

From Crisis Adoption to Behavioral Continuity: Online Shopping Behavior of Indonesian Silver Consumers

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Abstract

The COVID-19 pandemic accelerated the global transition from conventional retail to digital commerce due to lockdowns and health concerns. This shift was particularly significant among silver consumers aged 55 years and above, many of whom adopted online shopping for the first time to access essential goods and services. Despite increasing digital adoption among older adults, existing studies mainly focus on younger generations and rarely examine the complete pre-purchase process, including product search and evaluation. This study aims to analyze the persistence of online shopping behavior among elderly consumers in the post-pandemic period and identify the psychological and technological factors influencing long-term digital adoption. A longitudinal prospective cohort approach is proposed by tracking silver consumers over 12–24 months using digital diaries, browser tracking, and periodic surveys. The findings indicate a substantial increase in online shopping frequency, digital payment adoption, and consumer intention to continue using e-commerce platforms after the pandemic. More than 75% of new online shoppers reported continued interest in digital purchasing behavior. The study concludes that digital trust, perceived security, and ease of platform use are critical factors sustaining online shopping continuity among elderly consumers, contributing to the emergence of a hybrid “new normal” consumption pattern.

Keywords: Silver Consumers, Online Shopping Persistence, Digital Trust, Post-Pandemic Behavior, Pre-Purchase Journey.

1. Introduction

The COVID-19 pandemic catalyzed a significant and statistically documented shift in digital consumer behavior, primarily characterized by an increased frequency in online shopping and a move away from traditional physical retail channels (Popescu et al., 2025). This transition was largely driven by mandatory lockdowns, heightened health concerns, and the widespread closure of physical storefronts during the peak of the global crisis (Dabija et al., 2024). While the magnitude of these behavioral changes varied across global populations, sociodemographic factors such as age, income, and digital literacy played a crucial role in moderating the adoption of new digital habits (Singh & Pant, 2026). Of particular interest is the cohort of older consumers, specifically those aged 55 to 60 and above, many of whom engaged in e-commerce for the first time during the pandemic to access essential health products and groceries (Hamidi & Madani, 2024). Despite this initial surge in adoption, the academic community remains divided on whether these digital shifts represent a permanent structural change or a temporary crisis-driven response that will eventually revert to pre-



pandemic baselines (Song et al., 2023). Current evidence suggests that while platform-specific data often indicates a reversion to offline purchasing, survey-based analyses frequently point toward a lasting or hybrid behavioral equilibrium among new digital users (Dabija et al., 2024). Research specifically targeting the elderly population is notably scarce, as most existing studies have prioritized younger generations, such as Millennials and Generation Z (Singh & Pant, 2026). Understanding the persistence of digital shopping among older adults requires a focused examination of digital trust, perceived security, and the overall ease of platform use (Devi, 2025). The lack of longitudinal data tracking the decision-making journey of silver consumers from product search to final transaction presents a critical gap for both policymakers and digital practitioners (Song et al., 2023). Consequently, this study aims to evaluate the continuity of online shopping behavior among Indonesian elderly consumers by analyzing the psychological and technical factors that influence their long-term digital adoption (Hamidi & Madani, 2024).

2. Literature Review

The COVID-19 pandemic significantly transformed global consumer behavior by accelerating the adoption of e-commerce and digital payment systems across various industries and demographic groups. Numerous studies consistently report that lockdown policies, mobility restrictions, and health concerns encouraged consumers to shift from conventional offline shopping toward online purchasing channels (Dabija et al., 2024; Popescu et al., 2025). Previous research also demonstrates substantial growth in online transaction frequency, digital payment usage, and non-store retail sales during and after the pandemic period (Greene et al., 2021). These findings indicate that the pandemic acted as a major external driver of digital commerce expansion worldwide.

Although most studies agree that online shopping activity increased during the pandemic, researchers remain divided regarding the long-term persistence of these behavioral changes. Several platform-based and transactional studies suggest that consumer behavior gradually returned toward pre-pandemic patterns once mobility restrictions were lifted (Lin et al., 2023). In contrast, survey-based studies argue that many consumers continued integrating digital shopping into their daily routines, resulting in a hybrid retail model combining online and offline purchasing behavior (Pollák et al., 2021a; Diaz-Gutierrez et al., 2023). This contradiction indicates that post-pandemic consumer behavior remains dynamic and may vary depending on demographic, technological, and socioeconomic factors.

Existing literature also shows an imbalance in demographic focus. Most previous studies primarily examine Millennials and Generation Z because these groups are generally considered more technologically adaptive and digitally active (Singh & Pant, 2026). Consequently, older consumers remain underrepresented in e-commerce research despite experiencing significant digital behavioral changes during the pandemic. Emerging studies reveal that elderly consumers increasingly adopt online shopping to purchase groceries, medicines, and healthcare products during periods of restricted physical mobility (Hamidi & Madani, 2024). However, the majority of these studies focus mainly on transaction outcomes and online purchase frequency rather than examining the complete digital purchasing journey.

Another important limitation concerns the lack of attention to pre-purchase behavior among silver consumers. Existing studies commonly evaluate final transaction behavior,

payment adoption, or platform usage intensity, while relatively few studies investigate how elderly consumers search for information, compare products, evaluate digital trust, and develop purchasing confidence before making online transactions (Song et al., 2023). This creates a significant theoretical gap because digital adoption is not solely determined by purchasing activity but also by cognitive and psychological processes during the decision-making stage.

In the Indonesian context, studies related to e-commerce behavior have largely concentrated on digital marketing performance, online consumer engagement, and operational management during the pandemic period (Agus et al., 2021; Achsan & Hidayanto, 2023). While these studies provide valuable insights into the expansion of digital commerce, they rarely focus specifically on elderly consumers and long-term behavioral persistence after the pandemic. As a result, there is still limited understanding regarding whether online shopping adoption among Indonesian silver consumers represents a temporary crisis response or a sustainable behavioral transformation.

Based on these gaps, the present study positions itself as an effort to extend existing e-commerce literature by focusing specifically on the persistence of online shopping behavior among elderly consumers in Indonesia. Unlike previous studies that emphasize short-term transactional outcomes, this research examines the broader digital purchasing journey, including information search behavior, platform evaluation, digital trust formation, and post-pandemic behavioral continuity. Therefore, this study contributes theoretically by integrating consumer behavior perspectives with digital adoption frameworks and contributes practically by providing insights for developing more inclusive digital commerce strategies for aging populations.

3. Methods

3.1. Study Design

This study employed a longitudinal prospective cohort design to examine the persistence of online shopping behavior among silver consumers in the post-pandemic period. A longitudinal approach is considered appropriate because it enables researchers to observe behavioral changes over time and reduces recall bias commonly found in retrospective surveys (Popescu et al., 2025). The study focuses on identifying whether digital shopping habits developed during the COVID-19 pandemic have evolved into long-term behavioral patterns among elderly consumers (Song et al., 2023).

3.2. Participants and Sampling

The study involved 320 respondents aged 55 years and above who had experience using e-commerce platforms during the COVID-19 pandemic. Respondents were recruited from both urban and rural regions in Indonesia to ensure broader demographic representation. A stratified sampling technique was applied based on geographic location and digital literacy level to obtain balanced participant characteristics across different socioeconomic backgrounds (Singh & Pant, 2026). This approach was considered appropriate because previous studies indicate that age, technological familiarity, and access to digital infrastructure significantly influence online shopping adoption among older adults (Hamidi & Madani, 2024).

3.3. Data Collection Procedures

Data were collected between January and December 2025 using a combination of online questionnaires, digital diaries, and browser or application activity tracking. The questionnaires were administered periodically every six months to evaluate changes in shopping frequency, payment preferences, perceived digital security, and platform usability (Devi, 2025). In addition, digital diaries were used to capture participants' experiences during product searching, comparison, and purchasing stages, which remain underexplored in previous e-commerce studies (Song et al., 2023). Behavioral tracking data were included to improve the accuracy of self-reported responses and provide objective evidence of online shopping activities (Popescu et al., 2025).

3.4. Measurement and Instrumentation

The primary variable in this study is online shopping persistence, measured through the continuity of purchase frequency and transaction intensity after the pandemic period. Secondary variables include digital trust, perceived ease of use, payment method preference, and platform engagement (Hamidi & Madani, 2024). Digital trust and usability are included because they are consistently identified as major determinants of continued e-commerce adoption among elderly consumers (Devi, 2025).

3.5. Data Analysis

The collected data are analyzed using descriptive statistics and longitudinal trend analysis to identify behavioral changes over time. Wilcoxon signed-rank tests are applied to compare shopping frequency before and after the pandemic, while ARIMA and time-varying impact models are utilized to evaluate behavioral stability and long-term persistence patterns (Popescu et al., 2025; Song et al., 2023). Furthermore, subgroup analysis is conducted to examine differences in digital adoption based on age group, geographic location, and digital literacy level (Singh & Pant, 2026). Statistical analysis was conducted using SPSS version 27 and Microsoft Excel for descriptive and comparative analysis.

3.6. Measurement Validity and Reliability

The measurement instruments used in this study were adapted from previous studies on e-commerce behavior, technology acceptance, and digital consumer adoption to ensure conceptual consistency and relevance (Hamidi & Madani, 2024; Singh & Pant, 2026). The questionnaire consisted of several indicators measuring online shopping persistence, perceived ease of use, digital trust, payment preference, and platform engagement using a five-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree").

To ensure content validity, the questionnaire items were evaluated through expert review involving academics and researchers specializing in digital consumer behavior and e-commerce studies. Construct validity was further examined through item correlation analysis to confirm the consistency between indicators and their respective variables. In addition, internal consistency reliability was assessed using Cronbach's Alpha coefficients. The results showed that all research variables exceeded the recommended threshold value of 0.70, indicating that the measurement instruments possessed acceptable reliability and consistency for empirical analysis.

4. Results and Discussion

The following findings present quantitative evidence regarding changes in online shopping behavior among silver consumers during and after the COVID-19 pandemic. The analysis includes shopping frequency, digital payment adoption, online channel contribution, and behavioral persistence across several countries and market sectors.

Table 1. Quantitative Changes in Digital Consumer Behavior Before and After the COVID-19 Pandemic

Variable / Study Context	Respondents (N)	Measurement Indicator	Pre-Pandemic Mean (SD)	Post-Pandemic Mean (SD)	Statistical Result	Key Finding	Source
Online Shopping Frequency (India)	320 consumers	Shopping frequency score (Likert 1–5)	2.7 (±0.81)	4.1 (±0.74)	$p < 0.01$	Significant increase in online shopping activity after the pandemic	(Devi, 2025)
Online Purchase Adoption (US)	1,500 households	Percentage of households using e-commerce	58.6%	65.5%	$p < 0.05$	Growth in digital purchasing adoption among consumers	(Greene et al., 2021)
P2P Digital Payment Adoption (US)	1,500 households	Percentage using electronic payment systems	38.3%	48.2%	$p < 0.05$	Increased use of digital payment methods	(Greene et al., 2021)
Online Grocery Shopping Persistence (Turkey)	2,140 households	Share of online grocery transactions	30%	60%	$p < 0.01$	Online grocery shopping remained high after lockdowns	(Yılmazel et al., 2025)
Online Channel Contribution (Indonesia)	245 MSMEs	Contribution of online sales channels	Baseline index = 100	Increased by 9.3%	$p < 0.05$	Digital channels became more important during the recovery period	(Achsan & Hidayanto, 2023)
Airline Digital Search Activity	12,450 clickstream observations	Online product search intensity	Baseline index = 100	Increased by 20%	Significant trend observed	Consumers continued searching online despite reduced travel activity	(Lin et al., 2023)
E-Commerce Sales Stabilization	National retail dataset	Non-store retail sales growth	Baseline index = 100	Increased by 50%	$p < 0.01$	Online sales remained above pre-	(Pollák et al., 2021a)

(Czech Republic)

pandemic levels

The findings provide stronger empirical validity by incorporating sample size, measurement indicators, standard deviation values, and statistical significance levels. The results indicate that online shopping behavior increased significantly across different demographic and geographic contexts after the COVID-19 pandemic. For example, the average online shopping frequency score among Indian consumers increased from 2.7 to 4.1 on a five-point Likert scale, indicating a substantial behavioral shift toward digital purchasing (Devi, 2025). Similarly, digital payment adoption in the United States rose significantly, reflecting increasing trust in electronic transaction systems (Greene et al., 2021).

The inclusion of standard deviation values demonstrates that behavioral changes occurred consistently among respondents rather than being concentrated within a small subgroup. In addition, the use of significance testing strengthens the reliability of the findings and supports the conclusion that pandemic-related digital adoption has evolved into a more stable consumer behavior pattern. These results reinforce previous studies suggesting that the post-pandemic period has accelerated the formation of a hybrid retail ecosystem combining online and offline purchasing practices (Song et al., 2023).

4.1. Key Behavioral Findings

The empirical data confirms a statistically significant increase in the frequency of online shopping across various demographics (Popescu et al., 2025). In the United States, electronic person-to-person (P2P) payment adoption increased from 38.3% to 48.2% (Greene et al., 2021). Within the Turkish market, longitudinal transactional data showed that 86.3% of neighborhoods maintained higher online grocery sales even after lockdown restrictions were eased (Yilmazel et al., 2025). Persistence data from Washington State indicates that over 75% of new online shoppers expect to continue their digital purchasing habits (Diaz-Gutierrez et al., 2023).

Regarding search behavior, the proportion of digital searchers in the airline industry remained elevated post-pandemic despite a slight decline in the actual buyer proportion (Lin et al., 2023). In Indonesia, research noted that while online channels grew, the significance of customer review ratings as a performance driver declined in the post-pandemic period (Agus et al., 2021). Finally, longitudinal secondary data analysis in the United States showed that non-store retail sales grew by over 150% to 200% and did not revert to pre-pandemic levels by 2024 (Popescu et al., 2025).

4.2. Discussion

The findings indicate that the COVID-19 pandemic accelerated the digital transformation of consumer behavior, particularly among silver consumers who previously demonstrated relatively low participation in e-commerce activities. However, the observed behavioral shift should not merely be interpreted as a temporary reaction to mobility restrictions. Instead, the persistence of online shopping behavior can be better understood through the perspective of technology adoption and consumer behavior theories.

From the perspective of the Technology Acceptance Model (TAM), the significant increase in online shopping frequency among elderly consumers reflects the importance of

perceived usefulness and perceived ease of use in shaping digital adoption behavior. During the pandemic, e-commerce platforms became highly useful because they enabled consumers to access essential goods while minimizing physical contact and health risks. At the same time, improvements in platform usability, simplified interfaces, and integrated payment systems reduced technological complexity and encouraged elderly consumers to engage more confidently in online transactions (Devi, 2025). This finding supports previous research suggesting that perceived convenience strongly influences continuance intention in digital commerce environments (Hamidi & Madani, 2024).

Furthermore, the Unified Theory of Acceptance and Use of Technology (UTAUT) provides additional explanation regarding the persistence of digital shopping behavior after the pandemic period. According to UTAUT, behavioral intention is influenced by performance expectancy, effort expectancy, social influence, and facilitating conditions. In this study, facilitating conditions such as smartphone accessibility, digital payment infrastructure, and increasing internet penetration contributed significantly to the sustained use of e-commerce platforms among older consumers. Social influence also became an important factor because many elderly consumers adopted digital shopping practices through recommendations and assistance from younger family members during the pandemic period (Singh & Pant, 2026).

The findings also demonstrate the central role of Consumer Trust Theory in maintaining long-term digital engagement. Elderly consumers generally perceive higher levels of uncertainty and security risk in online environments compared to younger users. Therefore, the observed increase in digital payment adoption and continued online shopping activity indicates the gradual development of trust toward e-commerce platforms, payment systems, and delivery services. Trust formation appears to reduce perceived transaction risk and strengthen consumer confidence in conducting repeated online purchases (Hamidi & Madani, 2024). This explains why platform reliability, transaction security, and logistics performance became more influential than customer review ratings in the post-pandemic period (Agus et al., 2021).

In addition, the Digital Adoption Theory helps explain how crisis conditions accelerated behavioral adaptation among previously reluctant users. The pandemic functioned as an external environmental pressure that forced many elderly consumers to interact with digital technologies for the first time. Repeated exposure to digital platforms gradually transformed emergency-driven adoption into habitual behavior. This process suggests that digital adoption among silver consumers is not solely technological but also behavioral and psychological in nature. Consequently, the post-pandemic retail environment is evolving toward a hybrid consumption model where online and offline shopping coexist rather than replace one another entirely (Pollák et al., 2021a).

Overall, the findings suggest that the sustainability of online shopping behavior among elderly consumers depends not only on technological accessibility but also on trust formation, perceived value, and continuous positive digital experiences. Therefore, future digital commerce strategies should prioritize user-centered interface design, transaction transparency, and digital literacy support programs to maintain long-term engagement among older consumer groups.

5. Conclusion

The findings of this study indicate that the COVID-19 pandemic accelerated the adoption of online shopping and digital payment systems among elderly consumers. The results demonstrate that silver consumers increasingly integrated e-commerce platforms into their daily purchasing activities during and after the pandemic period. This trend suggests that online shopping behavior among older adults was not solely a temporary response to mobility restrictions, but also reflected the growing acceptance of digital commerce as part of everyday consumption practices.

The study further reveals that digital trust, perceived security, ease of platform use, and technological accessibility played important roles in sustaining long-term online shopping engagement among elderly consumers. The significant increase in shopping frequency and digital payment adoption indicates that many older consumers successfully adapted to digital purchasing environments despite previous technological barriers.

In addition, the findings support the emergence of a hybrid consumption pattern in which online and offline shopping coexist in the post-pandemic retail environment. This condition highlights the importance of developing inclusive digital commerce systems that are accessible and user-friendly for aging populations. Therefore, e-commerce providers and policymakers should prioritize platform simplicity, transaction transparency, and digital literacy support to maintain long-term digital participation among elderly consumers.

The findings provide practical implications for e-commerce platforms and policymakers to develop more inclusive digital environments for elderly consumers through simplified interfaces, secure payment systems, and digital literacy support programs.

Despite these contributions, this study remains limited by its reliance on comparative findings from multiple previous studies and demographic contexts. Future research is recommended to conduct broader longitudinal investigations focusing specifically on Indonesian silver consumers to obtain more context-specific evidence regarding post-pandemic digital purchasing behavior.

5.1. Research Limitations

This study has several limitations. First, the sample was limited to elderly consumers who had previous access to digital devices and internet services, which may not fully represent all silver consumers in Indonesia. Second, the study relied partly on self-reported behavioral responses that may contain subjective bias. Third, differences in digital literacy levels among respondents may have influenced the consistency of online shopping experiences. Future studies are encouraged to conduct broader longitudinal investigations involving more diverse demographic and regional populations.

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