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CONVENIENCE, SERVICE QUALITY, AND THE PANDEMIC SHOCK: AN EMPIRICAL INVESTIGATION OF COLLEGE STUDENTS' PERCEPTIONS OF ONLINE SHOPPING IN KOLKATA, INDIA

***Chiranjib Mitra**

Assistant Professor, The Bhawanipur Education Society College, Kolkata, India.

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***Corresponding Author: Chiranjib Mitra**
Assistant Professor, The Bhawanipur Education Society College, Kolkata, India.

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ABSTRACT

The COVID-19 pandemic and the associated lockdown measures imposed across India during 2020 produced an unprecedented disruption to conventional retail channels and accelerated the adoption of online shopping among segments of the population that had previously been reluctant or only occasional users of e-commerce platforms. This study examines the shift in consumer attitudes toward online buying behaviour among college students in Kolkata, with particular attention to the convenience and service-quality dimensions of the online shopping experience before and after the onset of the pandemic. Using a structured questionnaire administered to 79 respondents drawn from undergraduate and postgraduate programmes, the study applies exploratory factor analysis to identify the latent dimensions underlying online buying behaviour, independent-samples t-tests and one-way ANOVA to examine differences across demographic and socio-economic groups, and paired-samples t-tests to assess pre- and post-pandemic attitudinal change. The reliability of the eight-item online buying behaviour scale was confirmed (Cronbach's alpha = 0.786). Factor analysis extracted two principal components, labelled Convenience and Service Quality, jointly accounting for the majority of variance in the construct. The results indicate that demographic and socio-economic variables, namely gender, academic level, financial independence, and family income, exert no statistically significant influence on either dimension, whereas the pandemic itself produced a significant and positive shift in attitudes toward both convenience ($t(78) = -9.842$, $p < .001$) and service quality ($t(78) = -8.217$, $p < .001$) of online retail platforms. The findings suggest that the pandemic functioned as an exogenous shock that normalised online shopping across demographic segments rather than reinforcing pre-existing divides, with implications for retail strategy, digital infrastructure investment, and post-pandemic consumer research in emerging markets.

KEYWORDS: Online shopping behaviour; COVID-19; consumer attitude; convenience; service quality; e-commerce; emerging markets.

1. INTRODUCTION

The retail landscape in India has undergone a profound transformation over the past two decades, driven by rising disposable incomes, expanding internet penetration, and the rapid diffusion of smartphone technology among urban and increasingly rural populations. With a population exceeding 1.35 billion, India represents one of the largest and fastest-growing consumer markets globally, and the evolution of marketing practice within this market mirrors the broader global shift from production-oriented and selling-oriented paradigms toward a digitally mediated, customer-centric model commonly described as online or electronic marketing.

Online marketing differs from traditional retail in its capacity to establish a continuous, data-driven relationship between firms and consumers. Through websites, mobile applications, and social media channels, firms are able to capture behavioural data, anticipate consumer requirements, and respond to enquiries in near real time, thereby compressing the traditional marketing channel and enabling direct producer-to-consumer transactions. This capacity for personalised, responsive engagement has positioned e-commerce as a central pillar of contemporary retail strategy in India, with platforms such as Amazon, Flipkart, and Myntra achieving substantial market penetration even prior to 2020.

The onset of the COVID-19 pandemic in early 2020, and the nationwide lockdown imposed by the Government of India from late March 2020, constituted an exogenous shock of a magnitude rarely observed in consumer behaviour research. Physical retail outlets were closed for extended periods, mobility was severely restricted, and consumers who had previously relied on in-person shopping for groceries, medicines, and other essential goods were compelled, often for the first time, to transact online. This abrupt and largely involuntary shift raises an important empirical question: did the pandemic produce a durable change in consumer attitudes toward online shopping, and if so, did this change operate uniformly across demographic and socio-economic groups, or did it reinforce pre-existing digital divides?

College students represent a particularly relevant population for examining this question. As digital natives with relatively high baseline familiarity with online platforms, students might be expected to exhibit smaller attitudinal shifts than older, less digitally engaged cohorts; however, students also experienced substantial disruption to their routines, including the closure of campuses and the curtailment of independent mobility, which may have increased their reliance on online channels for both essential and discretionary purchases. This study therefore investigates the online shopping behaviour of college students in Kolkata, focusing on two empirical questions. First, what are the underlying dimensions that structure students' perceptions of online buying behaviour, and how do these dimensions vary across gender, academic level, financial independence, and family income? Second, did students' attitudes toward these dimensions change significantly between the pre-pandemic and post-lockdown periods?

The remainder of this paper is organised as follows. Section 2 reviews the relevant literature on online shopping behaviour and consumer adoption of e-commerce, with particular attention to the convenience and service-quality constructs that form the basis of the present analysis. Section 3 articulates the objectives and hypotheses of the study. Section 4 describes the research methodology, including the sampling procedure, instrument design, and analytical techniques employed. Section 5 presents the findings of the reliability analysis, exploratory factor analysis, independent-samples t-tests, one-way ANOVA, and paired-samples t-tests. Section 6 discusses the implications of these findings for marketing theory and practice, and Section 7 concludes with limitations and directions for future research.

2. Literature Review

2.1 Online Shopping and Consumer Adoption

The academic literature on online shopping behaviour has evolved considerably since the early projections of e-commerce growth. Amit (2004) forecasted substantial expansion of the online retail market, a trajectory that has been borne out by subsequent growth in markets such as India, where smartphone penetration and improvements in logistics infrastructure have lowered the practical barriers to online transactions. A central concern in this literature has been the identification of the factors that drive consumers toward, or away from, online channels.

Andrew (2004) developed a typology of online shoppers based on underlying shopping motivations, arguing that consumer adoption of online channels cannot be explained by a single unidimensional construct but instead reflects a combination of functional considerations, such as accessibility and usefulness, and hedonic considerations relating to the emotional experience of shopping. This distinction between utilitarian and hedonic dimensions of online shopping has become a recurring theme in the literature and provides a useful frame for interpreting the convenience and service-quality dimensions examined in the present study. Bucko (2018) extended this line of inquiry by incorporating exogenous moderating factors into models of online shopping adoption, suggesting that the relationships among core constructs of online buying behaviour are not invariant but are instead conditioned by contextual factors external to the immediate shopping experience, a proposition that is directly relevant to the present study's focus on the pandemic as an exogenous shock.

2.2 Determinants of Consumer Behaviour in Online Retail

Changchit (2011) identified a set of factors external to the immediate transaction, including prior experience with online shopping, perceived reliability of online retailers, and circumstantial factors specific to the consumer's situation, as significant predictors of willingness to adopt online shopping. These factors interact with more proximate determinants of consumer perception, such as ease of use and accessibility, to shape overall attitudes toward online retail. Creswell (1994) similarly emphasised that consumer intentions toward online shopping are shaped jointly by perceptions of convenience and ease of use on one hand, and by exogenous factors including past experience and trust on the other, a framework that anticipates the two-factor structure identified in the present study's factor analysis.

Darian (1987) documented substantial growth in the proportion of consumers engaging in online and catalogue-based shopping in European markets, attributing this growth to increasing comfort with remote transactions and rising trust in non-store retail formats. This historical pattern is instructive for the Indian context, where the pandemic may have compressed into a matter of weeks an adoption trajectory that, in other markets, unfolded over several years.

2.3 Psychological and Experiential Dimensions of Online Shopping

A distinct strand of the literature focuses on the psychological dispositions that shape consumers' engagement with online platforms. The concept of computer playfulness describes the degree of cognitive spontaneity individuals bring to their interactions with technology; consumers exhibiting higher playfulness tend to underestimate the procedural difficulty of online transactions and therefore experience the process as less burdensome. Conversely, computer nervousness, characterised by discomfort or anxiety when confronted with the prospect of using digital technology, negatively affects perceptions of ease of use and constitutes a barrier to online shopping adoption.

Gautam (2004) examined the role of enjoyment as a motivational construct underlying online shopping behaviour, distinguishing it from purely instrumental motivations such as price and delivery considerations. This hedonic dimension was further elaborated by subsequent researchers, who identified escapism, pleasure, and arousal as constituent elements of the enjoyment construct. Escapism refers to the sense of diversion from everyday demands that online shopping can provide; pleasure denotes the positive affective state associated with the shopping experience; and arousal captures the degree of stimulation or engagement experienced during the transaction. Cho and Jinsook (2004) demonstrated that positive initial experiences along these dimensions tend to generate carry-over effects, increasing the likelihood of subsequent unplanned purchases and broader product search behaviour.

Taken collectively, this body of literature suggests that online buying behaviour is best understood as a multidimensional construct encompassing both utilitarian considerations, such as convenience, price, and delivery reliability, and experiential considerations relating to the service quality and overall satisfaction derived from the platform interface. The present study builds on this framework by empirically testing whether these dimensions are perceived consistently across demographic segments and whether they were materially affected by the disruption associated with the COVID-19 pandemic.

3. Objectives of the Study

This study pursues three principal objectives.

- To identify and categorise the latent factors underlying students' online buying behaviour through exploratory factor analysis.
- To examine whether students' attitudes toward these factors differ significantly across gender, academic level (undergraduate versus postgraduate), financial independence, and family income.
- To assess whether students' attitudes toward these factors changed significantly between the pre-pandemic and post-lockdown periods.

3.1 Research Hypotheses

In accordance with the second and third objectives, the following hypotheses were formulated and tested:

- H_1: There is a significant relationship between gender and the Convenience and Service Quality dimensions of online buying behaviour.
- H_2: There is a significant relationship between academic qualification (undergraduate versus postgraduate) and the Convenience and Service Quality dimensions of online buying behaviour.
- H_3: There is a significant relationship between financial independence and the Convenience and Service Quality dimensions of online buying behaviour.
- H_4: There is a significant relationship between family income group and the Convenience and Service Quality dimensions of online buying behaviour.
- H_5: There is a significant difference in respondents' attitudes toward Convenience and Service Quality of online buying behaviour between the pre-pandemic and post-lockdown periods.

4. RESEARCH METHODOLOGY

This study adopts a descriptive-cum-exploratory research design, appropriate given that certain aspects of the research problem, namely the demographic correlates of online buying behaviour, were informed by an established body of prior literature, whereas the attitudinal effects of the COVID-19 pandemic represented a relatively novel empirical context requiring exploratory investigation.

Primary data were collected through a structured, self-administered questionnaire distributed to students enrolled in undergraduate and postgraduate programmes at colleges in Kolkata. A total of 79 valid responses were retained for analysis after the removal of incomplete submissions. Secondary data, comprising prior academic literature on online shopping behaviour and consumer adoption of e-commerce, were drawn from peer-reviewed journal articles, books, and reputable online sources to contextualise the primary findings.

A simple random sampling technique was employed to select respondents from the population of college students in Kolkata, with the objective of minimising selection bias and ensuring that the sample broadly reflected the demographic composition of the student population in terms of gender, academic level, and socio-economic background.

The questionnaire comprised four sections: (i) demographic profile, including gender, academic course, family income, and financial independence status; (ii) internet usage patterns and preferred connectivity modes; (iii) online purchase patterns, including product categories, payment preferences, and preferred platforms; and (iv) online buying behaviour, measured using eight items rated on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Each of the eight items was administered twice, once with reference to respondents' attitudes prior to the COVID-19 lockdown and once with reference to their attitudes following the lockdown, in order to facilitate the paired-samples comparison central to the third research objective.

Internal consistency of the eight-item online buying behaviour scale was assessed using Cronbach's alpha. Exploratory factor analysis with principal component extraction was conducted to identify the latent dimensions underlying the scale, with factor retention based on the Kaiser criterion (eigenvalues greater than 1). Independent-samples t-tests were used to test for differences in factor scores across gender and academic level, given the dichotomous nature of these variables, while a one-way ANOVA was used to test for differences across family income groups, which comprised more than two categories. Paired-samples t-tests were used to compare pre- and post-lockdown attitudes toward each retained factor. All statistical analyses were conducted using IBM SPSS Statistics version 25, with Microsoft Excel employed for preliminary data organisation and tabulation.

A primary limitation of the study design concerns sample size: data collection was constrained by the prevailing pandemic restrictions, which limited access to respondents and resulted in a sample of 79 students drawn primarily from colleges within Kolkata. While this sample size is adequate for the exploratory factor analysis and parametric comparisons reported here, it limits the generalisability of the findings to the broader Indian student population, and the geographic concentration of the sample within a single metropolitan area further constrains external validity.

5. Findings and Analysis

5.1 Reliability of the Online Buying Behaviour Scale

The internal consistency of the eight-item online buying behaviour scale was assessed using Cronbach's alpha, the results of which are presented in Table 1.

Table 1. Reliability Statistics.

Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	N of Items
.786	.793	8

Cronbach's alpha coefficients generally range between 0 and 1, with values above 0.70 conventionally regarded as indicative of acceptable internal consistency for exploratory research. The obtained value of .786 indicates that the eight items comprising the online buying behaviour scale exhibit good internal consistency, supporting the use of these items as a coherent measure of the underlying construct. This result is consistent with the reliability levels reported in comparable studies of online shopping attitudes and provides a sound basis for the subsequent factor-analytic and comparative analyses.

5.2 Factor Structure of Online Buying Behaviour

Addressing the first research objective, exploratory factor analysis with principal component extraction and varimax rotation was applied to the eight items of the online buying behaviour scale. Prior to extraction, the suitability of the data for factor analysis was assessed using the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity, the results of which are presented in Table 2.

Table 2. KMO and Bartlett's Test.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy	.811
Bartlett's Test of Sphericity – Approx. Chi-Square	260.083
Degrees of Freedom (df)	28
Significance (p-value)	.000

The KMO value of .811 exceeds the conventional threshold of .60 and is generally regarded as 'good', indicating that the proportion of variance among the items that may be attributable to underlying common factors is sufficiently high to justify factor analysis. Bartlett's test of sphericity produced a chi-square value of 260.083 (df = 28, $p < .001$), confirming that the correlation matrix differs significantly from an identity matrix and that the items are sufficiently interrelated to support factor extraction.

Application of the Kaiser criterion (eigenvalue > 1) resulted in the extraction of two components, jointly accounting for approximately 58.4 percent of the total variance in the eight items. Examination of the rotated component matrix revealed a clear and interpretable pattern of item loadings, summarised in Table 3.

Table 3. Rotated Component Matrix and Factor Composition.

Item	Factor 1: Convenience	Factor 2: Service Quality
Time and money saving	.812	.121
Opportunity for comparative shopping	.784	.098
Access to a wide variety of products	.741	.203

Availability of heavy discounts and offers	.706	.186
Absence of pressure from sales personnel	.142	.768
Convenience and security of online transactions	.165	.751
User-friendly and accessible platform interface	.207	.729
Improved reliability of delivery services	.189	.695

The first factor, labelled Convenience, comprises items relating to time and cost savings, the opportunity for comparative shopping across sellers, access to a wide variety of products, and the availability of discounts and promotional offers. This factor reflects the primarily utilitarian, cost- and efficiency-oriented motivations identified in the literature reviewed in Section 2. The second factor, labelled Service Quality, comprises items relating to the absence of pressure from sales personnel, the perceived convenience and security of online transactions, the user-friendliness and accessibility of the platform interface, and the reliability of delivery services. This factor reflects the experiential and service-related dimension of online shopping, encompassing both the interface-level interaction with the platform and the post-purchase fulfilment experience.

This two-factor structure is broadly consistent with the utilitarian-hedonic and functional-experiential distinctions emphasised in the literature, and provides the analytical foundation for the comparative and pre-post analyses presented in the following subsections. Factor scores for Convenience and Service Quality were computed for each respondent using the regression method and were used as the dependent variables in the subsequent t-tests and ANOVA.

5.3 Demographic and Socio-economic Differences in Online Buying Behaviour

Addressing the second research objective, independent-samples t-tests and one-way ANOVA were conducted to examine whether the Convenience and Service Quality factor scores differed significantly across gender, academic level, financial independence, and family income group.

5.3.1 Gender (H_1)

Table 4. Independent-Samples t-Test by Gender.

Factor	Levene's F	Levene's Sig.	t	Sig. (2-tailed)
Convenience (Factor 1)	.935	.337	.141	.888

Service Quality (Factor 2)	.411	.524	1.213	.228

For both factors, Levene's test for equality of variances was non-significant ($p > .05$), justifying the use of the equal-variances assumption for the corresponding t-tests. The t-test for Convenience produced $t(77) = .141$, $p = .888$, and for Service Quality, $t(77) = 1.213$, $p = .228$. As both p-values substantially exceed the .05 threshold, the null hypothesis of no significant gender difference is retained for both factors. Hypothesis H1 is therefore not supported: male and female respondents do not differ significantly in their perceptions of either the convenience or the service-quality dimensions of online buying behaviour.

5.3.2 Academic Level (H_2)

Table 5. Independent-Samples t-Test by Academic Level (Undergraduate vs. Postgraduate.)

Factor	Levene's F	Levene's Sig.	t	Sig. (2-tailed)
Convenience (Factor 1)	.000	.997	.004	.997
Service Quality (Factor 2)	.213	.646	1.067	.290

The results indicate non-significant differences between undergraduate and postgraduate respondents for both Convenience ($t(77) = .004$, $p = .997$) and Service Quality ($t(77) = 1.067$, $p = .290$). Hypothesis H2 is therefore not supported, suggesting that students' academic level does not significantly condition their attitudes toward either the convenience or service-quality dimensions of online shopping.

5.3.3 Financial Independence (H_3)

Table 6. Independent-Samples t-Test by Financial Independence.

Factor	Levene's F	Levene's Sig.	t	Sig. (2-tailed)
Convenience (Factor 1)	1.842	.178	-.961	.339
Service Quality (Factor 2)	2.605	.110	-1.605	.113

Both factors again yielded non-significant results (Convenience: $t(77) = -.961$, $p = .339$; Service Quality: $t(77) = -1.605$, $p = .113$), leading to the rejection of Hypothesis H3. Financial independence does not appear to significantly differentiate students' perceptions of convenience or service quality in online shopping, suggesting that the perceived benefits of online retail platforms are accessible and salient irrespective of respondents' personal financial autonomy.

5.3.4 Family Income Group (H_4)

Table 7. One-Way ANOVA by Family Income Group.

Factor	Source	Sum of Squares	df	Mean Square	F	Sig.
Convenience (Factor 1)	Between Groups	28.825	5	5.765	.779	.568
	Within Groups	540.390	73	7.403		
	Total	569.215	78			
Service Quality (Factor 2)	Between Groups	11.723	5	2.345	.626	.681
	Within Groups	273.493	73	3.746		
	Total	285.215	78			

The one-way ANOVA results indicate non-significant between-group differences across the six family income categories for both Convenience ($F(5,73) = .779$, $p = .568$) and Service Quality ($F(5,73) = .626$, $p = .681$). Hypothesis H4 is therefore not supported. The absence of significant income-related differences suggests that the perceived benefits of online retail platforms, particularly convenience and service quality, are broadly accessible across income strata within the sampled student population, possibly reflecting the relatively low marginal cost of internet access via mobile data plans common among Indian students.

5.4 Attitudinal Change Following the COVID-19 Lockdown (H5)

Addressing the third research objective, paired-samples t-tests were conducted to compare respondents' attitudes toward Convenience and Service Quality before and after the COVID-19 lockdown. The results are presented in Table 8.

Table 8. Paired-Samples t-Test: Pre- vs. Post-Lockdown Attitudes.

Paired Comparison	Mean Difference	df	t	Sig. (2-tailed)
Convenience: pre-lockdown vs. post-lockdown	-.842	78	-9.842	.000
Service Quality: pre-lockdown vs. post-lockdown	-.671	78	-8.217	.000

Both paired comparisons yield highly significant results ($p < .001$ in both cases), with negative mean differences indicating that respondents' agreement with statements reflecting positive perceptions of convenience and service quality increased substantially following the lockdown. Hypothesis H5 is therefore strongly supported. The magnitude of the t-statistics, in conjunction with the consistent direction of the mean differences across both factors, indicates that the shift in attitude was not confined to a single dimension of online buying behaviour but represented a broad-based reassessment of the value proposition offered by online retail platforms.

This finding is consistent with the interpretation that the lockdown functioned as a forced trial period for online shopping among students who may previously have been infrequent or reluctant users. Having been compelled to rely on online platforms for the procurement of groceries, medical supplies, and other essential goods during a period of restricted mobility, respondents appear to have updated their evaluations of both the practical, cost-related benefits of online shopping (Convenience) and the experiential quality of the platforms and associated logistics (Service Quality) in a positive direction.

5.5 Patterns of Online Purchase Behaviour

In addition to the factor-analytic and comparative results reported above, the survey also captured descriptive information regarding respondents' purchase patterns, which provides useful context for interpreting the principal findings. Mobile data connectivity emerged as the dominant mode of internet access among respondents, consistent with the broader trend of mobile-first internet adoption in India. With respect to product category preferences, a gendered pattern was observed: male respondents reported a stronger inclination toward technical and electronic products, whereas female respondents reported greater interest in wellness and lifestyle products, alongside a smaller proportion of technical purchases.

Across both academic level and income groups, the majority of respondents indicated that they purchase online on an as-needed basis rather than as habitual or frequent shoppers, suggesting that online retail has, for this population, become integrated into routine consumption patterns rather than constituting a distinct or specialised shopping mode. With respect to payment preferences, cash-on-delivery emerged as the dominant choice across nearly all demographic segments, with debit card payments selected by a minority of respondents and credit card and net banking options selected by negligible proportions. This pattern has implications for digital payment adoption strategies, discussed further in Section 6. Finally, among the online retail platforms named by respondents, Amazon emerged as the most frequently used and preferred platform, ahead of domestic competitors.

6. DISCUSSION

The findings of this study contribute to the literature on online shopping behaviour in two principal respects. First, the consistent absence of significant demographic and socio-economic differences across gender, academic level, financial independence, and family income (H1 through H4 all rejected) suggests that, at least within the population of college students examined here, the perceived benefits of online retail platforms in terms of convenience and service quality are broadly egalitarian in their distribution. This finding diverges from some earlier literature, which has tended to assume that online shopping adoption is conditioned by access to financial resources and digital literacy, both of which are often correlated with socio-economic status. The present results suggest that, at least for the student population in an urban metropolitan setting such as Kolkata, these structural barriers may have diminished to the point where they no longer produce statistically detectable differences in attitudes toward online retail.

Second, and more substantively, the strong and consistent evidence of attitudinal change associated with the COVID-19 lockdown (H5 supported for both factors) indicates that the pandemic functioned as a powerful exogenous catalyst for the normalisation of online shopping. This finding aligns with the theoretical proposition advanced by Bucko (2018) that exogenous factors moderate the relationships among core constructs of online buying behaviour; the pandemic represents perhaps the most extreme example of such an exogenous factor observed in recent consumer behaviour research. The fact that the attitudinal shift was observed across both the Convenience and Service Quality dimensions, rather than being confined to one, suggests that the forced-trial experience of online shopping during the lockdown was sufficiently positive, or sufficiently necessary, to overcome whatever residual scepticism or inertia had previously constrained adoption among this population.

From a managerial perspective, these findings carry several implications. The combination of significant attitudinal improvement and the absence of demographic moderators suggests that retailers and platform operators should view the post-pandemic period as an opportunity to consolidate gains in customer acquisition across all demographic segments, rather than pursuing narrowly targeted segment-specific strategies. At the same time, the persistent dominance of cash-on-delivery as a payment mode, despite the broader shift toward online retail, indicates that trust in digital payment infrastructure remains an area requiring continued investment; e-retailers seeking to reduce the operational costs associated with cash-on-delivery transactions, including reverse logistics for refused deliveries, may benefit from targeted incentives for digital payment adoption among student consumers.

The product-category patterns observed, with male respondents favouring technical products and female respondents favouring wellness and lifestyle products, also suggest opportunities for more refined category-level marketing, even in the absence of significant differences at the level of the overall Convenience and Service Quality constructs. This indicates that while the broad structural dimensions of online buying behaviour may be relatively homogeneous across gender, category-specific preferences continue to differentiate male and female consumers in ways that are relevant for merchandising and promotional strategy.

More broadly, the findings support the view that the Indian e-commerce sector, having experienced an unprecedented acceleration in adoption during the pandemic period, is likely to retain a substantially larger base of online shoppers than would have been projected on the basis of pre-pandemic growth trajectories alone. Continued investment in last-mile delivery infrastructure, expansion of mobile internet connectivity in semi-urban and rural areas, and the development of a wider range of digital payment options calibrated to the preferences and trust levels of Indian consumers are likely to be important determinants of whether this expanded base of online shoppers can be retained and further developed in the post-pandemic period.

7. CONCLUSION, LIMITATIONS, AND FUTURE RESEARCH

This study examined the online shopping behaviour of college students in Kolkata before and after the COVID-19 lockdown, with a focus on the convenience and service-quality dimensions of online buying behaviour and their relationship to demographic and socio-economic characteristics. The reliability of the eight-item online buying behaviour scale was confirmed (Cronbach's alpha = .786), and exploratory factor analysis identified two robust factors, Convenience and Service Quality, that together capture the principal dimensions of students' perceptions of online retail platforms.

The study found no statistically significant differences in either factor across gender, academic level, financial independence, or family income, indicating that the perceived benefits of online shopping are broadly accessible across demographic segments within this population. By contrast, the study found strong evidence of a positive shift in attitudes toward both Convenience and Service Quality following the COVID-19 lockdown, suggesting that the pandemic served as a catalyst for the normalisation of online shopping among students who may previously have been reluctant adopters.

These findings should be interpreted in light of several limitations. The sample size of 79 respondents, while sufficient for the exploratory factor analysis and parametric tests reported here, is relatively modest, and the geographic concentration of the sample within Kolkata limits the generalisability of the findings to other regions of India or to non-student populations. The cross-sectional, retrospective design of the pre-post comparison, in which respondents were asked to recall their pre-lockdown attitudes after having experienced the lockdown, may also be subject to recall bias or to a tendency to rationalise current behaviour by reporting more favourable retrospective attitudes.

Future research could address these limitations through the use of larger, multi-city samples that permit comparison across regions with differing levels of digital infrastructure, and through longitudinal designs that capture attitudinal data at multiple points in time rather than relying on retrospective recall. Future studies might also extend the analytical framework employed here through the use of structural equation modelling to examine the relationships among the Convenience and Service Quality constructs, behavioural intention, and actual purchase behaviour, and could incorporate additional constructs such as trust in digital payments and perceived risk, which the present study's descriptive findings on payment preferences suggest may be of particular relevance to the Indian context. Finally, given the evidence presented here that the pandemic produced a broad-based and demographically uniform shift in attitudes, future research could usefully examine the durability of this shift over time, assessing whether the gains in online shopping adoption observed during the pandemic period have been sustained, attenuated, or further amplified in the years following the lifting of pandemic-related restrictions.

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