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A dynamic segmentation of U.S. women during the COVID-19 pandemic

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Abstract

The coronavirus disease 2019 (COVID-19) pandemic has had a vast, but uneven, influence on consumers. Diversity in consumer reactions, and the extent to which those reactions lead to lasting preference and lifestyle changes, present challenges for implementing effective marketing strategies during a period of societal crisis. To address this, we conducted a dynamic segmentation analysis involving over 14,000 U.S. women by assessing relevant psychological, experiential, and other personal factors at multiple time points during the pandemic. This analysis identified seven unique consumer segments who varied in their current and future degree of change, and who indicated responsiveness to specific forms of brand and advertising content. This seven-segment clustering was highly stable over time, suggesting that certain segmentation approaches hold continuing value for marketers even as widespread events like pandemics evolve.

KEYWORDS
consumer change, pandemic, preferences, segmentation, threat

1 | INTRODUCTION

'Compared with your life before the coronavirus pandemic, will you make significant changes to your way of life or will you go back to living the same way?' The coronavirus disease 2019 (COVID-19) pandemic is a defining crisis of our age. This global event has touched the lives of billions, and from a research perspective, infiltrated most academic disciplines. In fact, around 4% of the world's research output in 2020, or well over 100,000 articles, was devoted to COVID-19 (Else, 2020). The majority of this work has focused on temporally immediate problems, such as how to diagnose, treat, and prevent infection, or projections about disease spread. In the domain of consumer behaviour, a similar focus has been on the immediate effects of the pandemic, from hoarding of essential goods to the use of personal shopping and delivery services.

How much of this dramatic, widespread disruption is likely to remain as the pandemic subsides? Do consumers believe they will stick with their new habits or return to their old ones? Of course, the answer is not a simple one. Consumers vary in how their lives have changed already, and in the extent to which they change in the future. In this study, we used a longitudinal segmentation approach to explain answers to the question that opened this article and to profile characteristics of people who plan to make lasting changes and those who do not. To achieve this, we surveyed large samples of women who were customers of a leading media organization on their preferences, experiences, and on specific psychological dimensions ranging from goal orientation to risk denial to mental health. This approach is valuable because it helps capture the diversity of consumer responses to a singular societal event and it moves beyond simple forms of segmentation (e.g., based primarily on demographic differences) to highlight

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how psychological factors dictate, in part, construals of an ongoing crisis. We focused on women for multiple reasons: (1) women drive the majority of all consumer spending despite being less represented in business and consumer research than men (Nelson, 2019), (2) women face relatively unique and broader challenges during the pandemic (Bateman & Ross, 2020), (3) the media organization partnering with this research (Dotdash Meredith) maintains a customer database consisting mostly of women from which we sampled.

In this work, we uncovered seven distinct groups of consumers. Women within these groups share relevant attributes and concerns about both the pandemic and their broader lives. Each segment was characterized by shared psychological attributes just as much as they shared features such as demographics. For instance, although age played a role in demarcating groups, Millennials differed from other Millennials, and Boomers differed from other Boomers. These distinctions reflected variation in emotional reactions to the pandemic (e.g., fear, anxiety), motivations for social engagement, and focus on personal well-being. Large differences across segments emerged in psychological outcomes, such as mental health, and in consumer intentions—some women unreservedly plan to return to their pre-COVID behaviour whereas others plan to adjust their consumption to better inhabit a post-normal world. Such differences were accompanied by particular preferences for marketing content and methods of processing this information. And perhaps most critically from the standpoint of segmentation research, the multi-wave data collection method used in this study shows that these groups remain relatively stable over time, suggesting that tailored marketing strategies will provide lasting utility. Next, we review existing literature on the psychology of crises and identify when we might expect consumer diversity to produce different responses to traumatic events like the COVID pandemic.

2 | PSYCHOLOGY IN A CRISIS

From terrorist attacks to natural disasters to school shootings, crises are unfortunately not rare events. During a crisis, people react in predictable ways (Centers for Disease Control and Prevention [CDC], 2019). Counter to common expectations, these reactions often do not involve panic, but instead can be framed as a threat response—activation of physiological and mental processes that serve to reduce distress and prioritize immediate safety goals. These changes are not experientially pleasant, nor do they necessarily produce effective long-term solutions. But, they affect all core components of our psychology—cognition, affect, and behaviour. Such threat responses have been widespread during the COVID-19 pandemic (Ackerman et al., 2021).

The specific psychological elements associated with crises depend on the nature of those events (e.g., financial recessions spark unique responses compared with nuclear meltdowns or global pandemics), but some common processes are involved (CDC, 2019). These include a strong sense of uncertainty about details of the threat, which actions will be effective, and what the future will bring. Feeling uncertain can inspire a number of coping strategies, from information seeking to assumption-making, depending on the nature of that uncertainty (Lipshitz & Strauss, 1997). Emotions such as fear and anxiety can motivate protective actions or denial (Ruiter et al., 2014), though they also tend to limit cognitive elaboration as they become strong (e.g., Hill, 1987; Jepson & Chaiken, 1990). Together, these perceptions and emotions strengthen the desire for control and assurance, and heighten impulsivity (Gladwin et al., 2019), which can lead to acceptance of more immediate (perhaps unverified) solutions. At the extreme, people can experience hopelessness and existential despair, devastating mental health but also potentially inspiring strivings for meaning, connection with close others, and re-evaluation of former priorities. If such compensatory behaviours are impeded, as when social isolation is enforced through quarantine, the potential for severe consequences is greatly exaggerated (e.g., Cacioppo et al., 2006).

Infectious disease threats produce these same types of reactions, and they also bring distinct concerns. In particular, the invisible risk of germ contagion makes people, places, and objects sources of potential threat. The closer this invisible danger feels, the greater the impact is on one's psychology (e.g., Zheng et al., 2020). To help manage the threat, people gravitate toward the familiar as a symbol of safety, increasing adherence to social norms and traditions, engaging in more patterned consumer choice, and conversely, expressing aversion to the unfamiliar (Murray & Schaller, 2016; Park et al., 2022). This can strengthen existing product preferences and social relationships, as in the increased attraction to nostalgic products that emerges in the face of infection threat (Barauskaitė et al., 2022). But it can also trigger avoidance, stigmatization, and conflict when products and groups become associated with disease (e.g., Ackerman et al., 2018; Galoni et al., 2020). For instance, people show increased aversion to second-hand products when experiencing concerns about disease (Huang et al., 2017).

During an ongoing crisis such as a pandemic, people are likely to experience activation of multiple goals simultaneously. A chronic desire to avoid disease may be paired with a need to buy groceries, visit with friends, or send children to school. In these cases, goal conflict occurs, increasing rumination, distress, and inconsistent decision-making (Gray et al., 2017; Laran & Janiszewski, 2009). Aspects of this conflict may guide behaviour even outside of one's conscious awareness (Huang & Bargh, 2014). Though such psychological processes function similarly among women and men, women are relatively more prone to negative emotions associated with disease transmission (i.e., disgust and anxiety; McLean & Anderson, 2009), which may have contributed to women experiencing stronger negative mental health consequences of this pandemic (Alzueta et al., 2021; Atkinson, 2022).

2.1 | Making changes

Given the numerous psychological consequences of crisis events, many consumers have made changes to their purchase patterns, and lives more generally, during the COVID-19 pandemic. For instance, a

recent investigation found that people in China responded by placing increased importance on material consumption and relational goals (Zheng et al., 2021). Will such changes be maintained, however, or will consumers quickly return to established behaviours as the pandemic evolves? The academic work addressing this question has tended to propose overarching answers, as in the prognostic claims about a 'new normal' in which consumer behaviour during the first phases of the pandemic forecasts permanent changes (e.g., Roggeveen & Sethuraman, 2020), or in more qualified claims that such shifts will depend on the product and service category in question (Sheth, 2020). As reviewed earlier, threat induces certain general reaction patterns that push people to either adapt or resist. But, just as one person can find dogs cuddly whereas another finds dogs threatening, people vary in how they perceive and react to crises. Rather than presuming that the pandemic has produced one general shift in the population, we might instead ask *who* has been affected and in what ways, who will make lasting changes, and who will not. Particular backgrounds, preferences, and experiences will lead to different challenges and opportunities for some women as compared with others. Which features denoting consumer diversity are of particular importance in predicting different reactions?

3 | CONSUMER SEGMENTATION IN A PANDEMIC

A standard approach to examining consumer diversity involves segmentation, the partitioning of individuals into groups that are each relatively homogeneous on specific dimensions. This 'essence of marketing' (Sheth, 1967, p. B-728) process focuses largely on consumer demographic and geographic differences, and sometimes psychographic elements related to consumer categories (e.g., aspirations) and features associated with specific products (e.g., brand preferences), to reveal varying levels of demand and potential avenues for consumer targeting (O'Connor & Sullivan, 1995). For example, this approach has been used to segment sharing (Hellwig et al., 2015), pro-environmental (González et al., 2015), sustainable foods (Verain et al., 2012), and wine (Cuomo et al., 2016) markets. Segmentation is critical for marketers who cannot meet all consumer needs effectively and wish to avoid the inefficiency and potential backfire effects (e.g., eliciting reactance against marketing messages) that can accompany one-size-fits-all approaches (Dolnicar, 2021). Instead, segmentation allows for improved targeting of specific groups of consumers.

The COVID-19 pandemic has reshaped how consumers think about, prioritize, and interact with goods and services. In part, these changes have been imposed on consumers through illness, financial hardship, social limitations, supply chain disruptions, and societal regulations. Importantly, individual differences in consumer sensitivity to threat have also played a primary role in shifting preferences, desires, and potentially, the extent to which changes will persist as the pandemic ages and (presumably) subsides. In other words, the pandemic has inspired a need for new segmentation analyses based on consumer responses during this time. For instance, we might expect younger versus older people to face different challenges due to COVID-19 and thus react differently (Settersten et al., 2020). This type of demographic focus has been particularly common during the current pandemic (e.g., Wolf et al., 2022), when the drive to publish information quickly has led to simpler, perhaps less reliable research output (Azeroual & Schöpfel, 2021). However, a demographic-only focus also may miss key consumer differences associated with specific patterns of change. To address this, in our research, we combine demographics with pandemic-relevant life experiences and psychological measures to construct a segmentation sensitive to the multitude of factors affecting U.S. women.

3.1 | Pandemic progression and segment stability

Were the COVID-19 pandemic a singular event, the outcome of this analysis would broadly represent our knowledge about women's needs, desires, and challenges, and could be leveraged to construct relevant and effective marketing strategies. However, pandemics are not isolated, unchanging threats. During the first year of the COVID-19 pandemic, US citizens experienced multiple waves of disease spread (STAT REPORTS, 2022), a presidential election that ended in party change, and introduction of vaccines to the general adult population. Would a segmentation produced at one moment during that year capture key aspects of consumer diversity that persist following major societal events? This is not possible to answer using traditional segmentation analysis, which often focuses on a snapshot of a marketplace at a specific point in time, with relatively little attention given to the stability of resulting segments in terms of their number, size, and key characteristics (Dolnicar, 2003; Wedel & Kamakura, 2000). Research that does directly examine dynamic segmentation—the degree of change in groups over time—has found substantial variation in segment stability depending on factors such as the type of market in question and the specific analysis approach selected (e.g., Blocker & Flint, 2007; Müller & Hamm, 2014).

In the context of the COVID-19 pandemic, should we expect consumer segments to fluctuate or show meaningful stability? Prior to the current project, no empirical data derived from a dynamic segmentation approach was available to answer this question. Yet, the evolving nature of the pandemic has clearly and frequently shaped public attention and behaviour. Consumers' psychological responses and marketplace actions are highly sensitive to situational conditions (see Ackerman et al., 2023), as reflected by behavioural shifts during the pandemic from stockpiling to prioritizing online shopping (Koch et al., 2020; Wang et al., 2020). The impact of these fluctuating situational conditions is also not universal. Individual consumers have faced unique circumstances throughout the pandemic. For instance, women may have contracted COVID-19 or successfully avoided it, experienced temporary or chronic stresses on mental health, re-evaluated what is important in life or continued ongoing pursuits, and made minor or major life changes. Over time, this variation could have reshaped the clusters best representing U.S. women, diminishing the future value of early-pandemic segmentations.

Alternately, core attributes of early segmentations may be stable over time, producing consistent clustering of consumers despite variation in less core attributes. For example, a predisposition to anxiety may colour how women interpret most information and events, leading those women to continue engaging in similar consumption behaviours, prevention practices, and so forth as the pandemic continues (e.g., Kemp et al., 2021). Stable personal characteristics may thus translate into stable clusters of consumers. Consistent with this possibility, evidence for segment stability exists in approaches that go beyond standard profiling characteristics like demographics (e.g., Straughan & Roberts, 1999).

This study was developed with the goal of identifying meaningful differences among U.S. women that reflect their experiences and reactions to the pandemic and that can be used to effectively tailor marketing content to those consumers. A particular focus was on the changes that women had or expected to make during the pandemic that would persist in the future. Our two primary goals were (1) to capture the diversity of responses women have had during a large-scale crisis, and (2) to test the stability of this diversity across periods of the pandemic. We drew upon large samples of women from diverse backgrounds and profiled them on both standard segmentation characteristics (e.g., demographics, location) and characteristics relevant to crisis psychology. To test the stability of the resulting segmentation, we conducted two waves of data collection 6 months apart, testing the segmentation solution at each wave.

4 | RESEARCH OVERVIEW

We began by constructing a survey instrument through qualitative interviews with online consumer bulletin boards, marketing managers, and a literature review of constructs likely to both be affected by the pandemic and influence changes in consumer decisions. This instrument was refined through pilot testing and then distributed to a general population sample of female consumers in September 2020, upon which an initial segmentation analysis was performed. The final segmentation was then applied to a new reader panel sample in both October 2020 and March 2021, allowing for evaluation of segmentation reliability as the pandemic evolved. We present results demonstrating how this segmentation reveals distinct categories of consumers and which categories remain stable (or not) over time. Because of space limitations, methodological and analytical details beyond those provided in this article, as well as the full survey and de-identified data, are found in Supporting information material at: https://osf.io/vyhsd/?view_only=2a3aae9ca5a44d8dbc5457b0edd92a06.

5 | PILOT RESEARCH

To acquire initial insights into perceptions of the impact of the pandemic on consumer experiences, preferences, and behaviours, we conducted two types of qualitative pilot research. Three focus group sessions featuring a total of 88 women were run using an online bulletin board system (from 7 July 2020 to 23 July 2020). Each session involved answering 15–17 free-response questions over a period of 3 days. Additionally, interviews with 13 Dotdash Meredith executives and 9 client/agency executives were conducted, focusing on questions pertaining to present and future consumer decision-making.

Responses collected from the focus groups and interviews were discussed among the research team in order to develop a better understanding of the challenges (and potential solutions) facing individuals during the pandemic. Common challenges were then mapped onto underlying psychological processes in order to develop a list of constructs that could be used to assess predictors of consumer experience and the desire to change behaviours versus return to old habits. This list was supplemented with constructs targeting theoretically relevant factors (e.g., perceived vulnerability to disease, regulatory focus, psychological distance). Items were selected from validated measures of each construct (1–2 per construct due to survey length limitations), resulting in a set of 62 personal belief items rated on level of agreement (see Supporting information, Appendix A). These items, along with items measuring subjective physical/mental health, perceived distance to COVID-19, and the desire for future change, formed a pilot survey distributed to 2233 women ($M_{age} = 58$) from across the United States in August 2020.

Principal component analysis was used to test commonalities among the personal belief items, and the resulting factors were used as inputs in constructing a predictive model for the extent to which each woman would make changes in her life. A total of 37 items were retained and included in the main study (Supporting information, Appendix A).

6 | PRIMARY STUDIES

6.1 | Materials and methods

6.1.1 | Samples

A total of two samples were recruited: (1) a general population panel used to construct the segmentation, (2) a reader panel to which the segmentation was applied. The general population sample included participants from two online panels. The reader panel included Dotdash Meredith subscribers and others responding to recruitment solicitations, and were surveyed in two waves ~5 months apart. To recruit participants for the Wave 2 survey, an invitation was sent to 50% of the Wave 1 sample. Therefore, the Wave 2 sample is comprised of women who participated in Wave 1 but does not include all Wave 1 participants. Survey completion details are found in Table 1.

Participants were eligible if they met the following criteria: female, minimum age 18 (maximum 69 in the general population sample), lived in the United States, income of ≥$25,000 if single ($50,000 if married), not employed in an 'insider' industry (e.g., marketing, advertising). The general population sample was balanced to August 2020 US Census statistics across key demographics, but the reader panel was not as it was drawn from the Dotdash Meredith subscriber base. Additional sampling details are found in the Supporting information along with participant demographics.

TABLE 1 Survey completion details.

	General population	Wave 1 reader panel	Wave 2 reader panel
Dates	15–28 September 2020	19–26 October 2020	22–30 March 2021
N	2004	12,155	2751
Completion time/rate	36 min/92%	34 min/77%	22 min/96%

Note: Approximately 50% of Wave 1 reader panel participants were invited to participate at Wave 2, for a response rate of ~45.3%.

6.1.2 | Measures

A multi-component, online survey was created. All items pertaining to COVID-19 referred to this as the 'coronavirus' pandemic. The survey included item sets designated as segmentation inputs, focusing on (a) personal experiences with the pandemic (e.g., infection, job loss), (b) beliefs and insights associated with COVID-19 (e.g., reconsideration of where one lives), (c) preferences for how brands/advertising should approach the pandemic, (d) importance of financial priorities, (e) importance of specific lifestyle values, (f) interest in specific lifestyle categories (e.g., beauty, travel), (g) subjective physical and mental health, and (h) endorsement of personal beliefs derived from the pilot research (see next paragraph). Further, items were included that targeted COVID-19 anxieties and support for relevant authority actions (e.g., 'I worry about spreading the coronavirus to people around me') and priority trade-offs (e.g., 'I am more concerned about the health of the economy than the coronavirus').

These item sets included measures created for the purpose of assessing lifestyle factors and preferences with relevance to the pandemic and to Dotdash Meredith brands. Personal beliefs were drawn from existing literature to reflect specific psychological constructs associated with crisis psychology, including perceived vulnerability to disease (Duncan et al., 2009), motives and risk perception items related to disease (Dryhurst et al., 2020; Neel et al., 2016), intolerance of uncertainty (Carleton et al., 2007), regulatory focus (Lockwood et al., 2002), risk sensitivity (Dohmen et al., 2011), public self-consciousness (Scheier & Carver, 1985), egalitarianism (Ho et al., 2015), delay of gratification (Tangney et al., 2004), religious belief (Loewenthal, 1986), information deprivation sensitivity (Kashdan et al., 2018), and face valid items reflecting goal setting and sociability (e.g., 'I prefer to be around other people than by myself'). See Supporting information, Appendix B for full reference information.

Assessment of consumer changes included both retrospective and prospective measures. For retrospective change, participants reported their level of agreement with: 'I have made changes to the way I live that will last long after the coronavirus pandemic is over' (1 = *strongly disagree*, 6 = *strongly agree*). For perceptions of future change, they responded to: 'Looking ahead to when the coronavirus pandemic has ended, which of the following statements most closely describes how you intend to live your life going forward?' (1 = *I will go back to living the same way I had been living before the coronavirus pandemic* to 6 = *I will be making many significant changes to the way I had been living before the coronavirus pandemic*).

Additional item sets intended as outcomes and other measures of interest included (a) psychological distance to COVID-19 ('How distant or close does the coronavirus pandemic feel to you?'), (b) the Patient Health Questionnaire-2 (PHQ-2; Löwe et al., 2005), a two-item measure widely used to evaluate signs of clinical depression (e.g., Vahratian et al., 2021), (c) changes in consumer category spending, and (d) demographics.

6.1.3 | Survey changes

The survey instrument used for the Wave 2 reader panel was largely the same as that used with the Wave 1 reader panel, though it was shortened through exclusion of certain items involving demographics, use of general and Dotdash Meredith-specific brands, personality characteristics, and measures not analysed in Wave 1. New items were not analysed here.

6.1.4 | Analytic strategy

General population survey data were weighted against the US Census Current Population Survey for major demographic categories. Prior to segmentation creation, we adjusted the data in two ways. First, a principal components factor analysis with varimax rotation was conducted to simplify data inputs through creation of factor composites (see Table 2). Second, data for each item set were standardized within-participants to reduce scale bias from demographic differences. Figure S1 depicts all analytic steps.

The general population sample was used for segmentation development. Segment profiling and analysis of psychological consequences focus on the Waves 1 and 2 reader panel sample, making this a repeated cross-sectional study design.

7 | RESULTS

Our primary research question asked how the pandemic influences consumer change over time. We began by examining whole-sample estimates of prospective changes that participants expected to maintain as the pandemic subsides, supplemented with reports of retrospective changes already made (see Table 3). Across samples, most women (~75%) reported they had already made changes to the way they live that would last long after the pandemic. When estimating their post-pandemic lifestyles, women reported some desire to return to pre-pandemic patterns. Yet, the distribution of prospective change estimates indicated that about one-third of women would generally

TABLE 2 Descriptives and factor loadings for psychological (personal belief) Items.

Item	*M*	SD	Factor 1	2	3	4	5	6	7	8	9	10	11	12
Factor-loading statements														
1. It makes me anxious when others are not wearing masks or following social distancing guidelines	4.31	1.62	.86											
2. I avoid places and people that might carry diseases	4.54	1.30	.81											
3. I am worried about contracting the coronavirus	3.85	1.51	.80											
4. The personal actions I am taking to limit the spread of the coronavirus make a difference	4.65	1.17	.76											
5. President Trump has done a good job in handling the coronavirus pandemic	2.53	1.81		.81										
6. The worst of the coronavirus crisis in the United States is over	2.80	1.41		.73										
7. I am more concerned about the health of the economy than the coronavirus	3.30	1.55		.72										
8. I trust scientists and scientific knowledge	4.51	1.20		−.68										
9. We should work to give all groups an equal chance to succeed	4.89	1.07		−.58										
10. My personal well-being is more important than society's well-being	3.40	1.31		.32										
11. I often imagine myself experiencing bad things and fear what might happen to me	3.33	1.47			.81									
12. Uncertainty keeps me from living a full life	3.30	1.39			.79									
13. Unforeseen events upset me greatly	3.73	1.23			.76									
14. I struggle to spend a lot of time relaxing	3.20	1.42			.62									
15. I always set goals for myself	4.21	1.11				.80								
16. I frequently imagine how I will achieve my hopes and aspirations	4.06	1.15				.77								
17. I am a person who is fully prepared to take risks	3.38	1.25				.57								
18. I'm always trying to figure myself out	3.83	1.36					.83							
19. I frequently think about how I can prevent failures in my life	3.88	1.24					.83							
20. I like to be out and about most days	3.67	1.33						.81						
21. I prefer to be around other people than by myself	3.22	1.37						.75						
22. I like being busy all the time	3.70	1.30						.71						
23. I am a religious person	3.54	1.74							.90					
24. God has a plan and the pandemic is part of it	3.37	1.69							.90					
25. I'm concerned about what other people think of me	3.21	1.44								.82				
26. I wish I had more self-discipline	3.68	1.45								.82				
27. I worry about spreading the coronavirus to people around me	3.73	1.55									.84			
28. It is probable that I, or my friends and family, will catch the coronavirus in the next 6 months	3.24	1.29									.84			
29. I care about how most other people are feeling and doing in their lives	4.41	1.04										.79		

(Continues)

TABLE 2 (Continued)

Item	*M*	SD	Factor 1	2	3	4	5	6	7	8	9	10	11	12
30. I feel connected to the people who live in my community	3.43	1.21										.79		
Independent statements														
31. It frustrates me not having all the information I need	4.26	1.18												
32. Health and wellness come first in my life	4.11	1.13												
33. My state has done a good job in handling the coronavirus pandemic	3.64	1.45												
34. I will get the coronavirus vaccine as soon as it becomes available	3.07	1.60												
35. I am worried about being able to afford housing or basic expenses (food, medical, etc.) in the next few months	2.70	1.51												
36. I would prefer to do something enjoyable tomorrow rather than something more enjoyable in a month	3.62	1.20												
37. In general, I am very susceptible to colds, flu and other infectious diseases	2.75	1.41												

Note: Data represent the general population arm of the study. Factor loadings are derived from a principal components factor analysis with varimax rotation. Independent statements were retained for use in the primary studies but did not load on multi-item factors.

TABLE 3 Effects of the pandemic on retrospective and prospective consumer changes.

	General population	Wave 1 reader panel	Wave 2 reader panel
Sample *N*	2004	12,155	2751
Retrospective changes	4.12 (1.30)[a]	4.17 (1.23)[a]	4.17 (1.29)[a]
Yes (%)	75.5	76.1	76.7
No (%)	24.4	23.8	23.4
Prospective changes	3.36 (1.61)[a]	3.26 (1.58)[b]	3.29 (1.55)[b]
Few (%)	31.2	34.1	33.1
Some (%)	45.0	43.7	45.3
Many (%)	23.8	22.1	21.6

Note: Within rows, means with distinct superscripts are significantly different at $p < .01$. All means are significantly different from the respective scale midpoint (3.5).

go back to their lives before the pandemic (1 and 2 on the scale), just under half would make some changes in the future (3 and 4 on the scale), and about one-quarter would make many lasting changes (5 and 6 on the scale). These patterns were very consistent across waves. However, could this consistency disguise predictable variation in consumer change, especially for changes projected to last into the future? To examine this, we turned to segmentation analyses.

7.1 | Segmentation

7.1.1 | Analysis

Latent class cluster analysis was performed on the general population data using Latent Gold software. For each cluster, the model provides posterior membership probabilities estimated by maximum likelihood methods, and participants are assigned to the cluster with the highest probability. Wald statistics and *p*-values were used to assess the statistical significance of each input variable. All variables used as inputs were significant at the 90% confidence level (and all but one were significant at the 95% level). Model fit was assessed by examining multiple solutions featuring different cluster numbers and input combinations according to their classification errors (the proportion of cases expected to be misclassified when based on modal assignment to the highest probability segment as compared with the probabilistic class segment assignment) and the pseudo R^2 statistics lambda, entropy R^2, and standard R^2 (which indicate how well segment memberships can be predicted based on the input variables). Consensus was reached on a 7-cluster solution, which featured very low classification errors and provided conceptually meaningful and statistically

TABLE 4 Post hoc comparisons of prospective change across waves.

	Segment						
	Conservative Virus Sceptics	Restless Millennials	Healthy and Optimistic	Successful and Concerned	Financially Challenged	Young and Vulnerable	Diverse and At-Risk
Wave 1	1.64 (1.00)[a]	3.02 (1.43)[b]	3.08 (1.46)[b]	3.28 (1.34)[c]	3.59 (1.45)[d]	3.73 (1.28)[d]	4.51 (1.32)[e]
Wave 2	1.80 (1.16)[a]	3.03 (1.41)[b]	3.09 (1.48)[b]	3.62 (1.21)[c]	3.87 (1.40)[c]	3.90 (1.23)[c]	4.44 (1.28)[d]

Note: All data are from the Reader Panel samples. Within rows, means with distinct superscripts are significantly different at $p < .001$.



FIGURE 1 Consumer segment descriptions ordered by desire for prospective changes. Percent changes reflect March 2021 data, with variation from October 2020 data in parentheses (NC, no change).

significant differences across segments (see Table S1 for fit statistics). Later, multinomial logistic regression using all inputs was used to classify Waves 1 and 2 data to ensure rules for segment assignments were identical.

7.1.2 | Profiling segments

The seven segments were created using responses from the general population sample on (1) personal impact of the pandemic, (2) psychological factors, (3) advertising and brand preferences, (4) interest in consumer/social categories, and (5) demographics. After initial construction, the segmentation was applied to the Wave 1 reader panel sample (1.0% unclassified), and the segmentation was later re-run on Wave 2 participants (2.3% unclassified; see Table S1).

We next present segment descriptions featuring the Wave 1 reader panel data, ordered according to our focal measure—degree of prospective lifestyle change. This measure varied across segments in both Wave 1, $F(6, 12{,}023) = 778.86$, $p < .001$, $n_p^2 = .28$, and Wave 2, $F(6, 2741) = 161.28$, $p < .001$, $n_p^2 = .26$. See Table 4 for full post hoc comparisons. In the descriptions, each segment is evaluated based on the above profiling characteristics 1–4 (demographics are found in the Supporting information S1 due to space limitations). Distinctive segment features are presented with standardized mean scores tested against the relevant whole-sample averages using deviation contrasts. To help ensure interpretive confidence, all reported z-scores are statistically significant at $p < .001$ unless otherwise noted. Subsequently, we discuss segment changes at Wave 2. See Figure 1 for an overview of all segments, and Tables S2–S4 for data summaries from each sample.

The segment least likely to make changes to their behaviour post-pandemic ($z = -1.03$) is labelled *Conservative Virus Sceptics*. This group is marked by low consideration of, and outright opposition to, COVID-related factors. Out of all segments, they are least likely to report health vulnerabilities to COVID-19 in themselves or family members ($z = -0.51$), to have experienced close others becoming sick or dying from COVID ($z = -0.33$), or to wear masks ($z = -1.27$), despite having the highest rate of personal COVID infection ($z = 0.14$), and being the most likely segment to hold, or have family members hold, 'essential worker' jobs ($z = 0.20$). Regarding psychological factors, this group stands out from others in being the most likely to downplay/deny pandemic risks ($z = 1.16$) and to express religious devotion ($z = 0.55$), whereas they are least likely to experience feelings of concern, fear, or closeness to COVID ($zs < -0.83$) and to

desire personal contemplation or need for social approval (*zs* < −0.26). In addition, these women report higher than average desire for social activity ($z = 0.21$) and pursuit of goals ($z = 0.08$), but relatively low uncertainty aversion/anxiety, information deprivation sensitivity, empathy, and prioritization of health and wellness (*zs* < −0.15). These factors translate into the strongest negativity toward advertising and brands that focus on the pandemic ($z = -1.15$) as well as on safety measures, customer needs, and employee well-being ($z = -0.71$). These women are relatively uninterested in most consumer/social categories, especially entertainment and social justice (*zs* < −0.52), with home and gardening ($z = 0.12$) being the primary exception.

Restless Millennials also would prefer to return to the way they lived pre-pandemic ($z = -0.16$). Like the prior segment, these women report little disease-related vulnerability in themselves or family members ($z = -0.39$), show little interest in mask use ($z = -0.49$), and incurred little job/economic loss ($z = -.14$, $p < .01$), despite holding or family holding essential worker jobs ($z = 0.15$). They also are tied for the highest rate of personally COVID-19 infection ($z = 0.14$). They are similar to the prior group in denying pandemic risks, pursuing goals, and desiring social activity (*zs* > 0.10), and in reporting relatively low empathy and information deprivation sensitivity (*zs* < −0.08) as well as low closeness and vulnerability to COVID (*zs* < −0.40). Unlike the prior group, they are more uncertainty averse, high in personal contemplation, and need for social approval (*zs* > 0.24), and only average in religious devotion. This segment appears sceptical of pandemic advertising, especially the focus on safety measures, customer needs, and employee well-being (*zs* < −0.27). They show strong preferences both for and against many consumer/social categories, and are most interested in entertainment ($z = 0.24$) but opposed to health and wellness ($z = -0.28$).

The *Healthy and Optimistic* segment also wants to return to the way they lived pre-pandemic ($z = -0.12$). They have experienced relatively few close others becoming sick or dying from COVID-19 ($z = -0.07$), and they experienced little economic loss ($z = -0.34$). Distinct from the first two groups, however, Healthy and Optimistic women are slightly higher than average in mask use ($z = 0.03$), and are the least likely to have experienced personal COVID infection ($z = -0.09$). Perhaps because of this, they are not strongly concerned about, fearful of, or feel close to COVID (*zs* < −0.07). These women are high in desire for social activity, wellness focus, and empathy (*zs* > 0.14) and religious devotion ($z = 0.48$), but also in downplaying pandemic risks ($z = 0.32$). Conversely, they are less personally contemplative and desiring of social approval than average (*zs* < −0.22) and are the least uncertainty averse and frustrated by information deprivation segment (*zs* < −0.35). They also do not want brands and advertising to highlight COVID ($z = -0.17$), unless their focus is on safety measures, customer needs, and employee well-being ($z = 0.02$). These women are interested in the consumer/social categories of health and wellness and home and gardening (*zs* > 0.10) but opposed to social justice ($z = -0.25$).

Representing the most average segment with respect to lifestyle modification ($z = 0.01$, *ns*), the *Successful and Concerned* and are unique from prior groups in several other ways. These women are the least likely to be associated with essential workers ($z = -0.25$) or to have incurred economic loss during the pandemic ($z = -0.42$). But, they are regular mask users ($z = 0.38$), report slightly more vulnerability to COVID-19 in themselves or family members than average ($z = 0.06$), and have a relatively low personal COVID-19 infection history ($z = -0.08$). Psychologically, they express relatively high concern, fear, and closeness to COVID (*zs* > 0.15), as well as high interpersonal empathy ($z = 0.12$). These women are low in personal contemplation, uncertainty aversion/anxiety, and desire for social approval (*zs* < −0.11), and particularly low in religious devotion and risk denial (*zs* < −0.64). They are also not strongly goal driven, sensitive to information deprivation, or desiring of social activity (*zs* < −0.02). However, they do approve of brands that focus on the pandemic safety, customer needs, and employee well-being (*zs* > 0.24). This segment is uninterested in most consumer/social categories except for social justice ($z = 0.46$) and travel ($z = 0.14$).

The *Financially Challenged* plan to make a modest amount of changes that will carry forward post-pandemic ($z = 0.20$). As their name implies, these women have suffered the most economic/job losses compared with other segments ($z = 0.52$). They are also relatively associated with essential worker jobs ($z = 0.11$), personal and family disease vulnerabilities ($z = 0.23$), and close others becoming sick or dying from COVID-19 ($z = 0.12$), perhaps leading to more regular mask use than average ($z = 0.07$). On psychological indices, these women report high personal concern, fear, and closeness to COVID-19 (*zs* > 0.16), along with high uncertainty aversion/anxiety, personal contemplation, need for social approval, and information deprivation sensitivity (*zs* ≥ 0.32), and higher than average religious devotion ($z = 0.16$). They are also somewhat likely to downplay pandemic risks ($z = 0.05$, $p < .01$). Conversely, this segment is the lowest in empathy and drive to pursue goals (*zs* < −0.22), and is relatively low in desire for social activity and wellness (*zs* < −0.15). These women are sceptical consumers, expressing little support for brands that focus on the pandemic, customer needs, and employee well-being (*zs* < −0.17). They report interest only in one consumer/social category, pets ($z = 0.09$), and unlike the prior group, are especially averse to social justice and travel (*zs* < −0.31).

A segment interested in making lasting changes is the *Young and Vulnerable* ($z = 0.29$). They are strong mask users ($z = 0.43$), and have experienced some economic losses ($z = 0.15$, $p < .01$), but are close to average on other pandemic impact indicators. Consistent with their segment name, these women are the most fearful of COVID-19 ($z = 0.64$) and also show high concern and feelings of closeness to the virus (*zs* > 0.22). They are extreme on many psychological dimensions, reporting the highest overall levels of uncertainty aversion/anxiety, information deprivation sensitivity, need for social approval, and tendency toward personal contemplation (*zs* > 0.57), and the lowest overall levels of religious devotion, interest in wellness, desire for social activity, and risk denial (*zs* < −0.34). They are also relatively low in empathy and drive to pursue goals (*zs* < −0.15). Perhaps as a function of the vulnerability concerns they express, this group wants brands and advertising to focus on

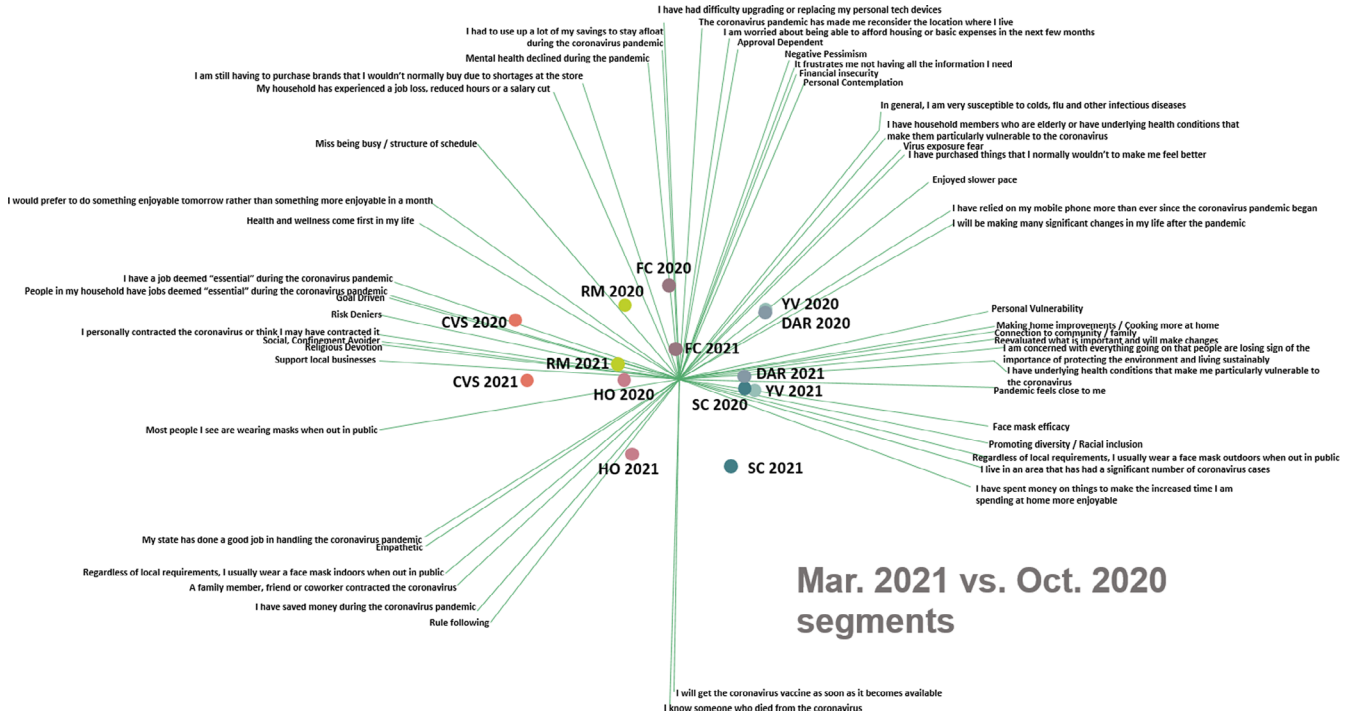


FIGURE 2 Female Consumer Segment Positional Changes: October 2020 vs. March 2021. Segments are represented by abbreviations (CVS, Conservative Virus Sceptics; DAR, Diverse and At-Risk; FC, Financially Challenged; HO, Healthy and Optimistic; RM, Restless Millennials; SC, Successful and Concerned; YV, Young and Vulnerable). Distance between identical segments reflects degree of change across waves. Proximity to the centre indicates association with more versus fewer items. Proximity of a segment to an item reflects degree of association between the two. When comparing items, vectors with less than a 90° angle are perceived to be positively correlated, those greater than a 90° are perceived to be negatively correlated, and those at a 90° angle are perceived to be uncorrelated. Additional detail on how to interpret such maps is found in Exhibit E.

the pandemic and safety measures, customer needs, and employee well-being (*zs* > 0.14). They are most interested in social justice ($z = 0.65$) and entertainment ($z = 0.26$) consumer/social categories, and least interested in health and wellness, home and gardening, and automotive news (*zs* < −0.30).

The segment who plans to make the most changes going forward are the *Diverse and At-Risk* ($z = 0.79$). Out of all segments, they are most likely to report COVID-19 vulnerabilities in themselves and family members ($z = 0.42$), close others becoming sick or dying from COVID-19 ($z = 0.26$), and regular mask use ($z = 0.54$). These women are also not strangers to economic loss during the pandemic ($z = 0.40$). On psychological measures, this segment feels the most concern about and closeness to COVID (*zs* > 0.55) paired with the most interest in wellness and drive to pursue goals (*zs* > 0.18). They also show a relatively high degree of COVID-related fear, uncertainty aversion/anxiety, information deprivation sensitivity, empathy, and preference for personal contemplation (*zs* > 0.15). The segment tends not to downplay pandemic risks ($z = -0.58$), and cares relatively little for social activity and approval (*zs* < −0.01). Their strong attitudes toward pandemic-related problems are reflected by being the segment most interested in brand/advertising focus on the pandemic as well as on safety measures, customer needs, and employee well-being (*zs* > 0.54). They also are interested in virtually all consumer/social categories, including health and wellness and entertainment (*zs* > 0.33) and especially social justice ($z = 0.66$).

7.1.3 | Changes over time

The 7-cluster segment solution was stable from Waves 1 to 2, despite some variation in segment membership over time as women navigated through the pandemic. Proportional to the whole sample, the *Conservative Virus Sceptics* and *Healthy and Optimistic* segments grew and the *Diverse and At-Risk* segment shrunk by at least 2% (average absolute proportion shift = 2.14%). Consistency in segment membership ranged from 82.0% to 38.9%, with an average of 58.9% (see Table S5 for complete values). For a visualization of segment change in their degree of association with profiling factors based on their pandemic experiences, see the top-box perceptual map in Figure 2.

We highlight segment descriptor changes next if they represent substantive variation (significant differences in segment averages across waves at $p < .001$). For specific data, see Tables S3 and S4. Overall, a very high degree of consistency was present across waves in the direction and general magnitude of segment differences. The order of segments by average degree of prospective change was virtually identical from Waves 1 to 2 (though desired change was effectively equal between the *Financially Challenged* and *Young and Vulnerable* at Wave 2). The proportion of women who projected 'many changes' continuing after the pandemic increased in most segments, significantly for the *Financially Challenged* and *Conservative Virus Sceptics*.

On measures of pandemic impact, all segments reported higher rates of having personally contracted COVID-19 over time

($M_{sample} = +5.4\%$), particularly in the *Diverse and At-Risk* and *Conservative Virus Sceptics* (insignificantly in the *Young and Vulnerable* and *Successful and Concerned*). Additionally, all segments reported higher rates of COVID infection and death in close others ($M_{sample} = +17.7\%$), with little variation across segments. Other substantive changes included increases in mask use among *Restless Millennials* and the *Financially Challenged* and decreases in job/economic loss among *Conservative Virus Sceptics* and COVID vulnerability in the *Healthy and Optimistic*.

Examining psychological indices, all segments became somewhat less fearful of COVID-19 ($M_{sample} = -0.5$), perhaps due to pandemic fatigue or the introduction of vaccines. Other psychological changes were even smaller in magnitude. The *Financially Challenged* and *Healthy and Optimistic* reported more focus on wellness. Increases in risk denial emerged in the *Successful and Concerned*, *Young and Vulnerable*, *Diverse and At-Risk*, and *Conservative Virus Sceptics* segments. Lower COVID concern was present in the *Successful and Concerned* and *Healthy and Optimistic*, and need for social approval dropped in the *Young and Vulnerable* and *Restless Millennials*. Other decreases involved personal contemplation in *Restless Millennials*, empathy in the *Diverse and At-Risk*, and drive to pursuit goals in the *Healthy and Optimistic*. The latter two segments also expressed less information deprivation sensitivity over time. Finally, religious devotion dropped in *Financially Challenged* and *Healthy and Optimistic*, but increased in the *Successful and Concerned*.

For brand and advertising preferences, the *Financially Challenged* and *Conservative Virus Sceptics* reported minimally lower interest in ads highlighting safety measures, customer needs, and employee well-being. No significant segment differences ($p < .001$) appeared in consumer category interest across waves.

7.1.4 | Additional psychological consequences

To help describe additional effects of the COVID-19 pandemic, we examined several positive and negative psychological outcomes in each wave. Positive consequences are reported using top-2-box scores ('strongly agree', 'agree'), but including 'somewhat agree' strengthens reported patterns. High consistency appeared across waves. Most women across segments (Wave 1: 59.4%, Wave 2: 57.8%) indicated that the pandemic made them realize what is important in life. This was reflected by desires to pursue an active, healthy lifestyle (W1: 64.6%, W2: 65.9%), spend less on things they do not need (W1: 57.0%, W2: 53.6%), save for unexpected circumstances (W1: 49.9%, W2: 42.4%), enjoy a slower pace of life (W1: 45.4%, W2: 46.2%), and live close to family (W1: 42.0%, W2: 37.4%). Averages for these perceptions exceeded scale midpoints (all *t*s > 18.03, *d*s >1.07). Substantive variation was present across segments, consistent with segment-defining characteristics presented earlier (see Table S6).

Reflecting negative consequences, a steep rise in mental health problems across the United States has accompanied the COVID-19 pandemic (Alzueta et al., 2021). To quantify possible trends here, we examined results from a widely used measure of clinical depression (see Table S7 for analyses of two additional mental/physical health measures). We computed a summary score for the PHQ-2 depression scale (scores ≥3 on this measure are commonly considered to meet criteria for clinical depression; Manea et al., 2016). In the Wave 1 reader panel, 14.6% of women met criteria, a percentage twice as high as the 7.3% found for women in a 2019 US nationwide survey (National Center for Health Statistics, 2020). This decreased somewhat at Wave 2, with 12.2% of women meeting criteria, though this was still 1.67 times the rate of depression found in 2019. Substantial variation existed across segments at both Wave 1, χ^2 (6) = 752.71, $p < .001$, $\varphi = .25$, and Wave 2, χ^2 (6) = 169.43, $p < .001$, $\varphi = .25$ (see Tables S3 and S4). Some segments suffered rates of depression approaching 30% (*Financially Challenged*, *Young and Vulnerable*), whereas others were below 10% (*Healthy and Optimistic*, *Successful and Concerned*). Further, though some women showed significant drops in depression across waves (*Restless Millennials*, *Young and Vulnerable*), others continued to suffer high rates of mental health struggles (*Financially Challenged*, *Diverse and At-Risk*), again indicating that women have not all coped similarly with the pandemic.

8 | DISCUSSION

Tens of millions of people in the United States officially caught COVID-19 in the first year of the pandemic, with modelled estimates of up to 100 million (~30% of the population; Pei et al., 2021). In addition to disease-related morbidity and mortality, people suffered financial insecurity, plummeting mental health, and other hardships. The impact of the pandemic has not been uniform, however. This study identified seven distinct segments of women whose lives were affected in different ways and degrees, leading some to fundamentally re-evaluate the goals they value and others to make changes they saw as only temporary. These segments were distinguished by a set of psychological traits, motives, and preferences, a combination of attributes complementing other segmentation analyses that emphasize the usefulness of integrating psychographic and experiential information with demographic variables (e.g., Hellwig et al., 2015). Further, the multi-wave data collection process, demonstrating reasonable stability of the consumer clusters over time, provides a dynamic update to prior consumer segmentation research conducted during the pandemic.

The changes that did occur reveal three key insights about the post-normal segmentation. First, important societal fluctuations during the pandemic, from the election focused, emerging infection peak period of October 2020 to the seemingly post-peak, vaccine-focused period of March 2021, led to certain shared reactions across segments. Women in all segments became more personally acquainted with but less concerned about COVID-19, and more interested in making changes that would persist post-pandemic. Second, a remarkable degree of within-segment consistency was present over time in women's experiences, psychologies, and marketing preferences, especially with respect to their expectations for lasting change. Third, where temporal deviations did occur, these revealed disengagement

with certain aspects of social life. Such disengagement tendencies were small compared with the overall motivation to connect with family and community and to lead a more relaxed, healthy, and savings-oriented lifestyle.

Both consistency and temporal variation were present in one of the most pernicious consequences of the pandemic, the large proportions of women experiencing clinical levels of depression. Sample-wide, rates of depression were approximately twice as high compared with the prior, pre-pandemic year. These dropped over time, especially as the COVID-19 vaccine became available (around Wave 2), but still remained much higher than normal. Such depression rates reveal another crisis stemming from the psychological and lifestyle effects of the pandemic. Depression has critical consumer implications as well as personal and societal ones, as it can produce hoarding behaviour, lack of consumption pleasure, brand loyalty due to routinized decision-making, and substance abuse (Hirschman & Stern, 1998). But, just as with other psychological and lifestyle effects investigated here, a large degree of diversity exists in depression across segments. This underscores a key takeaway—women have responded differently to the pandemic, but this diversity is captured by the current segmentation. For instance, even as depression rates fluctuated over time, the rankings of which segments showed high levels and which showed low levels remained relatively constant.

Perhaps one of the more interesting questions arising from this study is, why do we observe meaningful stability in the seven-segment solution despite evolution of the pandemic? One possibility is that many of the psychological traits used to profile women in our samples reflect personality dimensions known to be temporally stable. These traits underlie the fundamental motives and everyday goals that drive consumer behaviour, from the ways that consumer process information to their decision styles to the specific consumer categories they prefer (Ackerman et al., 2023; Baumgartner, 2002). Importantly, these traits also shape perceptions of individual experiences. During the pandemic, some people have encountered more actual danger than others, such as living in communities with high COVID-19 case counts versus communities relatively free from infection. Yet, emerging research indicates that it is the perception of danger rather than its objective risk that often influences reactions (e.g., Wang et al., 2022). Traits reflecting relatively stable perceptions may thus produce relatively stable segments. We discuss other possible answers to this question in the Supporting information S1.

8.1 | Marketing implications

A key goal for marketers facing any large economic shock is determining how best to respond to the consequences that shock has for consumer behaviour. We can thus cast marketing in a pandemic as part of the broader domain of crisis communication (Sellnow & Seeger, 2021). During the COVID-19 pandemic, consumers have faced a complex web of factors that threaten their health, finances, and numerous other meaningful goals. The present segmentation analysis can help to clarify the factors that specific consumers prioritize when attempting to adjust their lives during and beyond the pandemic, helping us answer what the post-normal consumer world might look like. By highlighting the diversity of experiences, psychological characteristics, and preferences expressed by women in our samples, this analysis emphasizes that a single answer is not adequate.

In particular, the segmentation offers actionable insights into the types of marketing messages that will resonate with women. Consider the distinction between segments like the *Restless Millennials* and the *Young and Vulnerable*. Though both are relatively young, they have very different reactions to, and outlooks on, the pandemic. *Young and Vulnerable* women feel closer to the pandemic, suffer higher rates of depression, and are more interested in making lasting changes as a result compared with *Restless Millennial* women. Paired with their greater interest in social justice and entertainment, *Young and Vulnerable* women are likely more open to advertising featuring different content than that directed at *Restless Millennials*.

Targeted advertising may benefit from differences in framing as well. For instance, construal level theory describes how the experience of feeling closer to an event elicits processing of information at a relatively concrete level, whereas feeling more distant from an event elicits relatively abstract information processing (Trope & Liberman, 2010). This perspective suggests *Young and Vulnerable* women will respond more positively to advertising featuring specific product attributes or steps to acquire those products. In contrast, *Restless Millennial* women will prefer advertising that focuses on the big picture and general goals associated with product acquisition. As another example, *Restless Millennials* and *Conservative Virus Sceptics* share a general pessimism toward the national response to the pandemic, but *Conservative Virus Sceptics* in particular see COVID-19 as less of a personal threat, have suffered less physical and mental health consequences, and want much less focus on the pandemic in advertising. The greater risk denial and religiosity associated with this group suggests that care is needed to avoid certain marketing content for these women that may be appealing to many other segments. Consumer targeting that builds on insights like these is not easily derived from approaches characterizing many prior segmentations. This nuanced perspective may help managers better orient advertising and branding, thereby preventing problems with a one-size-fits-all strategy (e.g., irrelevant or ineffective messages) and mis-targeting (e.g., messages perceived as insensitive or offensive).

A second important implication emerges from the multi-wave nature of the study. Though segmentation analysis is considered useful even in dynamic marketplaces, traditional methods of this analysis often involve only single-period cross-sectional surveys, making it impossible to determine whether segments are reliable over time and thus remain actionable (Dolnicar, 2021). The present work helps address this shortcoming by demonstrating a high degree of segment stability despite the exogenous changes occurring across a tumultuous societal period. This stability reveals the lasting impact of core segmentation attributes, including psychological factors and experiences. Other factors varied across waves, in particular those related to encounters with COVID-19 (e.g., infection, closeness) and mental health. Empirical approaches that allow managers to partition sources of influence into ones that vary versus remain stable, as the current

investigation does, will aid with the effective directing of marketing resources toward research and application.

8.2 | Limitations

Despite its strengths, this study is limited in several ways. Most straightforwardly, the samples were restricted to U.S. women in households with at least $25,000 in income, and so it may not be appropriate to generalize the findings to men or individuals in other countries. The profiling variables used in the study were not gender-specific, nor were the key attributes of the resulting segments, and so it is likely that US men could be represented by a similar cluster set. However, cultural psychology research indicates that how people conceptualize certain aspects of their environments, and the weights they give to those features, are often influenced by the social norms and values of those societies. The US political/partisan response to the pandemic has also been somewhat unique, making it premature to consider cross-culture application of the findings.

Another potential limitation involves the specific measures used to assess participant experiences and psychology. These were motivated by theoretical perspectives on crisis psychology and on a multiphase empirical process involving experts and regular consumers, which the segmentation results supported. But, the numerous ways in which the pandemic has affected the consumer marketplace open the door for segmentation research targeting other types of end goals (e.g., price strategies) and product formats linked to threat perception (e.g., typicality; Huang & Sengupta, 2020). We also note that our focal measure of prospective change assesses consumer intentions. Intentions have been found to predict behaviours to varying degrees, and so future measurement of actual consumer behaviours will be important for further validating these findings. As a point of optimism, intention-behaviour correlations are typically greater when intentions assess behaviours that consumers have prior experience with (which they presumably do here) and when intentions are used to reflect broader trends rather than point estimates, such as the relative comparisons between segments (Morwitz & Munz, 2021).

Finally, the temporal aspect of this crisis raises uncertainty for many stakeholders. When will the pandemic truly be over? For researchers, this question frames the issue of future data needs to help evaluate continuing reliability of the seven segments found here. Consumers also vary in their answer to this question (Atkinson, 2022). Perceptions of what post-pandemic life will involve, including the continuation or abandonment of lifestyle changes, may reflect different time periods for segments that feel close or far from COVID-19. Thus, the issue of post-pandemic data collection will also be important for validating beliefs about lasting change.

9 | CONCLUSION

Will consumers return to their old normal as the pandemic wanes? We develop a framework demonstrating that the answer to this question depends on specific characteristics and experiences of those consumers. This dynamic segmentation approach finds substantial stability in segment profiles, suggesting it could be generalized to future segmentation research. By systematically analysing consumer diversity, we may better understand and appropriately target their unique needs.

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DATA AVAILABILITY STATEMENT

The data and materials supporting this work can be at the Open Science Foundation (OSF) repository at: https://osf.io/vyhsd/?view_only=2a3aae9ca5a44d8dbc5457b0edd92a06.

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REFERENCES

Ackerman, J. M., Hill, S. E., & Murray, D. R. (2018). The behavioral immune system: Current concerns and future directions. *Social and Personality Psychology Compass*, *12*(2), e12371.

Ackerman, J. M., Merrell, W. M., & Williams, L. E. (2023). Consumer psychology. In D. Carlston, K. Johnson, & K. Hugenberg (Eds.), *The Oxford handbook of social cognition* (2nd ed.). Oxford University Press.

Ackerman, J. M., Tybur, J. M., & Blackwell, A. D. (2021). What role does pathogen-avoidance psychology play in pandemics? *Trends in Cognitive Sciences*, *25*(3), 177–186.

Alzueta, E., Perrin, P., Baker, F. C., Caffarra, S., Ramos-Usuga, D., Yuksel, D., & Arango-Lasprilla, J. C. (2021). How the COVID-19 pandemic has changed our lives: A study of psychological correlates across 59 countries. *Journal of Clinical Psychology*, *77*(3), 556–570.

Atkinson, S. (2022). *Two years on: Lessons from Covid times*. Ipsos. https://www.ipsos.com/sites/default/files/ct/publication/documents/2022-03/TwoYearsOn_LessonsFromCovidTimes.pdf.

Azeroual, O., & Schöpfel, J. (2021). Trustworthy or not? Research data on COVID-19 in data repositories. In *Libraries, digital information, and COVID* (pp. 169–182). Chandos Publishing.

Barauskaitė, D., Gineikienė, J., & Fennis, B. M. (2022). Saved by the past? Disease threat triggers nostalgic consumption. *Psychology & Marketing*, *39*(8), 1433–1450.

Bateman, N., & Ross, M. (2020). *Why has COVID-19 been especially harmful for working women?* Brookings.edu. https://www.brookings.edu/essay/why-has-covid-19-been-especially-harmful-for-working-women/.

Baumgartner, H. (2002). Toward a personology of the consumer. *Journal of Consumer Rresearch*, *29*(2), 286–292.

Blocker, C. P., & Flint, D. J. (2007). Customer segments as moving targets: Integrating customer value dynamism into segment instability logic. *Industrial Marketing Management*, *36*(6), 810–822.

Cacioppo, J. T., Hughes, M. E., Waite, L. J., Hawkley, L. C., & Thisted, R. A. (2006). Loneliness as a specific risk factor for depressive symptoms: Cross-sectional and longitudinal analyses. *Psychology and Aging*, *21*(1), 140–151.

Carleton, R. N., Norton, M. P. J., & Asmundson, G. J. (2007). Fearing the unknown: A short version of the intolerance of uncertainty scale. *Journal of Anxiety Disorders*, *21*(1), 105–117.

Centers for Disease Control and Prevention (CDC). (2019). CERC: Psychology of a crisis. https://emergency.cdc.gov/cerc/ppt/CERC_Psychology_of_a_Crisis.pdf.

Cuomo, M. T., Tortora, D., Festa, G., Giordano, A., & Metallo, G. (2016). Exploring consumer insights in wine marketing: An ethnographic research on #Winelovers. *Psychology & Marketing*, *33*(12), 1082–1090.

Dohmen, T., Falk, A., Huffman, D., Sunde, U., Schupp, J., & Wagner, G. G. (2011). Individual risk attitudes: Measurement, determinants, and behavioral consequences. *Journal of the European Economic Association*, *9*(3), 522–550.

Dolnicar, S. (2003). Tracking data-driven market segments. *Tourism Analysis*, *8*(2), 227–232.

Dolnicar, S. (2021). Market segmentation for e-tourism. In *Handbook of E-Tourism* (pp. 1–15). Springer.

Dryhurst, S., Schneider, C. R., Kerr, J., Freeman, A. L., Recchia, G., Van Der Bles, A. M., Spiegelhalter, D., & Van Der Linden, S. (2020). Risk perceptions of COVID-19 around the world. *Journal of Risk Research*, *23*(7–8), 994–1006.

Duncan, L. A., Schaller, M., & Park, J. H. (2009). Perceived vulnerability to disease: Development and validation of a 15-item self-report instrument. *Personality and Individual Differences*, *47*(6), 541–546.

Else, H. (2020). How a torrent of COVID science changed research publishing—In seven charts. *Nature*, *588*(7839), 553–554.

Galoni, C., Carpenter, G. S., & Rao, H. (2020). Disgusted and afraid: Consumer choices under the threat of contagious disease. *Journal of Consumer Research*, *47*(3), 373–392.

Gladwin, T. E., Möbius, M., & Vink, M. (2019). Threat-induced impulsivity in go/Nogo tasks: Relationships to task-relevance of emotional stimuli and virtual proximity. *Consciousness and Cognition*, *74*, 102795.

González, E. M., Felix, R., Carrete, L., Centeno, E., & Castaño, R. (2015). Green shades: A segmentation approach based on ecological consumer behavior in an emerging economy. *Journal of Marketing Theory and Practice*, *23*(3), 287–302.

Gray, J. S., Ozer, D. J., & Rosenthal, R. (2017). Goal conflict and psychological well-being: A meta-analysis. *Journal of Research in Personality*, *66*, 27–37.

Hellwig, K., Morhart, F., Girardin, F., & Hauser, M. (2015). Exploring different types of sharing: A proposed segmentation of the market for "sharing" businesses. *Psychology & Marketing*, *32*(9), 891–906.

Hill, R. P. (1987). The impact of interpersonal anxiety on consumer information processing. *Psychology & Marketing*, *4*(2), 93–105.

Hirschman, E. C., & Stern, B. B. (1998). Consumer behavior and the wayward mind: The influence of mania and depression on consumption. *NA—Advances in Consumer Research*, *25*, 421–427.

Ho, A. K., Sidanius, J., Kteily, N., Sheehy-Skeffington, J., Pratto, F., Henkel, K. E., Foels, R., & Stewart, A. L. (2015). The nature of social dominance orientation: Theorizing and measuring preferences for intergroup inequality using the new SDO_7 scale. *Journal of Personality and Social Psychology*, *109*(6), 1003–1028.

Huang, J. Y., Ackerman, J. M., & Sedlovskaya, A. (2017). (De) contaminating product preferences: A multi-method investigation into pathogen threat's influence on used product preferences. *Journal of Experimental Social Psychology*, *70*, 143–152.

Huang, J. Y., & Bargh, J. A. (2014). The selfish goal: Autonomously operating motivational structures as the proximate cause of human judgment and behavior. *Behavioral and Brain Sciences*, *37*(2), 121–135.

Huang, Y., & Sengupta, J. (2020). The influence of disease cues on preference for typical versus atypical products. *Journal of Consumer Research*, *47*(3), 393–411.

Jepson, C., & Chaiken, S. (1990). Chronic issue-specific fear inhibits systematic processing of persuasive communications. *Journal of Social Behavior and Personality*, *5*(2), 61.

Kashdan, T. B., Stiksma, M. C., Disabato, D. J., McKnight, P. E., Bekier, J., Kaji, J., & Lazarus, R. (2018). The five-dimensional curiosity scale: Capturing the bandwidth of curiosity and identifying four unique subgroups of curious people. *Journal of Research in Personality*, *73*, 130–149.

Kemp, E., Bui, M., & Porter, M., III. (2021). Preparing for a crisis: Examining the influence of fear and anxiety on consumption and compliance. *Journal of Consumer Marketing*, *38*(2), 282–292.

Koch, J., Frommeyer, B., & Schewe, G. (2020). Online shopping motives during the COVID-19 pandemic—Lessons from the crisis. *Sustainability*, *12*(24), 10247.

Laran, J., & Janiszewski, C. (2009). Behavioral consistency and inconsistency in the resolution of goal conflict. *Journal of Consumer Research*, *35*(6), 967–984.

Lipshitz, R., & Strauss, O. (1997). Coping with uncertainty: A naturalistic decision-making analysis. *Organizational Behavior and Human Decision Processes*, *69*(2), 149–163.

Lockwood, P., Jordan, C. H., & Kunda, Z. (2002). Motivation by positive or negative role models: Regulatory focus determines who will best inspire us. *Journal of Personality and Social Psychology*, *83*(4), 854–864.

Loewenthal, K. (1986). Factors affecting religious commitment. *The Journal of Social Psychology*, *126*(1), 121–123.

Löwe, B., Kroenke, K., & Gräfe, K. (2005). Detecting and monitoring depression with a two-item questionnaire (PHQ-2). *Journal of Psychosomatic Research*, *58*(2), 163–171.

Manea, L., Gilbody, S., Hewitt, C., North, A., Plummer, F., Richardson, R., Thombs, B. D., Williams, B., & McMillan, D. (2016). Identifying depression with the PHQ-2: A diagnostic meta-analysis. *Journal of Affective Disorders*, *203*, 382–395.

McLean, C. P., & Anderson, E. R. (2009). Brave men and timid women? A review of the gender differences in fear and anxiety. *Clinical Psychology Review*, *29*(6), 496–505.

Morwitz, V. G., & Munz, K. P. (2021). Intentions. *Consumer Psychology Review*, *4*(1), 26–41.

Müller, H., & Hamm, U. (2014). Stability of market segmentation with cluster analysis–a methodological approach. *Food Quality and Preference*, *34*, 70–78.

Murray, D. R., & Schaller, M. (2016). The behavioral immune system: Implications for social cognition, social interaction, and social influence. In *Advances in experimental social psychology* (Vol. 53, pp. 75–129). Academic Press.

National Center for Health Statistics. (2020). National Health Interview Survey, 2019. https://www.cdc.gov/nchs/nhis/data-questionnaires-documentation.htm.

Neel, R., Kenrick, D. T., White, A. E., & Neuberg, S. L. (2016). Individual differences in fundamental social motives. *Journal of Personality and Social Psychology*, *110*(6), 887–907.

Nelson, A. (2019). *Women drive majority of consumer purchasing and It's time to meet their needs*. Inc.com. https://www.inc.com/amy-nelson/women-drive-majority-of-consumer-purchasing-its-time-to-meet-their-needs.html

O'Connor, P. J., & Sullivan, G. L. (1995). Market segmentation: A comparison of benefits/attributes desired and brand preference. *Psychology & Marketing*, *12*(7), 613–635.

Park, J., Kim, J., Jhang, J., Lee, J. C., & Lee, J. (2022). The impact of infectious disease threat on consumers' pattern-seeking in sequential choices. *Psychology & Marketing*, *39*(2), 370–389.

Pei, S., Yamana, T. K., Kandula, S., Galanti, M., & Shaman, J. (2021). Burden and characteristics of COVID-19 in the United States during 2020. *Nature*, *598*(7880), 338–341.

Roggeveen, A. L., & Sethuraman, R. (2020). How the COVID-19 pandemic may change the world of retailing. *Journal of Retailing*, *96*(2), 169–171.

Ruiter, R. A., Kessels, L. T., Peters, G. J. Y., & Kok, G. (2014). Sixty years of fear appeal research: Current state of the evidence. *International Journal of Psychology*, *49*(2), 63–70.

Scheier, M. F., & Carver, C. S. (1985). The self-consciousness scale: A revised version for use with general populations. *Journal of Applied Social Psychology*, *15*(8), 687–699.

Sellnow, T. L., & Seeger, M. W. (2021). *Theorizing crisis communication*. John Wiley & Sons.

Settersten, R. A., Jr., Bernardi, L., Härkönen, J., Antonucci, T. C., Dykstra, P. A., Heckhausen, J., Kuh, D., Mayer, K. U., Moen, P., Mortimer, J. T., Mulder, C. H., Smeeding, T. M., van der Lippe, T., Hagestad, G. O., Kohli, M., Levy, R., Schoon, I., & Thomson, E. (2020). Understanding the effects of Covid-19 through a life course lens. *Advances in Life Course Research*, *45*, 100360.

Sheth, J. (2020). Impact of Covid-19 on consumer behavior: Will the old habits return or die? *Journal of Business Research*, *117*, 280–283.

Sheth, J. N. (1967). A review of buyer behavior. *Management Science*, *13*(12), B718–B756.

STAT REPORTS. (2022). The COVID-19 tracker. https://www.statnews.com/feature/coronavirus/covid-19-tracker/.

Straughan, R. D., & Roberts, J. A. (1999). Environmental segmentation alternatives: A look at green consumer behavior in the new millennium. *Journal of Consumer Marketing*, *16*(6), 558–575.

Tangney, J. P., Baumeister, R. F., & Boone, A. L. (2004). High self-control predicts good adjustment, less pathology, better grades, and interpersonal success. *Journal of Personality*, *72*(2), 271–324.

Trope, Y., & Liberman, N. (2010). Construal-level theory of psychological distance. *Psychological Review*, *117*(2), 440–463.

Vahratian, A., Blumberg, S. J., Terlizzi, E. P., & Schiller, J. S. (2021). Symptoms of anxiety or depressive disorder and use of mental health care among adults during the COVID-19 pandemic—United States, august 2020–February 2021. *Morbidity and Mortality Weekly Report*, *70*(13), 490–494.

Verain, M. C., Bartels, J., Dagevos, H., Sijtsema, S. J., Onwezen, M. C., & Antonides, G. (2012). Segments of sustainable food consumers: A literature review. *International Journal of Consumer Studies*, *36*(2), 123–132.

Wang, E., An, N., Gao, Z., Kiprop, E., & Geng, X. (2020). Consumer food stockpiling behavior and willingness to pay for food reserves in COVID-19. *Food Security*, *12*(4), 739–747.

Wang, I., Roman, M. K., Goldstein, G. B., & Ackerman, J. M. (2022). Crowding at the ballot box: Did the COVID-19 pandemic affect perceptions and behavior around voting? https://osf.io/sqtw3/.

Wedel, M., & Kamakura, W. A. (2000). *Market segmentation: Conceptual and methodological foundations*. Springer Science & Business Media.

Wolf, M. M., Wolf, M., & Lecat, B. (2022). Wine market segmentation by age generations in the Western US: Expectations after the COVID-19 pandemic. *International Journal of Wine Business Research*, *34*, 373–391.

Zheng, L., Miao, M., & Gan, Y. (2020). Perceived control buffers the effects of the COVID-19 pandemic on general health and life satisfaction: The mediating role of psychological distance. *Applied Psychology: Health and Well-Being*, *12*(4), 1095–1114.

Zheng, X., Ruan, C., & Zheng, L. (2021). Money or love? The impact of the COVID-19 pandemic on consumer life goals and subjective well-being. *Journal of Business Research*, *137*, 626–633.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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