

“Gender Differences in Consumer Perception towards Mobile Commerce: Empirical Evidence from a Non-Parametric Analysis”

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Abstract

The rapid expansion of mobile commerce has transformed consumer purchasing behavior, making it essential to understand how demographic factors influence consumer perception. Among these factors, gender plays a crucial role in shaping attitudes toward technology-driven services. The present study examines gender-based differences in consumer perception towards mobile commerce, focusing on key dimensions such as perceived trust, perceived convenience, perceived cost, and perceived risk. Primary data were collected through a structured questionnaire using a Likert scale from mobile commerce users. Due to the non-normal nature of the data and the ordinal measurement scale, non-parametric statistical techniques were employed. The Mann–Whitney U test was applied to assess whether significant differences exist between male and female consumers across the identified perception dimensions.

The findings indicate minor variations in mean ranks across gender; however, none of the differences were statistically significant at the 5 percent level. The results suggest that gender does not significantly influence consumer perception towards mobile commerce. The results provide empirical evidence supporting the relevance of gender as a differentiating factor in consumer perception. The study contributes to existing literature by offering a non-parametric empirical assessment of gender differences in mobile commerce perception, thereby enhancing methodological rigor in consumer behavior research. From a practical perspective, the findings offer valuable insights for mobile commerce service providers and marketers to design gender-sensitive strategies that enhance user trust, reduce perceived risk, and improve overall service experience. The study underscores the importance of incorporating demographic considerations in developing effective mobile commerce platforms in an increasingly digital economy.

Key Words: Mobile Commerce, Gender differences, Perceived Trust, Perceived Convenience, Perceived Cost, perceived Risk.

1. Introduction

The rapid advancement of digital technologies has significantly transformed the landscape of commerce, leading to the widespread adoption of mobile commerce as a convenient and efficient mode of conducting transactions. Mobile commerce, enabled by smartphones and wireless internet connectivity, allows consumers to search, compare, and purchase products and services anytime and anywhere. With increasing smartphone penetration and the growth of digital payment systems, mobile commerce has emerged as a critical component of the digital economy, particularly in developing countries like India.

Consumer perception plays a pivotal role in the acceptance and continued use of mobile commerce platforms. Perception reflects consumers' evaluations and experiences related to trust, convenience, cost, and risk associated with mobile-based transactions. While mobile commerce offers numerous benefits such as ease of access, time efficiency, and personalized services, concerns related to security, privacy, transaction costs, and technological complexity continue to influence consumer attitudes. Understanding these perceptual factors is essential for service providers to enhance user satisfaction and promote sustained usage of mobile commerce applications.

Demographic variables have been widely recognized as important determinants of consumer behavior in technology adoption studies. Among these, gender has been identified as a key factor influencing decision-

making processes, risk tolerance, and technology usage patterns. Prior studies suggest that male and female consumers may differ in their evaluation of mobile commerce attributes due to variations in social roles, technology familiarity, and perceived risk and trust levels. However, empirical findings on gender-based differences in mobile commerce perception remain inconclusive, particularly in emerging markets.

Moreover, much of the existing literature relies heavily on parametric statistical techniques that assume normal data distribution, which may not be appropriate for ordinal data collected through Likert-scale questionnaires. To address this methodological limitation, the present study employs a non-parametric approach to examine gender differences in consumer perception towards mobile commerce. By applying the Mann–Whitney U test, the study provides robust empirical evidence on whether significant perceptual differences exist between male and female consumers. The findings of this study aim to contribute to the growing body of mobile commerce literature and offer practical insights for marketers and policymakers to develop inclusive and gender-responsive mobile commerce strategies.

2. Literature Review

Hasan (2010) explored gender differences in online shopping attitudes and found that males generally exhibit more favorable attitudes toward online shopping compared to females. The study indicates that male consumers tend to show higher levels of perceived usefulness and confidence in online transactions, whereas female consumers demonstrate relatively greater concern regarding security and risk. These findings highlight the role of gender in shaping attitudes toward digital shopping platforms and suggest that differences in perception may influence online purchasing behaviour.

Bae and Lee (2011) investigated gender differences in consumers' perception of online reviews and found that females are more influenced by negative reviews and demonstrate higher sensitivity to risk-related information compared to males. The study suggests that gender plays a moderating role in how online information is processed and evaluated, which has important implications for digital marketing and online purchasing behaviour.

Prior research has identified gender-based differences in the perception of convenience in mobile commerce. According to **Okazaki and Mendez (2013)**, convenience is shaped by both intrinsic attributes of mobile devices, such as portability and interface design, and extrinsic attributes, including simultaneity, speed, and searchability. The study found that male consumers tend to associate ease of use primarily with intrinsic features of the device, whereas the linkage between interface design and perceived ease of use holds greater importance for female consumers. These findings highlight that convenience perception in m-commerce varies across gender, particularly in relation to device usability and design elements.

Gender has been identified as an important demographic factor influencing online buying behaviour. **Sharma and Jain (2018)** examined the impact of demographic variables on online purchasing behaviour and found that consumer responses toward online platforms vary across demographic categories, including gender. Their findings suggest that demographic characteristics shape attitudes, preferences, and behavioural tendencies in digital purchasing environments. This indicates that gender can play a meaningful role in influencing perceptions and decision-making in online and mobile commerce contexts.

Kapoor and Singh (2020) examined the impact of privacy concerns, trust, and perceived risk on mobile app-based shopping in India. Their study found that trust significantly influences consumers' willingness to engage in mobile commerce, while privacy and risk concerns negatively affect adoption behaviour. The findings emphasize the importance of strengthening security mechanisms and building consumer confidence to enhance mobile shopping participation, particularly in emerging markets.

Kanwal, Burki, Ali, and Dahlstrom (2022) conducted a systematic review examining gender differences and similarities in online consumer shopping behaviour. Their analysis revealed that while certain behavioural variations exist—particularly in risk perception, information processing, and shopping motivations—there are also increasing similarities between male and female consumers in digital environments. The study suggests that

although gender continues to influence aspects of online shopping behaviour, the gap is narrowing due to growing digital familiarity and widespread technology adoption.

More (2025) reviewed existing studies on gender-based behavioural differences in online shopping and concluded that male and female consumers differ in their attitudes, risk perception, decision-making patterns, and online purchasing preferences. The review highlights that females generally exhibit higher caution and risk sensitivity, whereas males tend to demonstrate relatively higher confidence in digital transactions. These findings reinforce the relevance of gender as a demographic factor in understanding online and mobile commerce behaviour.

3. Research Objectives

1. To examine gender-based differences in perceived trust towards mobile commerce.
2. To examine gender-based differences in perceived convenience towards mobile commerce.
3. To examine gender-based differences in perceived cost towards mobile commerce.
4. To examine gender-based differences in perceived risk towards mobile commerce.
5. To examine gender-based differences in overall consumer perception towards mobile commerce.
- 6.

4. Research Hypotheses

H_{0a}: There is no significant difference in perceived trust towards mobile commerce across gender.

H_{1a}: There is a significant difference in perceived trust towards mobile commerce across gender.

H_{0b}: There is no significant difference in perceived convenience towards mobile commerce across gender.

H_{1b}: There is a significant difference in perceived convenience towards mobile commerce across gender.

H_{0c}: There is no significant difference in perceived cost towards mobile commerce across gender.

H_{1c}: There is a significant difference in perceived cost towards mobile commerce across gender.

H_{0d}: There is no significant difference in perceived risk towards mobile commerce across gender.

H_{1d}: There is a significant difference in perceived risk towards mobile commerce across gender.

H_{0e}: There is no significant difference in overall consumer perception towards mobile commerce across gender.

H_{1e}: There is a significant difference in overall consumer perception towards mobile commerce across gender.

5. Research Methodology

The study adopted a quantitative research design using a cross-sectional survey method to examine gender-based differences in consumer perception towards mobile commerce. Primary data were collected from 300 mobile commerce users through a structured questionnaire measured on a five-point Likert scale. The questionnaire comprised items related to perceived trust, perceived convenience, perceived cost, perceived risk, and overall consumer perception. Respondents were selected using a stratified sampling approach to ensure adequate representation of both male and female consumers. The reliability of the measurement scale was assessed using Cronbach's alpha. As the data were ordinal in nature and did not satisfy normality assumptions, non-parametric statistical techniques were employed. Descriptive statistics, including mean ranks, were used for preliminary analysis, while the Mann-Whitney U test was applied to examine the significance of gender-based differences across perception constructs at a 5 percent level of significance.

6.1 Gender and Perceived Trust

Table-1 Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Perceived Trust	300	3.8393	.61087	1.00	5.00
Gender	300	1.48	.501	1	2

Hypothesis

H_{0a}: There is no significant difference in perceived trust towards mobile commerce across gender.

H_{1a}: There is a significant difference in perceived trust towards mobile commerce across gender.

Table-2 Ranks of Level of Perceived Trust as per Gender

	Gender	N	Mean Rank	Sum of Ranks
Perceived Trust	Male	155	147.12	22803.50
	Female	145	154.11	22346.50
	Total	300		

The above table displays the mean rank and sum of ranks of gender respondents with respect to the level of perceived trust towards mobile commerce. It is clearly observed from the table that the mean rank of female respondents (154.11) is higher than that of male respondents (147.12). This indicates that the level of perceived trust towards mobile commerce is comparatively higher among female respondents than male respondents. Hence, a more positive and constructive perception regarding “perceived trust” towards mobile commerce is found among female respondents.

Table-3 Mann-Whitney U-Test Statistics

	Perceived Trust
Mann-Whitney U	10713.500
Wilcoxon W	22803.500
Z	-.708
Asymp. Sig. (2-tailed)	.479

a. Grouping Variable: Gender

Further, the researcher has applied the Mann–Whitney U test to examine the significance of the level of perceived trust towards mobile commerce between different genders of respondents. The Mann–Whitney U test statistics indicate that no significant difference is found in the level of perceived trust between male and female respondents. The value of the Mann–Whitney U test is reported as 10713.500 with a significance level of 0.479, which is greater than the accepted level of significance of 0.05. Hence, the null hypothesis is not rejected by the researcher, indicating that gender does not significantly influence the level of perceived trust towards mobile commerce.

Table-4 Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Perceived Convenience	300	3.9858	.63484	1.25	5.00
Gender	300	1.48	.501	1	2

Hypothesis

H_{0b}: There is no significant difference in perceived convenience towards mobile commerce across gender.

H_{1b}: There is a significant difference in perceived convenience towards mobile commerce across gender.

Table-5 Ranks of Level of Perceived Convenience as per Gender

	Gender	N	Mean Rank	Sum of Ranks
Perceived Convenience	Male	155	151.69	23512.50
	Female	145	149.22	21637.50
	Total	300		

The table displays the mean rank and sum of ranks of gender respondents with respect to the level of perceived convenience towards mobile commerce. It is evident from the table that the mean rank of male respondents (151.69) is slightly higher than that of female respondents (149.22). This indicates that the level of perceived convenience towards mobile commerce is marginally higher among male respondents compared to female respondents. Therefore, a comparatively more positive perception regarding “perceived convenience” towards mobile commerce is observed among male respondents.

Table-6 Mann-Whitney U-Test Statistics

	Perceived Convenience
Mann-Whitney U	11052.500
Wilcoxon W	21637.500
Z	-.251
Asymp. Sig. (2-tailed)	.802

a. Grouping Variable: Gender

To assess whether gender has a significant impact on the level of perceived convenience towards mobile commerce, the Mann–Whitney U test was employed. The test results reveal that there is no statistically significant difference in perceived convenience between male and female respondents. The Mann–Whitney U value is 11052.500 and the corresponding significance value is 0.802, which exceeds the standard threshold of 0.05. Therefore, the null hypothesis is accepted, indicating that perceived convenience towards mobile commerce does not vary significantly across gender.

6.4 Gender and Perceived Cost

Table-7 Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Perceived Cost	300	3.5683	.74645	1.25	5.00
Gender	300	1.48	.501	1	2

Hypothesis

H_{0c}: There is no significant difference in perceived cost towards mobile commerce across gender.

H_{1c}: There is a significant difference in perceived cost towards mobile commerce across gender.

Table-8 Ranks of Level of Perceived Cost as per Gender

	Gender	N	Mean Rank	Sum of Ranks
Perceived Cost	Male	155	145.70	22583.00
	Female	145	155.63	22567.00
	Total	300		

The rank analysis highlights gender-wise differences in the level of perceived cost towards mobile commerce. The results indicate that female respondents have a higher mean rank (155.63) compared to male respondents (145.70). This suggests that female consumers exhibit a relatively higher perception regarding the cost aspect of mobile commerce. In other words, perceptions related to pricing, charges, and cost-effectiveness of mobile commerce services appear to be more prominent among female respondents than their male counterparts.

Table-9 Mann-Whitney U-Test Statistics

	Perceived Cost
Mann-Whitney U	10493.000
Wilcoxon W	22583.000
Z	-1.003
Asymp. Sig. (2-tailed)	.316

a. Grouping Variable: Gender

To examine whether gender significantly influences the level of perceived cost towards mobile commerce, the Mann–Whitney U test was conducted. The test results indicate that no statistically significant difference exists in perceived cost between male and female respondents. The Mann–Whitney U value is 10493.000 with a corresponding significance value of 0.316, which is higher than the conventional significance level of 0.05. Consequently, the null hypothesis is accepted, suggesting that gender does not play a significant role in shaping consumers’ cost perception towards mobile commerce.

6.5 Gender and Perceived Risk

Table-10 Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Perceived Risk	300	3.7793	.61680	1.80	5.00
Gender	300	1.48	.501	1	2

Hypothesis

H_{0d}: There is no significant difference in perceived risk towards mobile commerce across gender.

H_{1d}: There is a significant difference in perceived risk towards mobile commerce across gender.

Table-11 Ranks of Level of Perceived Risk as per Gender

	Gender	N	Mean Rank	Sum of Ranks
Perceived Risk	Male	155	147.35	22840.00
	Female	145	153.86	22310.00
	Total	300		

The rank-wise comparison presents gender-based variations in the level of perceived risk associated with mobile commerce. The results show that female respondents record a higher mean rank (153.86) than male respondents (147.35). This indicates that female consumers perceive relatively greater risk in using mobile commerce platforms compared to male consumers. Hence, concerns related to security, privacy, and uncertainty in mobile commerce transactions appear to be more pronounced among female respondents.

Table-12 Mann-Whitney U-Test Statistics

	Perceived Risk
Mann-Whitney U	10750.000
Wilcoxon W	22840.000
Z	-.660
Asymp. Sig. (2-tailed)	.509

a. Grouping Variable: Gender

To determine whether gender leads to a significant difference in the level of perceived risk towards mobile commerce, the Mann–Whitney U test was employed. The statistical results reveal that the difference in perceived risk between male and female respondents is not statistically significant. The Mann–Whitney U value stands at 10750.000 and the associated significance value is 0.509, which is greater than the threshold level of 0.05. Accordingly, the null hypothesis is accepted, indicating that perceived risk towards mobile commerce does not significantly differ across gender.

6.7 Gender and Perceived Consumer Overall Perception

Table-13 Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Consumer Overall Perception	300	3.9692	.65691	2.00	5.00
Gender	300	1.48	.501	1	2

Hypothesis

H_{0e}: There is no significant difference in overall consumer perception towards mobile commerce across gender.

H_{1e}: There is a significant difference in overall consumer perception towards mobile commerce across gender.

Table-14 Ranks of Level of Consumer Overall Perception as per Gender

	Gender	N	Mean Rank	Sum of Ranks
Consumer Overall Perception	Male	155	144.15	22342.50
	Female	145	157.29	22807.50
	Total	300		

The rank analysis of overall consumer perception towards mobile commerce reveals noticeable gender-based variation. The findings indicate that female respondents exhibit a higher mean rank (157.29) compared to male respondents (144.15). This suggests that the overall perception towards mobile commerce is more favorable among female consumers than male consumers. In general, female respondents appear to hold a comparatively stronger and more positive overall evaluation of mobile commerce services.

Table-15 Mann-Whitney U-Test Statistics

	Consumer Overall Perception
Mann-Whitney U	10252.500
Wilcoxon W	22342.500
Z	-1.345
Asymp. Sig. (2-tailed)	.178

a. Grouping Variable: Gender

To examine whether overall consumer perception towards mobile commerce differs significantly across gender, the Mann–Whitney U test was applied. The test results indicate that the observed difference in overall perception between male and female respondents is not statistically significant. The Mann–Whitney U value is 10252.500 and the corresponding significance value is 0.178, which exceeds the acceptable level of 0.05. Therefore, the null hypothesis is accepted, suggesting that overall consumer perception towards mobile commerce does not significantly vary between male and female consumers.

7. Findings

The study examined gender-based differences in consumer perception towards mobile commerce using non-parametric statistical techniques. The analysis focused on perceived trust, perceived convenience, perceived cost, perceived risk, and overall consumer perception.

The rank analysis indicated minor variations in mean ranks between male and female respondents across all perception dimensions. Female respondents showed relatively higher mean ranks in perceived trust, perceived cost, perceived risk, and overall consumer perception, while male respondents recorded a slightly higher mean rank in perceived convenience.

However, the results of the Mann–Whitney U tests revealed that none of these differences were statistically significant, as all significance values were greater than 0.05. This indicates that consumer perception towards mobile commerce does not differ significantly between male and female respondents across any of the examined dimensions.

Overall, the findings suggest that gender does not play a significant role in shaping consumer perception towards mobile commerce.

8. Managerial Implications

The findings of this study indicate that consumer perception towards mobile commerce does not significantly differ across gender. This suggests that mobile commerce service providers need not design fundamentally different platforms or services for male and female consumers. Instead, managers should focus on developing gender-neutral strategies that enhance overall user experience.

Since trust, convenience, cost, and risk perceptions are uniformly shared across gender groups, mobile commerce firms should prioritize strengthening platform security, ensuring transparent pricing policies, and improving ease of use for all users. Investments in robust data protection mechanisms, secure payment

gateways, and clear communication of privacy policies can enhance trust and reduce perceived risk among consumers in general.

Additionally, improving interface simplicity, transaction speed, and customer support services can further increase perceived convenience and satisfaction. Marketing strategies should emphasize reliability, value for money, and safety rather than gender-specific appeals. Overall, the results encourage mobile commerce managers to adopt inclusive and standardized service strategies aimed at improving consumer perception and loyalty across the entire user base.

9. Conclusion

The present study investigated gender-based differences in consumer perception towards mobile commerce using a non-parametric analytical approach. The results revealed that although minor variations exist in mean ranks across gender, none of the differences in perceived trust, perceived convenience, perceived cost, perceived risk, or overall consumer perception were statistically significant. This indicates that gender does not significantly influence consumer perception towards mobile commerce. The study contributes to existing literature by providing empirical evidence based on methodologically appropriate non-parametric testing, highlighting the diminishing role of gender as a differentiating factor in mobile commerce perception.

10. Future Research Directions

Future studies may extend this research by examining other demographic variables such as age, income, education, and occupation to better understand their influence on mobile commerce perception. Longitudinal studies could also be conducted to observe changes in consumer perception over time. Additionally, future research may apply advanced analytical techniques such as Structural Equation Modeling to explore causal relationships among perception variables. Comparative studies across regions or countries could further enhance the generalizability of findings and provide deeper insights into mobile commerce adoption behavior.

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