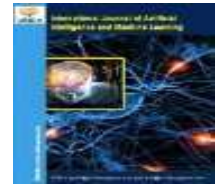




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Research Paper

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Digital Payment Reliance and Consumer Behaviour Among Young Adults: Associations with Digital-Payment-Related Impulsive Spending, Convenience, Rewards, and Continued Usage Intention

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Abstract

Digital payment systems have become embedded in everyday consumption, raising questions about their behavioural implications beyond technology adoption itself. This study examines how digital payment reliance, digital-payment-related impulsive spending, perceived convenience, perceived rewards, and continued usage intention relate to one another among young adults, using a quantitative, cross-sectional survey design. The analytical dataset comprised 135 primary cases, out of 157 eligible/complete cases, with 128 cases retained for a stricter sensitivity sample. Five four-item constructs were measured on five-point Likert scales. A confirmatory factor analysis supported convergent validity for all constructs (average variance extracted = .604-.860; composite reliability = .858-.961). Evidence for discriminant validity was mixed: all heterotrait-monotrait ratios were below .85, whereas the Fornell-Larcker criterion indicated insufficient separation between Reliance and both Convenience and Continued Usage. A Harman's single-factor test indicated that a dominant single-factor structure was not evident (47.5% variance on one unrotated factor). The three pre-specified hypotheses were tested primarily using Spearman's rank-order correlation, with Pearson correlations and alternative sample definitions used as robustness checks. Digital payment reliance was positively related to digital-payment-related impulsive spending ($\rho = .250$, $p = .003$, Holm-adjusted $p = .010$), although the relationship was weak. Perceived convenience showed a strong positive relationship with continued usage intention ($\rho = .680$, $p < .001$), while perceived rewards showed a moderate positive relationship with continued usage intention ($\rho = .413$, $p < .001$); together, convenience and rewards accounted for 57.4% of the observed variance in continued usage intention. Convenience emerged as the strongest correlate of continued digital-payment use, while reliance showed a smaller and less independent relationship with digital-payment-related impulsive spending. Because the design is cross-sectional and non-experimental, the findings are interpreted as associations rather than causal effects.

Keywords: digital payments; payment reliance; digital-payment-related impulsive spending; perceived convenience; rewards; continued usage intention; young adults; consumer behaviour.

Introduction

Digital payments reduce the friction involved in completing transactions and have become an important component of contemporary consumer activity. In India, the expansion of digital payment infrastructure has made electronic payment methods increasingly accessible, while empirical work using the 2016 demonetization shock has linked increased digital-payment use with higher consumer spending in transaction-level data [1]. The behavioural question is therefore not limited to whether consumers adopt digital payments, but also how routine digital payment use may relate to spending and continued use.

A particularly important distinction is between transactional convenience and behavioural consequences. Faster transactions, broad acceptance, and the absence of a need to carry exact cash can make digital payments highly convenient. At the same time, lower transactional friction may reduce deliberation around some purchases. Recent experimental and transaction-based research provides evidence that payment modality can influence spending, although the mechanisms and magnitudes differ across contexts. The present study therefore focuses on observed associations rather than assuming that digital payment use necessarily produces a uniform behavioural effect.

Literature Review

Research on digital payments spans technology adoption, consumer behaviour, financial inclusion, and payment economics. One of the more methodologically rigorous pieces of evidence on digital payments and spending comes from India's 2016 demonetization episode, which removed the majority of cash in circulation overnight and effectively forced many cash-dependent consumers to adopt digital payment methods. Using this shock alongside transaction-level data from a large Indian supermarket chain, one study exploited the fact that both cash and digital payments were equally accepted across stores

throughout the sample period, which helped rule out merchant-side confounds. The authors found that a rise in digital payment usage was associated with an increase in monthly spending among consumers with greater prior reliance on cash, and that this elevated spending persisted even after cash availability recovered [1]. Robustness checks in that study suggested the spending increase was not simply a product of income shocks, credit supply changes, or price effects, which lends some support to the idea that the payment mechanism itself plays a role.

At the individual level, a longer-running behavioural economics literature has examined why non-cash payments might be experienced differently from cash. Increased use of cards relative to cash has been linked in prior research to higher spending, less accurate recall of what was spent, and patterns consistent with reduced impulse control. The theoretical anchor for much of this work is the "pain of paying" concept, which describes the negative feeling associated with the act of paying, both before and after a purchase is made [2]. Building on this, Soman [3] found that an easier or less effortful payment process was associated with a reduced pain of paying and, in turn, with more impulsive spending, and later work extended this into a broader "payment transparency" framework, proposing that it is the transparency of a payment method — how concretely it reflects the value being given up, which in turn determines how salient or uncomfortable the payment feels [4]. A subsequent field study using debit-card transaction data offered further support for a cashless spending effect, though the authors note this line of research has more thoroughly examined credit cards than debit cards or app-based digital payments specifically [5].

Together, this literature offers a plausible, empirically supported rationale for expecting some relationship between digital payment use and less deliberate spending. It should be emphasized, however, that these mechanisms are psychological constructs that the present study does not directly measure. The current survey captures a related but distinct construct, *reliance* on digital payments, and its correlation with self-reported impulsive spending should be read as consistent with, rather than a direct test of, the pain-of-paying mechanism.

Continued Usage, Convenience, and Rewards

Research on information systems generally treats continued use as conceptually separate from initial adoption. Continuance refers to a user's decision to keep using a system after it has already been accepted, which is distinct from the first-usage decision that adoption models typically address [6]. The expectation-confirmation model, one of the most widely applied frameworks in this area, holds that continuance intention follows from the degree to which a user's post-use experience confirms their prior expectations, together with perceived usefulness and satisfaction. Convenience-related qualities — speed, reliability, ease of use — are frequently identified as components of the experience being confirmed: when a user's ongoing experience with a service like mobile banking confirms their expectations around speed, convenience, and reliability, this has been associated with stronger continuance intentions. This offers reasonable theoretical grounding for expecting perceived convenience to relate to continued usage intention, though it is worth noting that continuance research generally treats convenience as one input among several (alongside trust, satisfaction, and social influence) rather than a sufficient explanation on its own — a point echoed in mobile-banking continuance work that models trust as a moderating factor [7].

Rewards represent a related but separate value mechanism. In studies of e-wallets and mobile payment platforms, rewards — including cashback, discounts, and point-based incentives — have been found to play a meaningful role in shaping users' intention to continue using a payment method, with some evidence that this relationship is partly mediated by perceived usefulness [8]. This body of work, much of it conducted with Indian e-wallet and UPI users, supports treating rewards as a plausible correlate of continuance distinct from convenience.

The present study narrows this broader literature to these two observed antecedents — perceived convenience and perceived rewards — and examines their associations with continued usage intention. It does not attempt to test the full expectation-confirmation model or a complete continuance framework, and constructs such as trust, satisfaction, and social influence, which the wider literature treats as relevant, are outside its scope.

Digital-Payment-Related Impulsive Spending and Payment Modality

The possibility that digital payments are associated with less deliberative purchasing connects to the pain-of-paying literature introduced earlier. Reduced payment transparency in non-cash methods has been proposed as one mechanism through which the felt cost of spending is diminished, potentially increasing the impulse to spend [4]. More recent work on app-based and QR-code payments has continued to explore this relationship in digital-native contexts, though findings vary somewhat depending on the specific payment technology and population studied. These findings are relevant background for H1, though it should be stressed that construct definitions and measurement approaches differ meaningfully across this literature — some studies measure objective spending from transaction records, others measure self-reported impulsivity via survey items, as the present study does. The current survey operationalises impulsive spending through four items addressing unplanned purchases, exceeding intended spending,

purchasing without careful deliberation, and purchases that respondents feel might have been avoided had cash been required. Given these measurement differences, the present study's findings on H1 should be treated as one data point within a heterogeneous evidence base rather than a direct replication of any single prior study.

Research Gap

The literature reviewed above supports the relevance of studying both the potential behavioural consequences of digital payment use and the separate question of continued usage, but these two questions are more often examined in separate research streams — the pain-of-paying and cashless-spending literature on one side, and technology continuance research on the other. The present study brings five related constructs into a single survey framework and distinguishes three pre-specified confirmatory relationships from broader exploratory associations among the remaining constructs. The intended contribution is modest and descriptive: not to claim that prior literature has overlooked digital payment behaviour, but to provide an integrated, sample-specific look at how reliance, impulsive spending, convenience, rewards, and continued usage relate to one another, while being explicit that the cross-sectional design supports associational rather than causal conclusions.

Research Problem

The study addresses a combined behavioural and continuance problem: whether digital payment reliance is associated with digital-payment-related impulsive spending, and whether perceived convenience and perceived rewards are associated with continued usage intention. These questions are examined within a single survey framework so that the constructs can be considered both individually and as part of a broader inter-construct pattern.

Research Aim and Objectives

The aim is to examine the relationships between digital payment reliance, digital-payment-related impulsive spending, perceived convenience, perceived rewards, and continued usage intention among young adults.

- To examine the relationship between digital payment reliance and digital-payment-related impulsive spending.
- To examine the relationship between perceived convenience and continued usage intention.
- To examine the relationship between perceived rewards and continued usage intention.
- To examine the joint statistical contribution of convenience and rewards to continued usage intention.
- To explore the broader relationships among the five study constructs.

Research Questions and Hypotheses

RQ1: Is digital payment reliance positively associated with digital-payment-related impulsive spending?

RQ2: Is perceived convenience positively associated with continued usage intention?

RQ3: Are perceived rewards positively associated with continued usage intention?

H1: There is a significant positive relationship between digital payment reliance and digital-payment-related impulsive spending among young adults.

H2: There is a significant positive relationship between perceived convenience and continued usage intention among young adults.

H3: There is a significant positive relationship between perceived rewards and continued usage intention among young adults.

Research Contribution

The study contributes an integrated empirical view of digital payment behaviour by examining reliance, spending behaviour, convenience, rewards, and continued usage within the same analytical framework. Its principal contribution is descriptive and relational: it identifies which constructs are most strongly interconnected in the observed sample while attempting to maintain a clear distinction between pre-specified hypotheses and exploratory relationships.

Methodology

Research Design

A quantitative, cross-sectional, survey-based design was used to estimate the magnitude and direction of relationships among the measured constructs at a single point in time. Respondents were recruited using snowball sampling. This design is appropriate for examining associations, but it does not establish temporal ordering or causality.

Participants and Data Screening

The dataset contained 166 submissions. Initial eligibility and completeness screening retained 157 cases. The primary analysis then applied the response-quality attention check, leaving 135 cases; thus, 22 additional cases were excluded for failing the attention-check criterion. A stricter sensitivity sample additionally applied a straight-line response flag, leaving 128 cases, seven fewer than the primary sample. The primary analytical sample was therefore $N = 135$, while the eligible ($N = 157$) and strict ($N = 128$) samples were retained for sensitivity analyses.

The primary sample was used for the main hypothesis decisions because it combined eligibility/completeness requirements with the pre-specified attention-check rule. The eligible and strict samples were used only to examine whether the direction and statistical significance of the findings changed under less restrictive or more restrictive screening rules.

Measures

Five substantive constructs were measured using four Likert items each, scored from 1 (strongly disagree) to 5 (strongly agree). Composite scores were calculated as the mean of the four constituent items. Response-quality items were treated as quality-control items and were not included in any construct score.

Table 1. Operationalisation of study constructs

Construct	Items	Scale	Scoring
Digital Payment Reliance	4	1–5 Likert	Mean of four items
Digital-Payment-Related Impulsive Spending	4	1–5 Likert	Mean of four items
Perceived Convenience	4	1–5 Likert	Mean of four items
Perceived Rewards	4	1–5 Likert	Mean of four items
Continued Usage Intention	4	1–5 Likert	Mean of four items

Statistical Analysis

Descriptive statistics were calculated for the five construct scores, and internal consistency was assessed separately using Cronbach's alpha. Because the constructs were derived from Likert-scale items and the analysis plan emphasized rank-based association, H1, H2 and H3 were tested primarily using two-tailed Spearman's rank-order correlations (ρ) at $\alpha = .05$. Pearson correlations were retained as parametric robustness checks. To account for testing three confirmatory hypotheses, Holm-adjusted p values were also considered. Multiple regression was used as a supplementary exploratory analysis of the joint statistical contribution of convenience and rewards to continued usage intention and of the broader set of predictors. Regression coefficients are interpreted as associational, not causal.

Cronbach's alpha values are reported only as reliability estimates and are not interpreted as correlation coefficients. Exploratory regressions and broader inter-construct analyses are reported separately from the three confirmatory hypothesis tests.

Measurement Validation

Beyond Cronbach's alpha, the measurement model was evaluated using a confirmatory factor analysis (CFA) specifying the five hypothesised constructs as correlated latent factors, each with its four indicator items (maximum likelihood estimation, $N = 135$). Convergent validity was assessed via standardised factor loadings, average variance extracted ($AVE \geq .50$ criterion) and composite reliability ($CR \geq .70$ criterion). Discriminant validity was assessed with two complementary criteria: the Fornell-Larcker criterion (each construct's $\sqrt{AVE}$ should exceed its correlations with other constructs) and the heterotrait-monotrait (HTMT) ratio of correlations, with $HTMT < .85$ taken as evidence of discriminant validity (Fornell & Larcker, 1981; Henseler, Ringle, & Sarstedt, 2015). Common method bias (CMB) was assessed with Harman's single-factor test, in which all 20 items were entered into an unrotated principal-components extraction and the variance explained by a single factor was inspected against the conventional 50% threshold (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

These checks are reported as measurement-model diagnostics that precede and support the confirmatory hypothesis tests further ahead; they do not replace Spearman's rank-order correlation as the pre-specified test statistic for H1, H2 and H3.

Results

Sample Characteristics

The primary analytical sample comprised 135 respondents aged 18–30 years ($M = 23.73$, $SD = 3.75$). The sample included 81 males (60.0%) and 54 females (40.0%). College or university students represented 68 respondents (50.4%), while 34 (25.2%) were employed full-time and 15 (11.1%) were self-employed.

Digital payment use was high in the primary sample: 107 respondents (79.3%) reported UPI as their most frequently used payment method, 68 (50.4%) reported making digital payments multiple times per day, 48 (35.6%) reported that at least 90% of their personal transactions were digital, and 57 (42.2%) reported 3–4 years of regular digital-payment use.

Table 2. Selected characteristics of the primary sample

Characteristic	Category	Value [n (%)]
Age	Mean (SD)	23.73 (3.75)
Sex	Male	81 (60.0%)
Sex	Female	54 (40.0%)
Status	College/university student	68 (50.4%)
Status	Employed full-time	34 (25.2%)
Status	Self-employed	15 (11.1%)
Payment method	UPI	107 (79.3%)
Frequency	Multiple times/day	68 (50.4%)
Digital share	90% or more	48 (35.6%)
Duration	3–4 years	57 (42.2%)

Descriptive Statistics and Reliability

Table 3. Descriptive statistics and internal consistency

Construct	N	M	SD	Min	Max	Cronbach's α
Digital Payment Reliance	135	3.546	1.118	1.0	5.0	0.876
Digital-Payment-Related Impulsive Spending	135	3.313	1.240	1.0	5.0	0.911
Perceived Convenience	135	4.137	1.158	1.0	5.0	0.960
Perceived Rewards	135	3.267	1.235	1.0	5.0	0.903
Continued Usage Intention	135	3.876	1.154	1.0	5.0	0.923

To characterise the associations among all five constructs — not only the three pre-specified hypothesis pairs — Table 4 reports the full Pearson correlation matrix of construct scores in the primary sample.

Table 4. Pearson correlation matrix among construct scores (N = 135)

Construct	1	2	3	4	5
1. Reliance	1.000				
2. Digital-Payment-Related Impulsive Spending	0.286**	1.000			
3. Convenience	0.694**	0.341**	1.000		
4. Rewards	0.316**	0.277**	0.450**	1.000	
5. Continued Usage	0.696**	0.312**	0.743**	0.469**	1.000

Note. ** $p < .01$ (two-tailed). All 10 pairwise correlations are positive and significant, indicating that the five constructs, while conceptually distinct, describe a broadly interconnected pattern of digital-payment attitudes and behaviour; this is consistent with the discriminant-validity findings reported in the next section.

Note. All construct scores range from 1 to 5. Internal consistency was high for all five constructs ($\alpha = .876-.960$). The particularly high alpha for perceived convenience ($\alpha = .960$) may indicate very closely related item content and should be considered when refining the instrument.

Measurement Validation: CFA, Convergent and Discriminant Validity, and Common Method Bias

The five-factor CFA showed mixed-to-acceptable overall fit: $\chi^2(160) = 368.77$, $p < .001$; CFI = .918; TLI = .903; SRMR = .059; RMSEA = .099 (90% model-implied estimate not bootstrapped here). CFI, TLI and SRMR meet conventional acceptability thresholds ($\geq .90$, $\geq .90$, and $\leq .08$ respectively), whereas RMSEA exceeds the stricter .08 benchmark and falls in the range some authors describe as mediocre fit [9]. Given the moderate sample size relative to the number of estimated parameters (20 indicators, 5 factors), the elevated RMSEA is interpreted cautiously; nevertheless, it indicates comparatively weak fit and should be considered alongside the stronger CFI, TLI and SRMR values.

Table 5. CFA standardised factor loadings (range across the four items per construct)

Construct	Item	Standardised loading
Reliance	Dep1-Dep4	0.671-0.909
Impulsive Spending	Imp1-Imp4	0.787-0.927
Convenience	Conv1-Conv4	0.908-0.950
Rewards	Rew1-Rew4	0.732-0.912
Continued Usage	Cont1-Cont4	0.708-0.937

Note. All standardised loadings exceeded the minimum acceptability threshold of .60 and the majority exceeded .70 [10].

Table 6. Convergent validity: average variance extracted and composite reliability

Construct	AVE	Composite Reliability (CR)
Reliance	0.604	0.858
Impulsive Spending	0.721	0.911
Convenience	0.860	0.961
Rewards	0.703	0.904
Continued Usage	0.749	0.922

All five constructs exceeded the AVE $\geq .50$ and CR $\geq .70$ thresholds, supporting convergent validity [11].

Table 7. Fornell-Larcker discriminant validity matrix (diagonal = $\sqrt{\text{AVE}}$; off-diagonal = latent factor correlations from the CFA)

	Reliance	Digital-Payment-Related Impulsive Spending	Convenience	Rewards	ContinuedUse
Reliance	0.777				
Digital-Payment-Related Impulsive Spending	0.338	0.849			
Convenience	0.814	0.356	0.927		
Rewards	0.363	0.301	0.484	0.838	
ContinuedUse	0.837	0.321	0.813	0.519	0.865

Table 8. Heterotrait-monotrait (HTMT) ratio matrix

	Reliance	Digital-Payment-Related Impulsive Spending	Convenience	Rewards	ContinuedUse
Reliance	-				
Digital-Payment-Related Impulsive Spending	0.319	-			
Convenience	0.757	0.363	-		
Rewards	0.355	0.305	0.483	-	
ContinuedUse	0.774	0.340	0.789	0.515	-

The two discriminant-validity criteria diverge for the Reliance construct. Under the Fornell-Larcker criterion, Reliance's $\sqrt{\text{AVE}}$ (.777) is exceeded by its correlations with Convenience (.814) and Continued Usage (.837), indicating insufficient discriminant validity for these pairs under that criterion. Under the HTMT criterion, which recent methodological work indicates performs better than Fornell-Larcker at detecting true discriminant-validity problems [12], all ratios remain below the conservative .85 threshold, including Reliance-Convenience (.757) and Reliance-Continued Usage (.774). Evidence for discriminant validity is therefore mixed: HTMT supports separation across all construct pairs, whereas Fornell-Larcker identifies overlap involving Reliance, Convenience and Continued Usage. These three constructs should consequently be interpreted as empirically distinguishable but closely related in this sample.

Harman's single-factor test entered all 20 items into an unrotated principal-components extraction; a single factor accounted for 47.5% of total variance ($KMO = .889$; Bartlett's $\chi^2 = 2567.4$, $p < .001$), below the 50% threshold conventionally used to flag common method bias as a dominant explanation for observed associations [13]. This is a limited single-technique diagnostic rather than a definitive test for common method bias; because all constructs were measured via self-report at a single time point from a single source, some degree of common-method inflation — particularly for the strongest bivariate relationship, H2 (convenience $\rightarrow$ continued usage) — cannot be ruled out and is noted as a limitation further ahead.

Confirmatory Hypothesis Tests

H1 proposed a significant positive relationship between digital payment reliance and digital-payment-related impulsive spending. Spearman's correlation showed a statistically significant but weak positive relationship, $\rho = .250$, $p = .003$, $N = 135$ (Holm-adjusted $p = .010$). The Pearson robustness estimate was similar in direction and magnitude ($r = .286$, $p < .001$). H1 was therefore supported. Substantively, greater reliance on digital payments tended to co-occur with greater self-reported digital-payment-related impulsive spending, but the relationship was modest and should not be interpreted as evidence that reliance causes impulsive spending.

H2 proposed a significant positive relationship between perceived convenience and continued usage intention. Spearman's correlation showed a strong positive relationship, $\rho = .680$, $p < .001$, $N = 135$ (Holm-adjusted $p < .001$). The Pearson robustness estimate was also strong ($r = .743$, $p < .001$). H2 was supported. This indicates that respondents who experienced digital payments as faster, easier and more widely usable were substantially more likely to report an intention to continue using them.

H3 proposed a significant positive relationship between perceived rewards and continued usage intention. Spearman's correlation showed a moderate positive relationship, $\rho = .413$, $p < .001$, $N = 135$ (Holm-adjusted $p < .001$). The Pearson robustness estimate was $r = .469$, $p < .001$. H3 was supported. Thus, respondents who attached greater value to cashback, discounts and related incentives also tended to report stronger continued usage intentions, although this relationship was weaker than the relationship observed for convenience.

Table 9. Confirmatory hypothesis tests

Hypothesis	Relationship	Spearman ρ	p	Holm-adjusted p	Decision
H1	Reliance → Impulsive Spending	.250	.003	.010	Supported; weak positive relationship
H2	Convenience → Continued Usage	.680	< .001	< .001	Supported; strong positive relationship
H3	Rewards → Continued Usage	.413	< .001	< .001	Supported; moderate positive relationship

Note. Spearman's ρ is the primary confirmatory statistic. Holm-adjusted p values control the family-wise error rate across the three pre-specified hypothesis tests. Pearson correlations (H1 $r = .286$; H2 $r = .743$; H3 $r = .469$) were examined as robustness checks and produced the same substantive conclusions.

Supplementary Regression: Continued Usage

A supplementary multiple regression examined whether perceived convenience and perceived rewards contributed independently to continued usage intention. Together, the two variables accounted for 57.4% of the observed variance in continued usage intention ($R^2 = .574$, adjusted $R^2 = .568$), $F(2, 132) = 88.97$, $p < .001$. Convenience made the larger unique contribution ($\beta = .667$, $p < .001$, 95% CI for B [0.539, 0.790]), while rewards made a smaller but still statistically significant contribution ($\beta = .169$, $p = .009$, 95% CI for B [0.040, 0.275]). In practical terms, continued usage intention in this sample was much more strongly differentiated by perceived convenience than by rewards, although incentives still added information after convenience was taken into account.

Table 10. Supplementary regression predicting continued usage intention

Predictor	B	SE	β	t	p	95% CI
Convenience	0.664	0.063	0.667	10.48	< .001	[0.539, 0.790]
Rewards	0.158	0.059	0.169	2.65	0.0090	[0.040, 0.275]

$$CU_i = \alpha + \beta_1(\text{Convenience})_i + \beta_2(\text{Rewards})_i + \varepsilon_i$$

Model summary: $R^2 = .574$; adjusted $R^2 = .568$; $F(2, 132) = 88.97$, $p < .001$; $N = 135$. Unstandardized coefficients (B) show the expected change in continued-usage score for a one-unit change in the predictor, holding the other predictor constant; standardized β values permit comparison of relative contribution within the model.

Exploratory Integrated Models

An exploratory model entered reliance, convenience and rewards simultaneously as correlates of continued usage intention. The model accounted for 63.7% of the observed variance ($R^2 = .637$, adjusted $R^2 = .628$). All three variables contributed unique statistical information: convenience remained the strongest standardized predictor ($\beta = .426$, $p < .001$), followed by reliance ($\beta = .347$, $p < .001$) and rewards ($\beta = .167$, $p = .005$). This pattern suggests that continued usage intention is associated not only with perceived ease and incentives but also with the extent to which digital payments have become embedded in respondents' everyday routines. Because the model is exploratory and cross-sectional, these coefficients should not be read as causal effects.

A second exploratory model predicted digital-payment-related impulsive spending from reliance, convenience and rewards. Although the model as a whole accounted for 14.0% of the observed variance ($R^2 = .140$), none of the individual predictors reached $p < .05$ after simultaneous adjustment: reliance $\beta = .094$, $p = .407$; convenience $\beta = .206$, $p = .087$; rewards $\beta = .155$, $p = .091$. This qualifies the H1 finding. Reliance showed a significant bivariate relationship with digital-payment-related impulsive spending, but it did not explain unique variance once convenience and rewards were considered simultaneously. The result is therefore more consistent with overlapping behavioural characteristics than with a distinct independent reliance effect.

Table 11. Exploratory integrated regression models

Outcome	Predictor	B	SE	β	t	p	95% CI
Continued Usage	Reliance	0.358	0.076	0.347	4.75	< .001	[0.209, 0.508]

Continued Usage	Convenience	0.425	0.077	0.426	5.49	< .001	[0.272, 0.578]
Continued Usage	Rewards	0.156	0.055	0.167	2.83	0.0054	[0.047, 0.265]
Impulsive Spending	Reliance	0.104	0.125	0.094	0.83	0.4070	[-0.143, 0.351]
Impulsive Spending	Convenience	0.221	0.128	0.206	1.72	0.0871	[-0.033, 0.474]
Impulsive Spending	Rewards	0.155	0.091	0.155	1.71	0.0906	[-0.025, 0.336]

$$CU_i = \alpha + \beta_1(Reliance)_i + \beta_2(Convenience)_i + \beta_3(Rewards)_i + \varepsilon_i ; IS_i = \alpha + \beta_1(Reliance)_i + \beta_2(Convenience)_i + \beta_3(Rewards)_i + \varepsilon_i$$

Collinearity diagnostics for both exploratory models showed no evidence of problematic multicollinearity among the three predictors: variance inflation factors (VIF) were 1.929 (Reliance), 2.178 (Convenience) and 1.254 (Rewards), all comfortably below the conventional threshold of 5, and below the more conservative threshold of 3 recommended by Hair, Black, Babin, and Anderson [10]. This supports treating the individual regression coefficients in Table 11 as interpretable rather than confounded by shared predictor variance.

Note. These models are exploratory and supplement, rather than replace, the pre-specified Spearman hypothesis tests. B = unstandardized coefficient; β = standardized coefficient; CI = confidence interval for B.

Sensitivity to Sample-Screening Rules

Table 12. Sensitivity of confirmatory relationships across screening samples

Sample	Hypothesis	N	Pearson r	p
Eligible	H1	157	0.315	< .001
Eligible	H2	157	0.721	< .001
Eligible	H3	157	0.507	< .001
Primary	H1	135	0.286	< .001
Primary	H2	135	0.743	< .001
Primary	H3	135	0.469	< .001
Strict	H1	128	0.213	0.0159
Strict	H2	128	0.705	< .001
Strict	H3	128	0.418	< .001

The sensitivity analysis asks whether the main conclusions depend heavily on how strictly response quality is screened. Across the eligible sample (N = 157), primary sample (N = 135) and strict sample (N = 128), all three Pearson robustness correlations remained positive and statistically significant. H2 remained consistently strong (r = .721, .743 and .705), and H3 remained moderate (r = .507, .469 and .418). H1 was smaller and more sensitive to screening, declining from r = .315 in the eligible sample to r = .286 in the primary sample and r = .213 in the strict sample, but it remained statistically significant (strict-sample p = .016). The direction of all three relationships is therefore robust to the alternative inclusion rules, while the magnitude of H1 should be interpreted more cautiously.

Discussion

Principal Findings

All three pre-specified hypotheses were supported in the primary sample using Spearman's rank-order correlations. The strongest relationship was between perceived convenience and continued usage intention ($\rho = .680$, $p < .001$), followed by perceived rewards and continued usage intention ($\rho = .413$, $p < .001$). Digital payment reliance was positively related to digital-payment-related impulsive spending, but the relationship was weak ($\rho = .250$, $p = .003$). Holm correction did not change the significance decisions. The corresponding Pearson correlations and the sensitivity samples produced the same overall directional conclusions.

Reliance and Digital-Payment-Related Impulsive Spending

The positive H1 relationship is consistent with the literature suggesting that lower-friction payment environments can be associated with less deliberative purchasing. The pain-of-paying and payment-transparency literature proposes that less salient payment experiences may weaken the immediate psychological cost of spending [2], [3], [4]. The present study does not directly measure these mechanisms, so its result should be treated as consistent with, rather than a test of, that explanation. The modest effect

size and the non-significant adjusted reliance coefficient in the exploratory spending regression further indicate that digital-payment reliance and digital-payment-related impulsive spending are related but distinct constructs.

Convenience and Continued Usage

Perceived convenience was the most prominent correlate of continued usage intention. This aligns with continuance research in which post-adoption perceptions of usefulness, ease, reliability and satisfaction help explain why users keep using a technology [6]. In the present survey, convenience captures speed, broad acceptance, reduced need for exact cash and lower transactional effort. Its strong bivariate relationship and dominant standardized coefficient in the supplementary regression suggest that these everyday functional benefits are closely tied to respondents' intention to keep using digital payments.

Rewards and Continued Usage

Perceived rewards were also positively related to continued usage intention, consistent with research identifying cashback, discounts and point-based incentives as value mechanisms in e-wallet and mobile-payment continuance [8]. Rewards remained significant after convenience was included in the regression, indicating an incremental association. However, their smaller standardized coefficient suggests that incentives may reinforce continued use rather than constitute its primary basis in this sample.

Integrated Interpretation and Implications

Taken together, the findings depict continued digital-payment use as part of an interconnected behavioural pattern. Convenience is strongly related to continued usage, rewards add a secondary association, and reliance is also related to continued usage in the exploratory integrated model. For digital-payment-related impulsive spending, the evidence is more qualified: reliance is associated with digital-payment-related impulsive spending at the bivariate level, but that association is comparatively weak and is not independently significant in the multivariable model. The results therefore support separating adoption/continuance, reliance and spending behaviour analytically rather than treating heavy digital-payment use as equivalent to impulsive consumption.

Theoretical Implications

Theoretically, the study connects two literatures that are usually examined separately: payment-modality research concerned with spending behaviour (e.g. the pain-of-paying and payment-transparency traditions) and technology-continuance research concerned with repeated use of a service after adoption. Positioning reliance, convenience and rewards within a single framework alongside continued usage intention and digital-payment-related impulsive spending shows that these constructs are related but non-identical dimensions of digital-payment behaviour, rather than substitutable proxies for a single underlying attitude. The measurement-validation results reported earlier add a further theoretical nuance: the Fornell-Larcker criterion indicates that reliance, convenience and continued usage intention sit closer to one another empirically than the HTMT criterion alone would suggest, which is consistent with the view that habitual reliance on a payment technology and the intention to keep using it are conceptually adjacent constructs that future instruments may need to distinguish more sharply.

Practical Implications

Practically, digital-payment providers seeking to strengthen continued usage may benefit from prioritising reliable, low-effort transaction experiences — the strongest and most consistent correlate identified here — while treating rewards programmes such as cashback and discounts as a secondary lever that adds incremental but smaller association with continuance. For consumer-protection bodies and financial educators, the weak H1 relationship ($p = .250$) suggests that public messaging on digital-payment reliance should avoid assuming that habitual reliance on digital payments automatically translates into impulsive spending; the present findings support a more cautious, evidence-based framing of that link. Finally, the close empirical relationship among reliance, convenience and continued usage implies that interventions targeting one of these constructs — for example, campaigns intended to improve perceived convenience — may have spillover effects on the other two that practitioners should anticipate when designing and evaluating such interventions.

Limitations

- The cross-sectional design prevents causal inference and does not establish temporal ordering.
- The study relies on self-reported survey measures, which may be affected by recall, reporting, or social-desirability biases.
- Snowball sampling is a non-probability recruitment method; respondents may be socially or demographically clustered, limiting population representativeness.

- The sample is limited to the observed respondents aged 18–30 and should not be generalized to all young adults or all digital-payment users.
- The primary analysis depends on the stated eligibility/completeness and response-quality rules; although sensitivity analyses support the direction of the findings, H1 is somewhat more sensitive to screening than H2 or H3.
- The very high convenience reliability and standardised CFA loadings ($\alpha = .960$; loadings .908–.950) indicate item redundancy; a shorter, less overlapping item set should be piloted in future revisions of the instrument.
- CFA supported convergent validity for all five constructs ($AVE \geq .604$, $CR \geq .858$), but evidence for discriminant validity was mixed. All HTMT ratios were below .85, whereas the Fornell-Larcker criterion indicated insufficient separation between Reliance and both Convenience and Continued Usage. RMSEA (.099) was also on the weak side of conventional fit benchmarks. These findings indicate that Reliance, Convenience and Continued Usage are closely related constructs in this sample and should not be interpreted as sharply independent dimensions.
- A Harman's single-factor test indicated one unrotated factor did not dominate the variance structure (47.5%, below the 50% threshold), but this is a single, relatively weak diagnostic; because all constructs were measured via self-report at one time point, common method variance cannot be fully excluded as a contributor to the observed correlations, particularly the strongest one (H2).

Future Research Directions

- Use larger and more diverse samples and, where feasible, probability-based sampling.
- Use longitudinal designs to examine whether reliance and continued usage change over time.
- Use experiments or transaction-level behavioural data to investigate causal mechanisms linking payment modality and spending.
- Revisit the wording of the Reliance item set so it is more clearly distinguished from Convenience and Continued Usage; the present CFA supports convergent validity for all constructs but indicates that Reliance overlaps more with these two constructs than with the other pairs in the model (see Results and Discussion). Multi-method or longitudinal designs, and a marker-variable or multi-source common-method-bias test, would further strengthen this line of validation.
- Examine potential mechanisms and boundary conditions such as financial self-control, financial literacy, trust, perceived risk, habit and payment friction.
- Compare self-reported spending behaviour with objective transaction records where ethically and practically feasible.

Conclusions

This study examined digital payment reliance, digital-payment-related impulsive spending, perceived convenience, perceived rewards and continued usage intention among young adults. All three pre-specified hypotheses were supported. Reliance showed a statistically significant but weak positive relationship with digital-payment-related impulsive spending ($\rho = .250$, $p = .003$; Holm-adjusted $p = .010$). Convenience showed a strong positive relationship with continued usage intention ($\rho = .680$, $p < .001$), while rewards showed a moderate positive relationship with continued usage intention ($\rho = .413$, $p < .001$). Supplementary regression analysis further showed that convenience and rewards jointly accounted for 57.4% of the observed variance in continued usage intention, with convenience contributing more strongly. At the same time, reliance did not remain independently significant in the exploratory multivariable model of digital-payment-related impulsive spending, underscoring the need for caution in interpreting H1. Overall, the evidence supports an association-based account in which convenience is central to continued digital-payment use, rewards provide an additional incentive-related association, and reliance is related to—but not synonymous with—digital-payment-related impulsive spending. A confirmatory factor analysis supported convergent validity for all five constructs, while evidence for discriminant validity was mixed: HTMT supported separation across all construct pairs, whereas the Fornell-Larcker criterion identified overlap between Reliance and both Convenience and Continued Usage. Harman's single-factor test did not indicate a dominant single-factor structure, although common method variance cannot be fully ruled out given the single-source, single-time-point design.

Ethics Statement

Participants were informed that participation was voluntary and that responses would be treated confidentially and used only for the purposes of this research; consent was collected through a qualifier question in the form.

Conflict of Interest

The authors declare no conflict of interest.

Data Availability Statement

The data supporting the findings of this study are available from the corresponding author upon reasonable request.

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