. Anecdotal evidence of this behavior (Li et al., 2020) was gathered during the epidemic. Still, this e-commerce data (average items per purchase) is the first time it has been utilized to detect it online. Online buying can impact hoarding, and this deserves additional examination.

Our findings have several administrative ramifications. The RCA model makes several assumptions about how customers would act in a crisis, and those assumptions may affect what products are made and how they are marketed. Predicting customer behavior changes helps online firms respond more quickly to unexpected events. It's also possible to tailor product promotions and discounts to help people deal with difficult situations and feelings. Online retailers and their supply chain partners may use the RCA model's supply chain model to fine-tune stock management during a crisis, therefore preventing product shortages like those seen during COVID-19.

## **5. Limitations and Further Research**

However, it is vital to take in mind the study's limitations when analyzing the findings. To confirm the findings of this descriptive study, further research is needed. We also relied on a single source of information for all of our data. During the pandemic, pharmaceuticals and healthcare items provided a comprehensive picture of consumer behavior. Still, subsequent studies into other product categories may complete the concept of online purchase behavior. Because online transactions were not connected to consumer data, it took much work to ascertain whether a buyer's profile impacted their buying patterns. Another possibility is that the time following orders issued after a lockdown was insufficient to detect adaptable behavior. It may be feasible to follow how individuals purchase online for longer with more time and resources.

## 6. Conclusion

Consumer behavior literature, COVID-19 research, and environmental restrictions will be used to examine new and long-term users of a healthcare e-commerce site. As a result of being put in tense situations when using the internet, people react, cope, and eventually adapt, demonstrating the efficacy of the react-cope-adapt paradigm for bounded consumer behavior. Academics and merchants alike may utilize our results in the case of future crises to enhance their product selection, advertising, and distribution to better understand customer behavior in these times.

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