Health and Safety Information, Behavioral Change, and Consumer Preferences in Post-Pandemic Cosmetic Service Systems

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Abstract. The study investigates shifts in consumer behavior among Omani female shoppers, focusing on examining the impact of influence by health and safety concerns, sensory information, and perceived quality on product preferences, considering behavioral change as a mediator. To analyze cause-and-effect relationships, the study deployed quantitative data for hypothesis testing using Partial Least Squares Structural Equation Modeling (PLS-SEM). We used purposive sampling; data from 237 samples were collected from a sample of Omani female consumers. PLS-SEM uses Smart PLS to test hypotheses with data from Omani female consumers. The results indicated that health and safety, sensory input, and perceived quality significantly influence preferences, and behavioral change mediates these relationships. The outcomes of the study confirm theoretical discourse on consumer behavior by integrating health psychology, sensory information, and perceived quality into a behavioral change framework. Brands must prioritize transparency to build trust and preference.

Keywords: Post-COVID Behavior, Health and Safety, Perceived Quality, Behavioral Change, Cosmetics, Oman

1. Introduction

The COVID-19 pandemic brought significant changes to global markets by altering consumer priorities and shopping behaviors (Valaskova et al., 2021; Eger et al., 2021). There are unprecedented shits in consumer behavior after the pandemic; consumer perceptions have imparted high emphasis on safety and quality of products. Factors catching interest build an individual's perception of status. After the pandemic, people prioritize safety and health risk mitigation in their decision-making (Accenture, 2020). Concerns have high concern over product safety, ingredients, and safety standards (Goyal & Jerold, 2023). Pandemic experiences have had an insightful effect on the beauty products sector globally. Previously, like other markets, the beauty industry in Oman, aesthetics, and luxury were the major driving factors of the market (Edwin et al., 2020). In recent years, Omani women have increasingly prioritized cosmetic products not only for their aesthetic appeal but also for their alignment with cultural values, skin compatibility, and health-conscious formulations. This shift reflects a broader trend in which personal care and well-being are becoming central to consumer preferences, especially among women who seek products that are halal-certified, dermatologically tested, and suited to local climatic conditions (Sapsuha & Lutfi, 2025). However, after the pandemic, new factors such as the need for safety on skincare and wellness over cosmetics have become dominant in consumer decision-making.

Consumers demand clearer information on ingredients, safety certifications, and health benefits. Growing awareness of public about harmful compounds in cosmetics has raised concerns about potential health risks. These risks have prompted a shift toward cleaner, natural formulations and greater transparency from manufacturers regarding product composition and safety testing (Sonkar, Singh, & Singh Dubey, 2025). Brands management considers several elements apart from ethnocentrisms and technological capability. Managing brand failures requires consideration on multiple factors to mitigate their broader implications (Jia & Cho, 2025). The uncertainty of crisis time disrupts people's routines and behaviors, shoppers change their behavior in response to uncertainty (Julkunen et al., 2023).

Eriksson and Stenius (2020) provides insight into consumers' behavior and argue that shopping patterns stabilize and become routine over time. Experience, perceived threats, and behavioral changes lead to new brand preferences. Rising economic prosperity and cultural transformation from traditional to modern categorizes Oman as an emerging market for personal care and beauty products. The Omani beauty and personal care market is smaller compared to the UAE and Saudi Arabia in the region but has experienced steady growth. The demand for skincare and natural beauty products has improved with reflections of consumers' increasing preference for health-conscious and eco-friendly (Verma & Ray, 2023). In 2023, the Omani beauty and personal care products market is valued at around $450 million (Euromonitor, 2023; Statista, 2023). After the Covid-19, hygiene and safety concerns have intensified buying behavior towards product safety and risk factors (Sehgal et al., 2023). According to KPMG (2018), Oman's consumer and retail market is driven by rising disposable incomes, brand awareness, and increased convenience and quality. Despite the pandemic, Smith (2021) reports that the Middle East has changed its purchasing patterns toward health-conscious, digital, and value-driven behaviors. Essentially, these changes highlight the market's responsiveness to the significantly changed behavior of buyers. Research related to Covid-19 issues has focused heavily on new influences and changes in consumer behavior during and after the crisis. Post-crisis consumer behavior remains poorly studied in Oman. Studies on buying behavior during crisis times have generally overlooked the role of behavioral stability (Rayburn et al., 2022). Omani female consumers' perceptions and purchasing behavior regarding cosmetic products have been influenced by health and safety concerns post-COVID-19. Omani women are prioritizing health, safety, and ingredient transparency in cosmetic purchases. There is limited research on how such concerns influence product perception, brand preference, and loyalty in Oman's beauty market. It is important for marketers to understand how post-pandemic awareness of safety affects consumer buying decisions. In this study, we examine how health and safety concerns, product perception, and changing consumer behavior shape Omani women's preferences for cosmetic products.

Existing studies do not explain how crises induce concerns of customers in the context of global pandemic influence evolution of customers' services preferences and information processing. Prior studies have mainly explored behavior shifts during crises. Hence, there is a limited theoretical comprehension on which health and safety related anxieties shape preferences for service attributes. This gap is distinct in emerging markets like Oman because certain social, cultural, and economic factors moderate customer behavior. Therefore, considering cosmetic consumers concerns triggered by COVID-19, this study seeks to contribute to theoretical discourse of behavioral change and sustainability driven by behavioral change.

Consideration of context of broader service systems is important in understanding consumer preferences in the post-COVID era. Buyers do not rely only on intrinsic qualities of products but also the reliability and credibility of the entire service ecosystem. Responsiveness of supply chain transparency and safety assurances enhances trust of customers. This shift reflects customers' expectations of trustworthy experiences through authenticity and stability of services associated with the products they purchase. Therefore, an all-inclusive approach is essential to consider both product attributes and the broader service environment to understand evolving consumer behavior in post pandemic market environment.

This study aligns with the principles of service science in the context of post COVID-19 cosmetic market. Growing emphasis on health, safety, and transparency among Omani women shapes their perceptions and behavior (Sheth, 2020). Therefore, leveraging digital platforms in providing detailed and credible product information can enhance trust of consumers. Customers are part of dynamic service ecosystem, therefore, creating value through modern means in digital age cultivates a responsive and sustainable consumer-brand relationship.

The study examines the relationship between health and safety concerns, sensory information, and perceived quality, as well as the mediating role of behavioral change in this relationship. Furthermore, the study examines the trend of Omani women preferring hazards free beauty products over aesthetics-centric products. It will ultimately help cosmetic brands in aligning their strategies with evolving consumer expectations in Oman's beauty market.

Journal of System and Management Sciences (JSMS) is a multidisciplinary journal, mainly publishes original research and applied papers on sport science and sports engineering, including the application of system science and system engineering, mathematics and statistics, computer and information, mechanics and physics, material and textiles, operation research and management, modelling and simulation, medicine and biology, measurement and design, electric and machine engineering, etc. for sports, physical education, exercise, game and human movement.

2. Literature Review

2.1. Behavioral Shifts Driven by Health and Safety Concerns
During recessions or societal crises, large-scale disruptions have a significant impact on consumer behavior. When faced with such crises, consumers alter their consumption patterns, often for health reasons. Eventually, crisis-induced responses become habits, reinforcing lasting behavioral shifts (Freeston et al., 2020; Omar et al., 2021). Empirical studies indicate that shopping behavior varies across consumer segments, often reflecting both adaptive changes and elements of behavioral consistency. Perceived safety or a reduction in stress reinforces behaviors in response to perceived threats. Personal beliefs and emotional responses further support the persistence of these behaviors post-crisis. Schwendtner et al. (2024) confirms that consumers demonstrate enduring behavioral patterns learned during crises, driven by personal factors and perceived environmental threats.

Health and safety concerns refer to perceptions of risk related to products. This is psychological appraisal of potential risks aligned with health belief model which emphasizes perceived threats and benefits, influencing buying decisions. Perceived quality is subjective assessment of product based on tangible attributes of products and intangible cues and emotional messaging as well (Tang & Li, 2023). It is evaluation of product's value by customers which reflects their expectations and satisfaction level

before buying. Sensory information are perceptual stimuli as awareness that triggers cognitive responses during consumer's interaction with product (Haase, Wiedmann, & Bettels, 2020). This construct functions as diagnostic signals that reinforce trust and pleasure, it roots into sensory marketing theories Behavioral change refers to the adjustments in attitude and habitual behavior of consumers based on from internal evaluations and external influences (Mason et al.2020).

Stronger perceptions of harm from personal care products significantly drive safer purchasing behavior, such as reading labels and choosing natural or non‐toxic options. Collectively, these findings suggest that crisis experiences not only reinforce health‐conscious consumption but also stabilize long-term shifts toward safer product choices (Payne et al., 2023; Varshini, 2024). This transition signifies a broader societal movement toward health consciousness and consumers' priorities for well-being. This transition signifies a broader societal movement toward health consciousness and consumers' prioritization of overall well-being. Within this context, beauty products have emerged as a key aspect of well-being, as consumers increasingly view them not merely as aesthetic enhancers but as integral to health and self-care (Choi, Kim, & Lee, 2022).

This shift has driven demand for safer, chemical-free, and environmentally sustainable beauty options that align with consumers' holistic approach to personal wellness. Therefore, this emphasizes companies for ethical marketing and reformulate products as safe, eco-friendly, and sustainable. With the growing awareness of the health implications of the synthetic ingredients used in beauty products, the consumers are likely to look for alternatives such as green products, natural products, and organic products (Dini & Laneri, 2021). The risks posed by certain cosmetics / beauty care products, such as the risk of developing cancer or exposure to endocrine disruptors, create a consumer turning to health, safe and non-toxic products. Therefore, we hypothesize as follows:

H1: Health and safety concerns significantly impact product preferences.

2.2. Sensory experience, behavioral change, and consumer behavior

The sensory experiences have a significant impact on the preferences of customers. The attributes, like visual appeal, ingredient information, texture, and packaging, are key to strengthening desirability (Toufani, Stanton, & Chikweche, 2017). Sensory experiences create cognitive and emotional interaction between the product and the customer, which influences the product's perception and the behavior of buyers. Stimulus-Organism-Response (S-O-R) theory, by Mehrabian & Russell (1974, as cited in Smith, 2020), explains how external stimuli such as product appearance, scent, and texture influence internal evaluations, leading to specific behavioral responses of customers. Generally, information cues shape customer preferences and consumer attitude predict purchase intention in uncertainties by influencing e emotional values and purchase intention, thereby (Ahmed et al., 2025; Chelvarayan, & Yeo, 2025). To enhance sensory experiences and foster positive associations, companies must strategically design their offerings as customers develop emotional connections with them. By providing awareness (Koubaa & Awokoya, 2025, Khan et al., 2025), emotional and cognitive reactions can influence customers' purchase intention. Visual elements, such as pleasing scents and texture, have an impact on value perception and enhance emotional responses (Yuan et al., 2024).

Therefore, a multisensory design has an impact on consumer behavior both at the cognitive and affective levels. Multisensory cues improve repurchase intentions through enhancing product satisfaction and emotional attachment (Shahid et al., 2022). Different sources of information play role in making such perceptions. Digital transformation is a modern system that enhances transparency through corporate disclosure. Therefore, digital transformation strengthens trust, customer perceptions and behavioral engagement is relevant in post pandemic context. Safety and product authenticity are critical to consumer decision-making (Paudel & Thapa, 2025) and ensure sustainability and value creation (Heinz et al., 2023).

Sensory-driven responses are the result of an interaction between societal trends, economic conditions, and the consumer's personal experiences, all of which influence how the consumer perceives and responds to stimuli. Culture, marketing trends, and internal beliefs and emotions influence consumers' multisensory engagement, thereby influencing their purchase decisions (Wiedmann et al., 2021). Personal experiences have played a significant role in modifying preference and behavior due to the COVID-19 pandemic (Akter, Ashrafi, & Waligo, 2021). The evolution of personal values is associated with changes in behavior in terms of preferences and decision confidence due to the reinforcement of sensory information (Schwarz et al., 2021). Therefore, contemplating the evidence from literature on the significance of aesthetics and sensory experiences with consumer behavior, we hypothesize as follows:

H2: Sensory information significantly impacts product preferences among consumers.

2.3. Perceived Quality

Perceived quality is a consumer's 'subjective assessment of a product as a function of their expectations, tangible attributes, and available information. This feedback strongly influences purchase decisions because it increases the likelihood of buying and enhances satisfaction. Certain factors, such as brand reputation, product labeling, emotional messaging, and the impact of sellers' overall strategies, shape quality perceptions beyond consumers' direct experience with products (Solin & Curry, 2023; Srivastava et al., 2024). Therefore, companies focus on aligning product attributes with customer expectations to build positive perceptions and enhance brand attraction, which influences customer behavior (Rathore, 2020; Szaban, Khan et al., 2025, Szymkowiak, & Zdziennicka, 2025). Research suggests that perceived quality mediates the relationship between product preferences and behavioral change, acting as a key influencer of purchase decisions. Specifically, product perception reinforces behavioral changes by validating consumer concerns regarding safety, quality, and ethical standards (Baidoun & Salem, 2024; Zhang et al., 2024; Verma, 2024 & Khan et al., 2021). Other external factors, such as needs, desires, positive perceptions, and stimuli, also impact purchase behavior and tend to increase impact, and negative perceptions might have an adverse impact and limit shifts in preference (Dorce et al., 2021). Therefore, we propose the following hypothesis:

H3: Perceived Quality significantly impact product preferences.

2.4. Perceived Role of Behavior Change in Purchase Preferences

It is common for consumer behavior to undergo significant changes as a result of external crises such as economic recessions. Unprecedented events such as the COVID-19 pandemic and global recessions create major shifts in consumer behavior, particularly in shopping patterns. Based on perceived threats and experiences, individuals exhibit either adaptation or stability (Boyle et al., 2022). Increase in awareness of health-related risks with personal care products, demand for safety and chemical-free products in increasing in the Gulf region which influences purchase decision-making (Radhi, Hamdan, & Al Mubarak, 2024). The shifts in customer's behavior toward health consciousness, anxiety management, and preventative behavior reflect a societal movement. (Shahin & Hussien, 2020). Evaluating the situation in conjunction with the Theory of Planned Behavior (TPB) and the Stimulus-Organism-Response (SOR) model illustrates the interaction of external stimuli t with cognitive and affective processes. These processes shape up behavioral intents and purchasing preferences of customers. Perception of product quality and safety reinforces these behavioral changes. Customers expect ethical standards in product offering from providers, evidence of which builds their trust. This trust acts as a catalyst for sustainable shifts in consumer behavior eventually, this creates brand engagement and brand love. Finally, these adaptations drive consumer's behavior to align product options with their values, health consciousness, and sustainability of behavior (Verma, 2024). Positive perception of product quality and trust increases the likelihood of choosing certain products, negative

perception might hinder changes in product preferences. Theoretical models (Ajzen, 1991; Smith, 2020) explain that a dynamic interplay between external stimuli and internal cognitive process brings about behavioral changes. Individual concerns of quality, safety, preference and product choice is a complex relationship influenced by behavioral changes.

Depending upon health and safety concerns, behavioral change through a mediating mechanism shapes up customer outcomes. Under Protection Motivation Theory, protective response evaluation interrupts adaptive responses corresponding cognitive appraisal processes (Rogers, 1975; Maddux & Rogers, 1983). Consumers normalize risk and align value towards safety by restructuring their habits. Such behavioral adoptions lead to stable patterns through sustained preferences. Therefore, behavior change is conceptualized as psychological adjustment rather than a reaction in safety-sensitive product segments like cosmetics, where purchase intention is determined through perceived efficacy and trust. Therefore, we hypothesize the following:

H4: Behavioral change mediates the relationship between health and safety concerns and product preferences.

H5: Behavioral change mediates the relationship between sensory Information and product preferences.

H6: Behavioral change mediates the relationship between perceived quality and product preferences.

3. Methodology

This study analyzed cause-and-effect relationships using quantitative data for hypothesis testing. Testing the hypotheses with quantitative data suggests that this study follows the positivist paradigm (Saunders, Lewis, & Thornhill, 2019), which explains the objectivity of a social phenomenon. The correlational nature of the variables (Creswell & Creswell, 2017) suggests an explanatory design for this study based on the following conceptual framework.
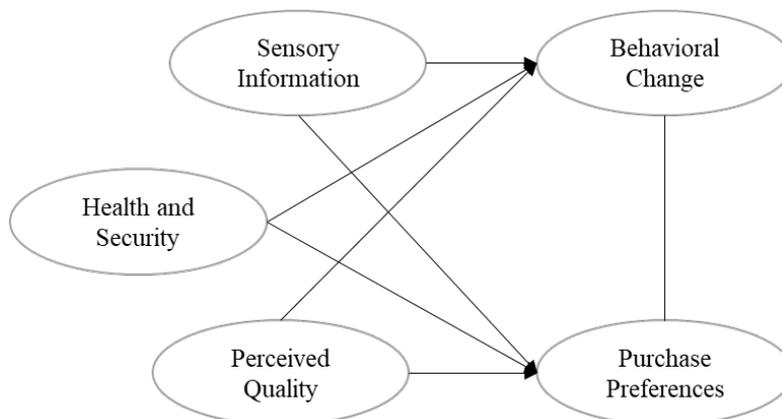

Fig. 1: Conceptual Framework

We used purposive sampling, which allowed us to select participants who met specific criteria. The sampling criteria included women in Oman who actively purchased and used cosmetic products. Educated Omani females above 18 years of age who could complete the questionnaire independently represented a stratum as a sampling frame. We applied simple random sampling techniques within the sampling frame to select the female participants. To ensure statistical significance, we targeted 450 participants from different social circles and organizations in the Sultanate of Oman. Hence, the sample contained the highest number of working women. Using social media and personal contacts, we

administered questionnaires online, face-to-face, and through QR codes in WhatsApp groups.

We received 237 valid responses for statistical analysis. Measurement items were selected based on literature and alignment with relevant theoretical constructions. Health and safety concerns were adapted from Ghazali et al. (2017) to capture information on key variables. Behavioral change items from Dangelico et al. (2022), focused on shifts in buying customs in alignment with behavioral adaptation models during crises. Similarly, emphasizing attributes of quality perception and functionality, measurement items related to product perception and preferences were adapted from (Scholz et al., 2010; Lee et al., 2020). To capture reflection of the sensory stimuli outlined in the theoretical model, sensory experience items were adapted from Haase et al. (2018). Items were refined for clarity and ease of understanding for respondents and evaluated with factor loadings or cross-loadings to ensure content validity. Through this process, the study ensured that each item accurately represents its underlying construction under their theoretical definition to strengthen the construction validity. To establish the validity of the suggested theoretical framework, considering the model's robustness (Lowry & Gaskin, 2014), we used partial least squares structural equation modeling (PLS-SEM).

3.1. Data Analysis

The study used Partial Least Squares Structural Equation Modeling (PLS-SEM) to evaluate the hypothesized structural model. Smart PLS is suitable to estimate path coefficients, evaluate model fit, and test mediation by bootstrapping in predictive and exploratory research with small samples and non-normal data (Hair et al., 2021). Figure 1 illustrates PLS-SEM Structural Model (Path Model) evaluated relationships and hypotheses.
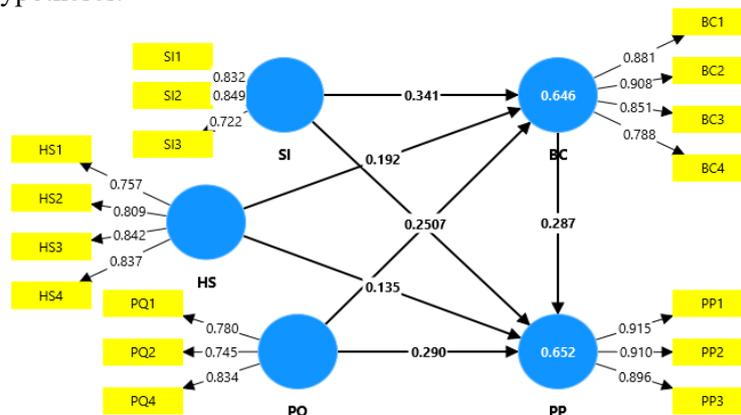

Fig.2: PLS-SEM Structural Model

3.2. Measurement Model Assessment

Table 1 shows that factor loading indicators exceed the threshold of 0.07, and the majority of items exceed 0.8, indicating adequacy of individual outer loadings to reflect the latent construct. A Cronbach's alpha value is greater than 0.7 and ranging from 0.706 to 0.892 indicates satisfactory internal consistency, as does the composite reliability (rho_A) value between 0.729 and 0.892. Average variance extracted (AVE) values above 0.50 indicate convergent validity of measurement model. Therefore, the model is both reliable and valid (Hair et al., 2022). VIF values are below the accepted threshold of 5 (Hair et al., 2017), multicollinearity issues are not there in the measurement model.

Table 1: Measurement Model Assessment

Factor Loadings		Cronbach's alpha	Composite reliability (rho_a)	Average variance extracted (AVE)	Variance Inflation Factor (VIF)
Items	Loadings				
BC1	0.881	0.88	0.887	0.737	2.863
BC2	0.908				3.759
BC3	0.851				2.50
BC4	0.788				1.687
HS1	0.757	0.83	0.850	0.659	1.728
HS2	0.809				1.873
HS3	0.842				1.895
HS4	0.837				1.752
PP1	0.915	0.892	0.892	0.823	2.848
PP2	0.910				2.738
PP3	0.896				2.435
PQ1	0.780	0.706	0.731	0.622	1.515
PQ2	0.745				1.484
PQ4	0.834				1.256
SI1	0.832	0.722	0.728	0.645	1.628
SI2	0.849				1.676
SI3	0.722				1.241

Table 2 shows the Heterotrait-Monotrait Ratio of Correlations (HTMT), the discriminant validity. All the values for HTMT were below the threshold level of 0.85, indicating adequate discriminant validity (Henseler, Ringle & Sarstedt, 2015). The statistical outcomes suggested that all constructs are empirically distinct from each other.

Table 2: Discriminant Validity (HTMT)

	BC	HS	PP	PQ
BC				
HS	0.589			
PP	0.829	0.582		
PQ	0.769	0.567	0.754	
SI	0.844	0.483	0.826	0.786

3.3. Path Coefficients

The model accounted 53.6% of the variance BC and 65.4 % in PP. Both R and R-square values indicated a moderate level of variance explained (Chin, 1998). We used bootstrapping with 5000 resamples to evaluate path coefficients. Table 3 shows that BC significantly impact PP ($\beta = 0.287$, t = 3.971), HS has a significant impact on BC ($\beta = 0.192$, t = 4.511, 95%) and a significant positive effect on PP ($\beta = 0.135$, t = 2.421, 95% CI [0.029, 0.246]), supporting H1. SI was a significant predictor of both BC ($\beta = 0.341$, t = 7.414) and PP ($\beta = 0.251$, t = 3.952, 95% CI [0.133, 0.381]), supporting H2. PQ demonstrated significant effects on BC ($\beta = 0.437$, t = 9.569) and on PP ($\beta = 0.290$, t = 4.261, 95% CI [0.157, 0.420]), supporting H3.

Table 3: path coefficients

Hypothesized Path	Beta (β)	Standard Deviation (STDEV)	t-Statistic	95% CI Lower (2.5%)	95% CI Upper (97.5%)	Decision
BC -> PP	0.287	0.072	3.971*	0.139	0.425	
HS -> BC	0.192	0.042	4.511*	0.114	0.279	
HS -> PP	0.135	0.056	2.421*	0.029	0.246	H1 accepted
SI -> BC	0.341	0.046	7.414*	0.251	0.429	
SI -> PP	0.251	0.063	3.952*	0.133	0.381	H2 accepted

PQ -> BC	0.437	0.046	9.569*	0.345	0.522	
PQ -> PP	0.290	0.068	4.261*	0.157	0.420	H3 accepted

Notes:
R-square*: BC=0.536, PP=0.654*
R-square adjusted: *BC=0.532, PP=0.647*
BC = Behavioral Change; PP = Product Preferences; HS = Health and Security; PQ = Perceived Quality;
SI = Sensory Information.
*Significance level * p < .05*
R^2: 0.67 = Substantial, 0.33 = Moderate, 0.19 = Weak (Chin, 1998).

3.4. Mediation: Specific Indirect Analysis

The results (Table 4) indicated that HS has a significant indirect effect on PP via BC (β = 0.055, t = 2.91, 95% CI [0.018, 0.092]), supporting H4. SI indicated a significant indirect effect on PP through BC (β = 0.098, t = 3.73, 95% CI [0.047, 0.149]), confirming H5. The indirect effect of PQ on PP via BC was also significant (β = 0.126, t = 3.49, 95% CI [0.056, 0.196]), supporting H6. Overall, findings indicated that Behavioral Change is a significant mediator between the predictor constructs (health and safety concerns, sensory information, and perceived quality) and product preferences.

Table 4: Mediation: Specific Indirect Analysis

Indirect Path	Beta (β)	Standard Deviation (STDEV)	t-Statistic	95% CI Lower (2.5%)	95% CI Upper (97.5%)	Decision
HS $\rightarrow$ BC $\rightarrow$ PP	0.055	0.019	2.91*	0.018	0.092	H4 Accepted
SI $\rightarrow$ BC $\rightarrow$ PP	0.098	0.026	3.73*	0.047	0.149	H5 Accepted
PQ $\rightarrow$ BC $\rightarrow$ PP	0.126	0.036	3.49*	0.056	0.196	H6 Accepted

Notes: BC = Behavioral Change(mediator); PP = Product Preferences; HS = Health and Security.
PQ = Perceived Quality; SI = Sensory Information.
*Significance level * p < .05*

3.5. Effect Size

To determine the contribution of each exogenous construct to the R-square value of the respective endogenous counterpart, the effect size (f^2) evaluates the structural path. Table 5 shows PQ $\rightarrow$ BC a large effect (f^2 = 0.319); PQ $\rightarrow$ PP and SI $\rightarrow$ BC indicated medium effects (f^2 = 0.108 and 0.208, respectively). All other paths reflected small effects, indicating their relevance though of lower magnitude (Hair et al., 2021).

Table 5: Effect Size

Path	f^2 Effect Size	Remarks
BC $\rightarrow$ PP	0.084	Small effect
HS $\rightarrow$ BC	0.08	Small effect
HS $\rightarrow$ PP	0.037	Small effect
PQ $\rightarrow$ BC	0.319	Large effect
PQ $\rightarrow$ PP	0.108	Medium effect
SI $\rightarrow$ BC	0.208	Medium effect
SI $\rightarrow$ PP	0.094	Small effect

(Cohen, 1988): Small effect: $f^2 \geq 0.02$, Medium effect: $f^2 \geq 0.15$, Large effect: $f^2 \geq 0.35$

3.6. Predictive Relevance

The blindfolding procedures indicated the predictive relevance (Q2) of the structural model. Table6 shows the predictive relevance (Q2); Q2 values (BC= 0.63 and PP= 0.610) were greater than zero for both endogenous constructs, confirming predictive relevance. A Q^2 value of 0.31 suggests medium-to-high predictive relevance (Hair et al., 2021). Both the RMSE PP (0.630) and MAE (0.470) suggest

acceptable predictive accuracy. The error distribution was non-symmetrical with few large deviations; hence, we used a comparison of RMSE (PLS) and RMSE (LM) values. Across indicators, most of the values for ΔLM (PLS − LM) were positive. Therefore, the model indicates its ability to explain complex models with latent constructs (Shmueli et al., 2019; Hair et al., 2021), which supports it as a suitable predictive model.

Table 6: Predictive Relevance

Construct	RMSE (PLS)	MAE (PLS)	Q² predict	Indicator	Q² predict	RMSE (PLS)	RMSE (LM)	ΔLM (PLS − LM)
BC	0.609	0.464	0.637	BC1	0.493	0.765	0.712	0.053
				BC2	0.517	0.776	0.69	0.086
				BC3	0.415	0.859	0.842	0.017
				BC4	0.442	0.951	0.918	0.033
PP	0.630	0.470	0.610	PP1	0.524	0.808	0.806	0.002
				PP2	0.508	0.852	0.859	−0.007
				PP3	0.472	0.749	0.733	0.016

4. Discussion

There is a significant shift in Omani consumer behavior towards cosmetic products since Covid-19, which is due to heightened health and safety concerns. The outcomes are consistent with Kaliyadan et al. (2021); Choi et al. (2022) establishing that pandemic has raised consumer awareness of product ingredients, safety standards, and the importance of natural and organic formulations. Behavioral change mediates the impact of consumers' health and security concerns, perceived quality, and sensory information on product preferences. Theoretically, outcomes of this study contribute to the understanding of consumer behavior dynamics in emerging markets in the post-crisis period, consistent with Schwendtner et al. (2024). Also, the findings expand the application of the SOR and TPB models and demonstrate the mediating effect of behavioral change. From a strategic standpoint, the study is in agreement with Tian et al. (2023) emphasizing that cosmetic brands must emphasize transparency, safety certifications, and natural ingredients in their strategies. This study underscores the importance of transparent communication about product ingredients. Therefore, developing marketing campaigns that highlight natural, organic, and safe formulations can enhance brand credibility. The study highlights how the impact of sensory appeal and aesthetics, such as packaging, smells, textures, and safety features, could maximize engagement of preferences. The study provides insights into consumer behavior in emerging markets, particularly post-Covid-19 in Oman. The study offers a valuable addition in consumer behavior literature in context of emerging markets like Oman. The study offers theoretical extension of key theories (stimulus organism response (SOR) model and the theory of planned behavior (TPB)) in a new market arena. The outcomes underscore vibrant nature of consumer adaptation through behavioral change under crises related influences. Future studies may integrate cultural contexts and digital leveraging to strengthen theoretical advancement using conceptually refined models. It demonstrates how behavioral change influences perceived quality, sensory information, and product preferences.

This study improves the SOR framework as a context-specific and a theory-refining extension capturing crisis-driven service consumption focusing on the role of digital information systems to shape consumer responses. Aligned with the theory, the study presents a better understanding of consumer responses in the crises context and improves explanatory power and practical relevance in post-crisis service environments. From a strategic point of view, outcomes of the study guide future marketing strategies for cosmetic brands in post-crisis emerging markets with an emphasis on transparency and safety certifications. Companies must communicate product safety information and natural formulations to develop consumers' trust and credibility of brands. Companies should embed safety and transparency across all touchpoints to enhance emotional engagement. Additionally, considering

post-COVID focus of staff training on health communication and risk assurance is critical to improve satisfaction, trust, and loyalty of customers. To expand the scope of the study, future research may explore the impact of culture-specific factors on customers' behavioral patterns.

5. Conclusion

The impact of Covid-19 has had profound effects on transforming consumer preferences for products in Oman's cosmetic market. This study examined whether health and safety concerns and sensory information significantly affect Omani female shoppers' preferences for cosmetics, particularly during the COVID-19 pandemic. This shift in product preferences focuses on health and safety concerns, product information, and quality perception. Together, these constructions have a significant impact on behavioral changes, leading to an impact on the product. This study demonstrates consumers' vigilance regarding product ingredients, formulations, and information cues. This study affirms the necessity of consumer-centric product development and psychologically informed marketing strategies that align with their evolving expectations. This study confirms that external crises, such as pandemics, serve as powerful psychological stimuli for consumers. This study found that consumers behave more aggressively during crises. The pandemic reshaped consumer preferences by influencing perceptions of safety, trust, and well-being, emphasizing how environmental cues and perceived threats affect cognitive evaluation and decision-making processes.

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