

Is BNPL Usage Associated With Impulsive Buying Behaviour Among Gen Z?

An Evidence-Informed Behavioural Framework and Empirical Study Design for Consumers Aged 18-24

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Abstract

Buy Now, Pay Later (BNPL) has become an increasingly prominent form of embedded consumer credit, particularly within digital commerce. While existing research indicates that BNPL can increase spending and influence purchase decisions, higher spending should not automatically be interpreted as impulsive buying. This study examines whether BNPL usage is associated with impulsive buying behaviour among Generation Z consumers aged 18–24, while investigating the psychological mechanisms and individual characteristics that may shape this relationship. The proposed framework positions perceived affordability as a potential mediator and financial self-control as a potential moderator, while treating financial literacy as a distinct explanatory characteristic. The study adopts a deductive, quantitative, cross-sectional survey design targeting BNPL users aged 18–24. BNPL usage, impulsive buying behaviour, perceived affordability, financial self-control, financial literacy, and relevant demographic and financial controls will be measured through a structured questionnaire. The analytical strategy includes descriptive statistics, reliability and validity assessment, correlation analysis, hierarchical multiple regression, moderation analysis, and mediation analysis using bootstrap confidence intervals. Existing transaction-level, experimental, and Gen-Z studies provide empirical benchmarks for the proposed relationships, but the present study deliberately avoids causal claims because of its cross-sectional design. The research aims to clarify when and under what consumer conditions BNPL may be associated with less deliberative purchasing, contributing to the behavioural-finance literature and offering implications for consumers, merchants, BNPL providers, and policymakers.

Executive Summary

Research question. This study asks whether actual BNPL usage is associated with impulsive buying behaviour among Gen Z consumers aged 18-24, and whether perceived affordability and financial self-control help explain variation in that relationship.

What the evidence already tells us. Transaction-level, experimental, and Gen-Z survey studies point in a broadly consistent direction: BNPL can change purchasing behaviour, but the effects are heterogeneous and should not be equated automatically with impulsivity. Kumar, Salo and Bezawada estimate a 6.42% increase in online spending following BNPL adoption; Jose et al. report 4.39% higher spending with BNPL than debit cards and a 22.2% higher likelihood of a later discretionary purchase among prior BNPL users; Ashby et al. find that BNPL increased selection of the more expensive option from 36.9% to 53.8%. These are different outcomes and should not be treated as interchangeable.

What this paper contributes. The research narrows the outcome to impulsive buying rather than spending volume, positions perceived affordability as a potential mediator, and treats financial self-control as a potential moderator. This makes the central question conditional rather than moralistic: under what circumstances is BNPL use associated with less deliberative purchasing?

Most important methodological correction. The original document is a detailed research design with proposed analyses, not a completed survey study. It contains placeholders for sample size, descriptive statistics, reliability coefficients, regression coefficients and p-values. Those placeholders are not presented here as results. The empirical section is therefore structured as a data-ready analysis plan and clearly separated from evidence drawn from prior studies.

1. Introduction

Buy Now, Pay Later (BNPL) embeds short-term credit inside the purchase experience, allowing consumers to obtain a product immediately while splitting or postponing payment. A common pay-in-four structure requires a down payment and three subsequent instalments, making financing visible at precisely the moment a purchase decision is being completed. The Consumer Financial Protection Bureau (CFPB) describes BNPL as a form of installment credit and reports that the U.S. market continued to expand through 2023.

The scale of the market makes the behavioural question economically relevant. The CFPB reported 335.8 million BNPL loan originations totaling \$45.2 billion across six large U.S. lenders in 2023. Worldpay's 2026 Global Payments Report places global BNPL e-commerce value at approximately \$300 billion in 2025 and forecasts \$500 billion by 2030. These figures establish BNPL as a material payment innovation rather than a niche checkout feature.

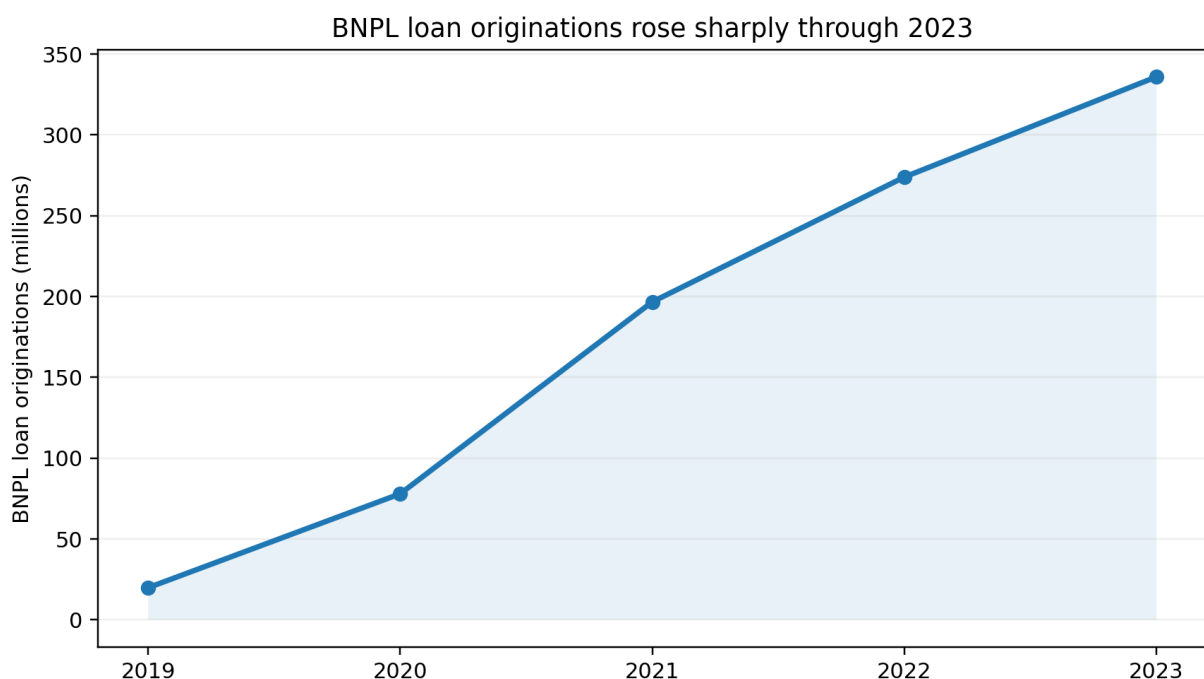


Figure 1. BNPL originations in the CFPB six-lender U.S. sample, 2019-2023.

Source: CFPB, *The Buy Now, Pay Later Market* (December 2025).

The central behavioural issue is not simply whether BNPL increases spending. Higher order size can reflect a planned purchase, liquidity smoothing or a product mix effect. Impulsive buying is narrower: it concerns relatively spontaneous, unplanned purchasing driven by an immediate urge or reward. Keeping these constructs separate is critical to the validity of the present research.

2. Research Problem and Gap

Existing BNPL research is fragmented across three evidence types. Transaction-level studies identify changes in observed spending. Experiments isolate mechanisms created by payment framing and deferred payment. Gen-Z survey studies measure perceptions and self-reported impulsive buying. What remains less developed is an integrated model that links actual BNPL usage intensity to a specific psychological outcome while accounting for individual financial characteristics.

Evidence stream	Typical outcome	What it establishes	What it does not establish
Transaction-level evidence	Order size / spending	BNPL can change realised purchasing behaviour	Higher spending is not automatically impulsive
Experimental evidence	Spending / product choice / subsequent purchase	Payment mode can alter behaviour under controlled conditions	Lab/experiment effects do not directly estimate this Gen-Z population
Gen-Z survey evidence	Perceived affordability / impulsive buying	BNPL-related characteristics can be associated with impulsive purchasing	Cross-sectional self-report cannot establish causality
Present study	BNPL use -> impulsive buying; mediation; moderation	Tests an integrated individual-level association model	Cannot reproduce the causal identification of experiments without stronger design

Research question

What is the relationship between actual BNPL usage and impulsive buying behaviour among Gen Z consumers aged 18-24?

Sub-questions:

- Does higher BNPL usage predict higher impulsive-buying scores after controlling for relevant demographic and financial characteristics?
- Does perceived affordability help explain the association between BNPL use and impulsive buying?
- Is the association weaker among consumers with stronger financial self-control?
- Is financial literacy related to BNPL usage independently of self-control?

3. Evidence Base: What the Literature Actually Shows

The strongest improvement to the source draft is to replace repeated descriptions of the same mechanisms with a small set of high-value empirical findings. The studies below are not treated as if they measured the same construct; instead, each is assigned the role its design can legitimately support.

3.1 BNPL changes spending, but spending is not the same as impulsivity

Kumar, Salo and Bezawada (2024) use transaction-level data and a synthetic difference-in-differences design. They estimate that customers adopting BNPL increased online spending by 6.42% relative to those using traditional payment services. The effect is heterogeneous and is stronger among younger and lower-income customers, with low-ticket items contributing disproportionately. Because the outcome is order size, the result is strong evidence of a behavioural spending response but not direct evidence of impulsive buying.

Berg, Burg, Keil and Puri provide complementary merchant-level evidence from a German e-commerce setting: offering BNPL increased sales by about 20%, with stronger responses among lower-creditworthiness customers. Again, the outcome is sales, not a psychological impulsivity measure. The appropriate interpretation is therefore that BNPL can alter demand and conversion, not that the typical BNPL transaction is necessarily impulsive.

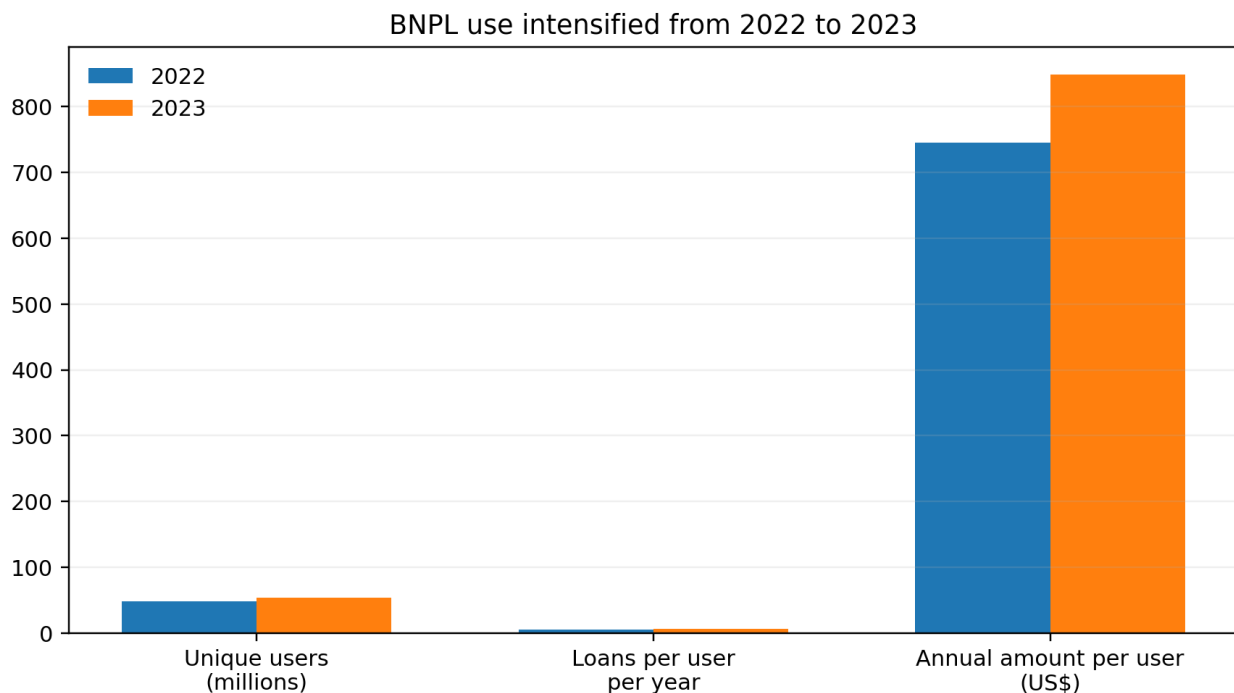


Figure 2. The BNPL user base and intensity of use increased between 2022 and 2023.

Source: CFPB, *The Buy Now, Pay Later Market* (December 2025).

The CFPB data add an important usage dimension: across the six firms, unique users rose from 48.0 million in 2022 to 53.6 million in 2023; average annual loans per user rose from 5.7 to 6.3; and annual BNPL dollars per user rose from \$745 to \$848, adjusted for inflation. The agency cautions that these user totals can overstate unique people because users may borrow from multiple firms.

3.2 Experimental evidence identifies mechanisms more directly

Jose, Kelly, King and McCarthy (2026) provide especially relevant evidence because their nationally representative Irish experiment distinguishes BNPL use from mere availability. Participants spent 4.39% more when using BNPL than when using debit cards. Prior BNPL users were 22.2% more likely to make a subsequent discretionary purchase, and merely expecting future BNPL access increased current debit spending by 3.1%. The authors interpret these patterns through mental accounting and perceptions of available funds.

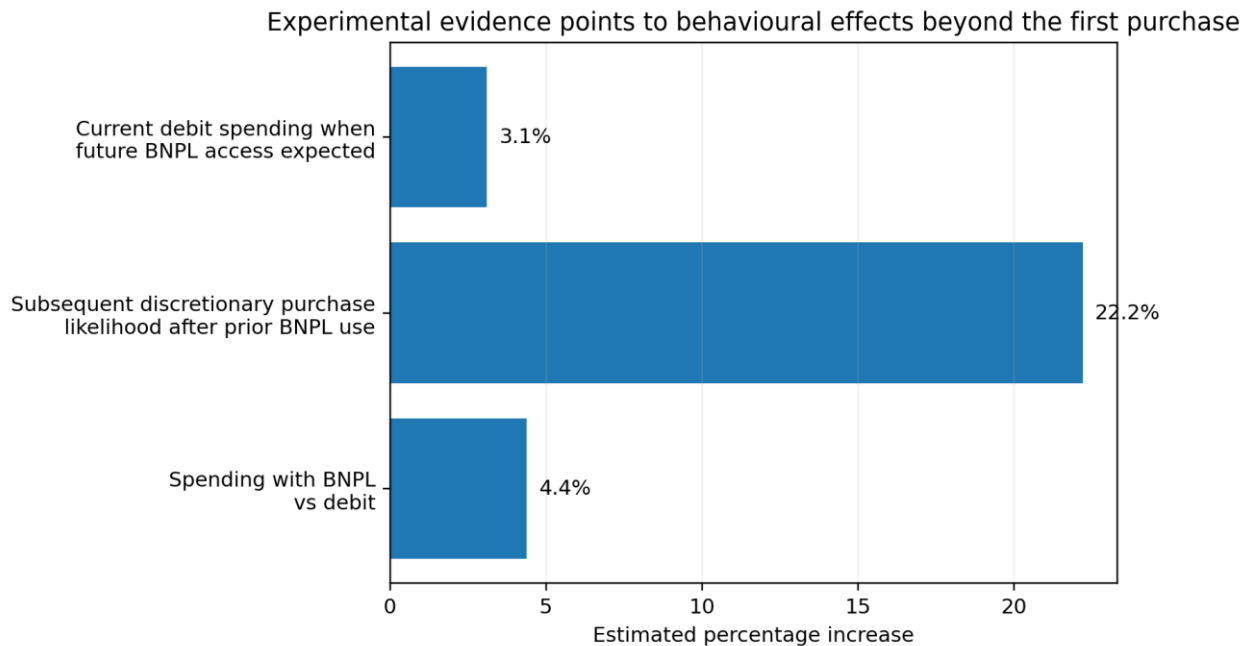


Figure 3. Experimental estimates reported by Jose et al.

Source: Jose, Kelly, King & McCarthy, Central Bank of Ireland Research Paper Series No. 15 (2026).

The significance for this study is conceptual: the effect can extend beyond the financed transaction itself. That makes a psychological construct such as impulsive buying worth testing, while still avoiding the claim that BNPL causes impulsivity for every user.

Ashby et al. (2025) provide a complementary mechanism. In an experiment comparing BNPL with credit cards, 53.8% of participants using BNPL selected the more expensive option versus 36.9% using credit cards. BNPL also reduced the perceived expensiveness gap between alternatives. This supports the possibility that installment presentation changes which part of a price becomes psychologically salient.

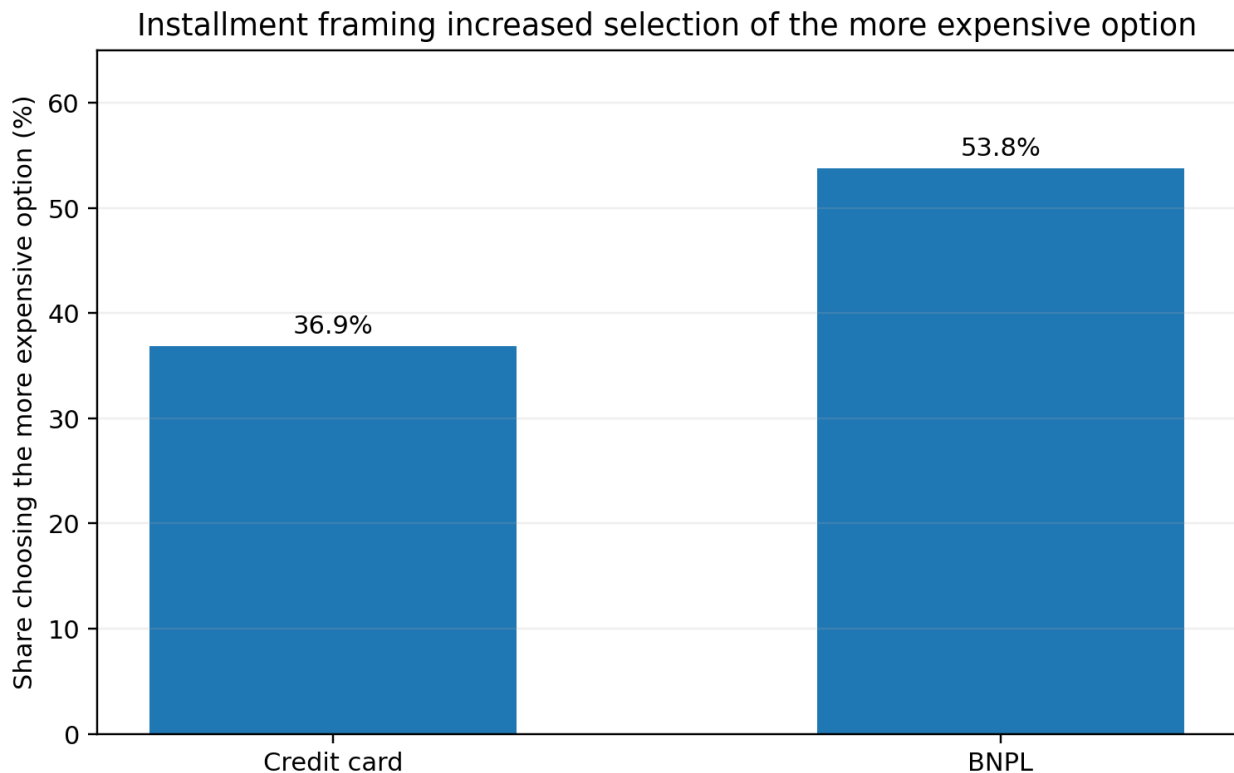


Figure 4. Selection of the more expensive option under BNPL versus credit-card payment.

Source: Ashby et al., *Journal of Retailing* (2025).

3.3 Gen-Z evidence is directly relevant, but still geographically bounded

Izham et al. (2025) study Generation Z consumers in Shah Alam, Malaysia using a structured survey with 350 complete responses. Their reported regression results show positive coefficients for ease of use (beta = .286), deferred payment structure (beta = .338) and perceived affordability (beta = .304), with p-values reported as below .001. The authors conclude that these BNPL-related factors are associated with impulsive buying in their sample. The result is useful as a close population precedent, but it should not be generalized automatically to all 18-24-year-olds, and its cross-sectional survey design cannot provide the same causal identification as an experiment.

Susanto, Apriza and Muthiarsih (2024) similarly examine Gen-Z Shopee users in Indonesia using a 100-person questionnaire study. The paper provides another methodological precedent for measuring BNPL, hedonic motivation and impulse buying together, but the much smaller and platform-specific sample reinforces the need for a larger, more explicitly targeted design in the present study.

3.4 The market context is expanding faster than the behavioural evidence base

Worldpay's 2026 analysis estimates global BNPL e-commerce value at roughly \$300 billion in 2025 and forecasts \$500 billion by 2030. The same source reports that BNPL accounted for 6% of U.S. e-commerce value in 2025. The implication is not that market growth proves behavioural harm; rather, it increases the policy and consumer relevance of understanding when payment design interacts with purchase behaviour.

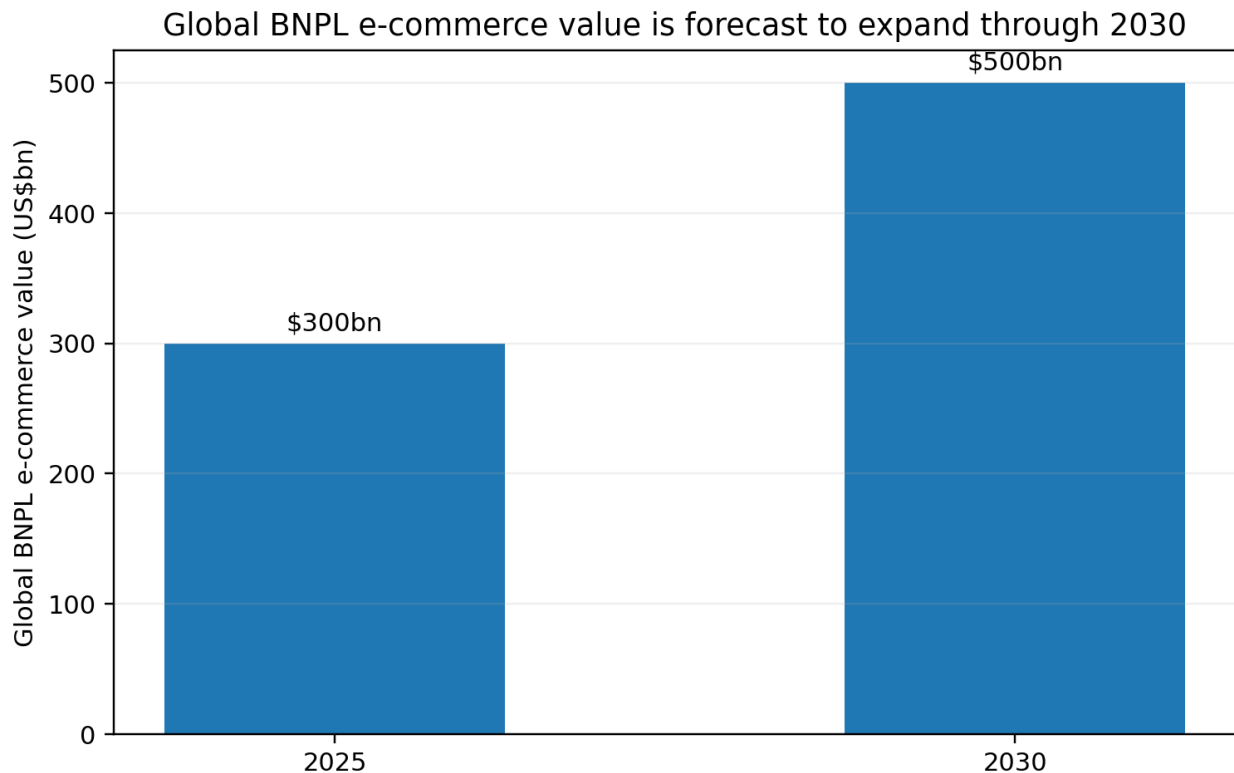


Figure 5. Worldpay forecast for global BNPL e-commerce value.

Source: Worldpay, Global Payments Report 2026 / “GPR 2026 Trend 4: BNPL grows up”.

The proposed study also addresses a measurement gap. It does not use BNPL spending itself as the proxy for impulsivity, nor does it equate BNPL availability, adoption intention and actual usage. Usage is measured as behavioural engagement. Impulsive buying is measured separately. Perceived affordability is treated as a mechanism rather than simply another independent variable. Financial self-control is treated as a possible boundary condition. Financial literacy is measured separately from self-control. This architecture makes the final statistical interpretation considerably more precise than a simple comparison of users and non-users.

The strongest unresolved question is no longer whether BNPL can change spending. Multiple transaction-level and experimental studies answer that question. The more precise gap is whether repeated or more intensive BNPL usage is associated with a distinct psychological-behavioural construct - impulsive buying - within a narrow 18–24 Gen Z population, and whether this relationship varies according to perceived affordability and financial self-control. This gap is conceptually important because it separates monetary volume from behavioural tendency.

Taken together, the evidence supports a conditional model of BNPL behaviour. The payment mechanism can relax an immediate liquidity constraint, delay the psychological pain of payment, and transform a total price into a series of smaller installments. These features can increase perceived affordability and make an already activated consumption impulse easier to execute. At the same time, BNPL can provide genuine financing value and may be rational for consumers with predictable future resources. The behavioural outcome is therefore likely to depend on both the payment environment and the characteristics of the consumer.

3.5 Present bias, deferred payment and the separation of consumption from payment

The following additional evidence displays are included to make the literature review more data-driven while keeping the distinction between the external literature and the present study explicit.

Study design /	Sample or setting	Exposure mechanism /	Outcome	Key reported result	Interpretive boundary
Kumar et al. (2024)	Real e-commerce transaction data	BNPL adoption	Online order size	6.42% increase in online spending after adoption	Order size is not a direct measure of impulsive buying
Berg et al. (2024)	German e-commerce merchant; RCT + observational data	BNPL availability	Sales / conversion	Sales increase of about 20%; stronger among lower-creditworthiness customers	Merchant sales outcome; not a psychological impulse score
Jose et al. (2026)	~3,000 Irish consumers; randomized shopping experiment	BNPL use / future availability	Spending and subsequent discretionary purchase	4.39% higher spending; 22.2% greater later discretionary-purchase likelihood; 3.1% higher current debit spending when future BNPL access is expected	Strong mechanism evidence; broader adult sample than present study
Ashby et al. (2025)	Transaction data + five experiments	Installment presentation / numerosity	Spending and premium-option choice	53.8% vs 36.9% chose more expensive option under BNPL vs credit card	Mechanism-focused; not a Gen-Z-only sample
Burg & Keil (2026)	German online-shop RCT	Randomized BNPL availability + impulse proxies	Purchase completion / repayment outcomes	At least 17% greater purchase likelihood for impulse-proxy visits; higher	Behavioural proxies rather than self-report impulse scale

Study design	Sample setting	Exposure mechanism	Outcome	Key reported result	Interpretive boundary
				defaults and late charges	
Izham et al. (2025)	350 Gen-Z respondents, Shah Alam	Ease, deferred payment, affordability	Impulsive buying	Positive correlations and significant regression coefficients across all three predictors	Geographically bounded, cross-sectional, self-report
Susanto et al. (2024)	100 Gen-Z Shopee users, Indonesia	BNPL + hedonic motivation	Impulse buying	BNPL path $\beta=0.252$, $p=0.004$; model $R^2=0.684$	Small sample; different construct architecture

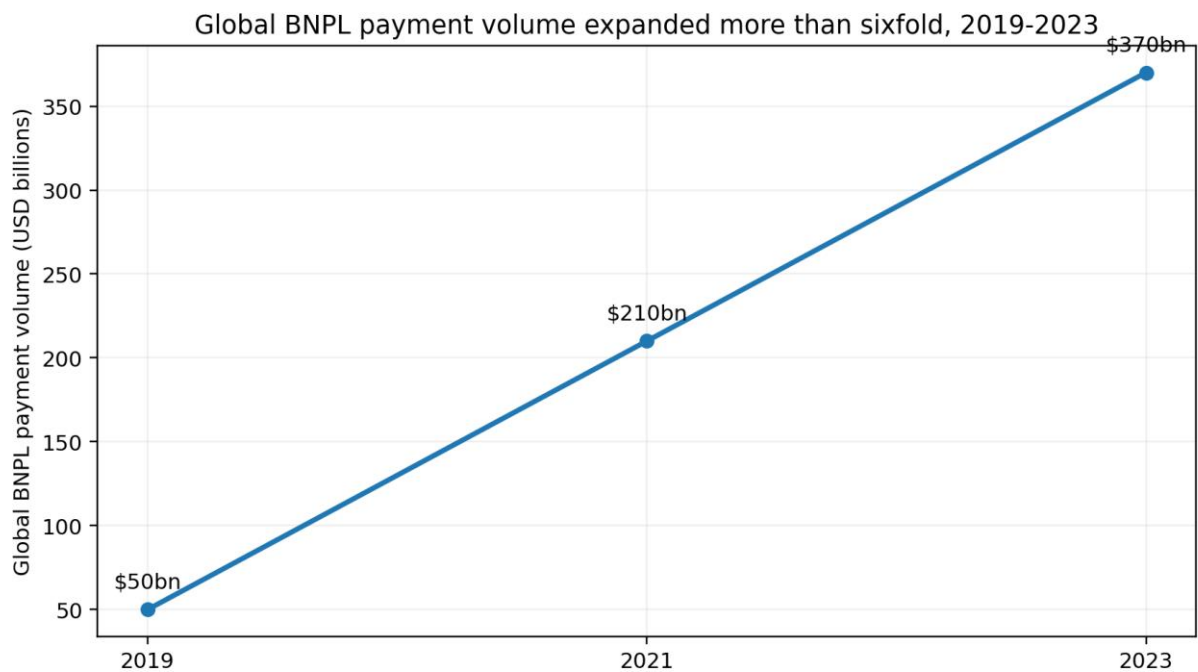


Figure 7. Global BNPL payment volume increased from approximately \$50 billion in 2019 to \$370 billion in 2023.

Source: Berg, Burg, Keil & Puri (2024), citing global market data.

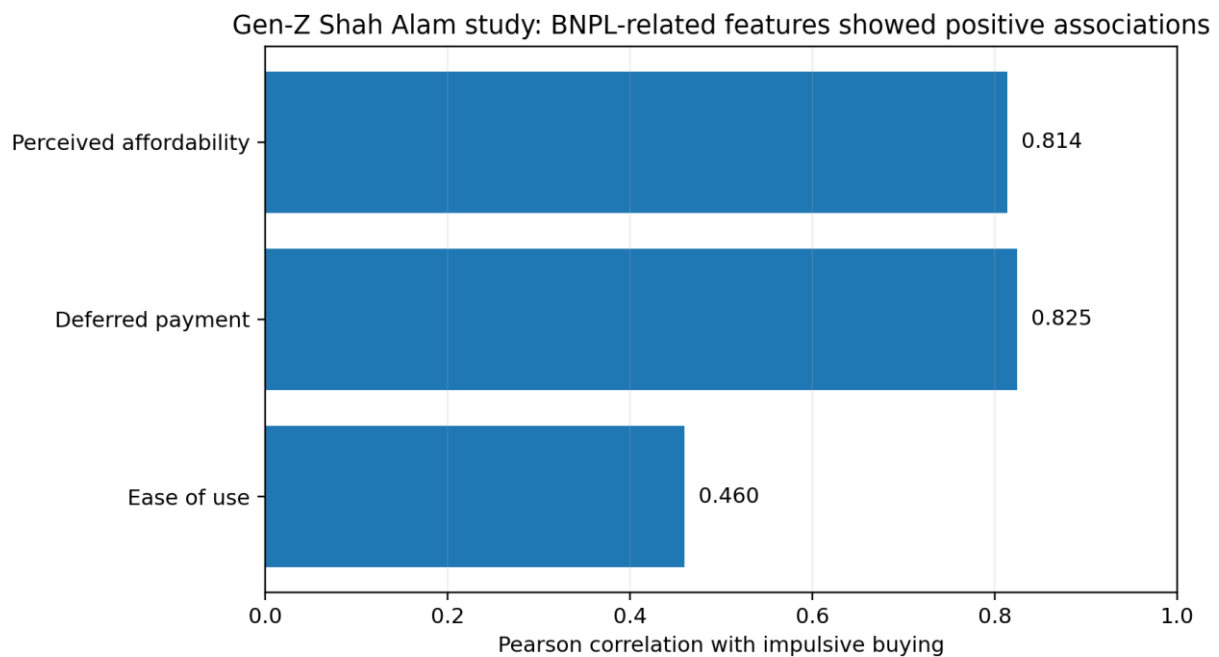


Figure 8. Reported Pearson correlations between BNPL-related features and impulsive buying in the Shah Alam Gen-Z study.

Source: Izham et al. (2025); correlations are study-specific and should not be treated as estimates for the present sample.

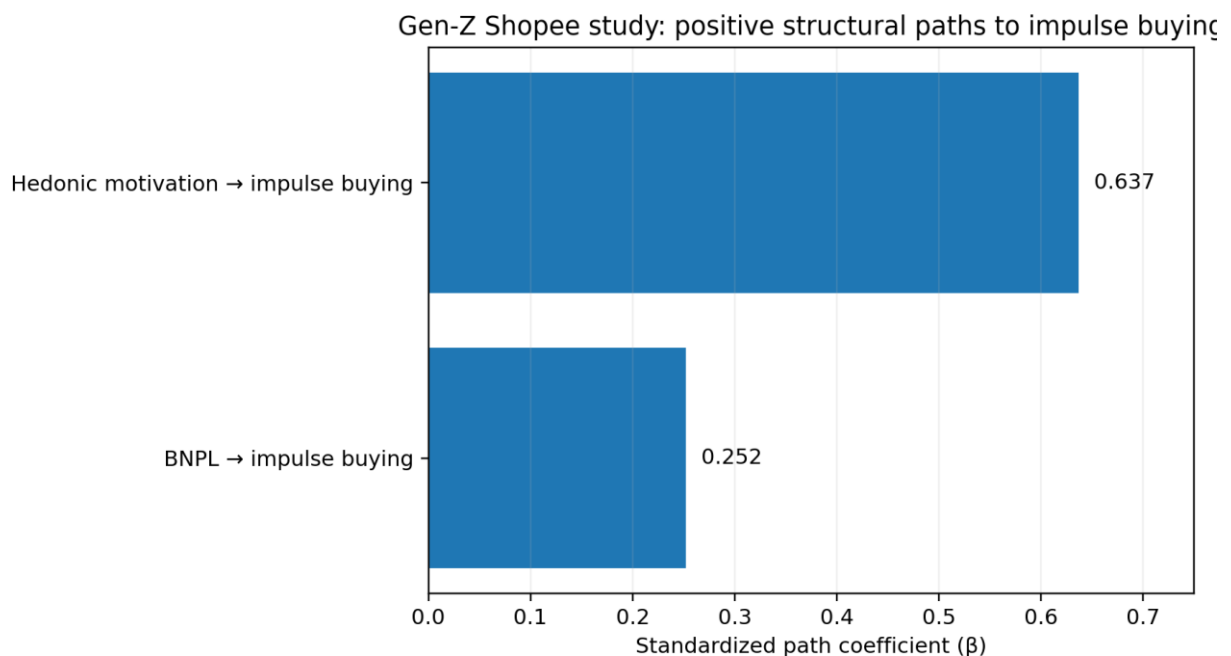


Figure 9. Reported structural path coefficients in the Gen-Z Shopee study.

Source: Susanto, Apriza & Muthiarsih (2024).

3.6 Mental accounting and the perception of remaining budget

The same mechanism can have a rational interpretation. BNPL may provide consumption smoothing when income is temporarily illiquid but expected future resources are sufficient to cover the installments. In that case the consumer is not necessarily overvaluing the present; the consumer may simply be allocating a predictable future cash flow across time. The behavioral question therefore becomes conditional: when does deferred payment function as useful liquidity management, and when does it weaken a financial constraint that would otherwise prevent an unplanned purchase? This conditional framing is carried throughout the empirical model.

This distinction is important for the present study because impulsive buying is defined more narrowly than higher spending. A consumer who knowingly finances a planned laptop purchase through four installments is not necessarily behaving impulsively. An impulsive purchase is characterized by relative spontaneity, limited pre-planning and a strong immediate urge. Consequently, the theoretical role of present bias is best treated as a mechanism that may increase the probability that an existing purchase urge is acted upon, not as a deterministic cause of impulsivity.

Kumar, Salo and Bezawada (2024) explicitly integrate present bias into their explanation of BNPL adoption and purchasing behaviour. The relevance of this framework is not that BNPL automatically makes a consumer irrational, but that it changes the decision environment in which short-term preferences operate. A consumer can understand that future installments are real obligations and still place disproportionately high weight on the immediate utility of obtaining the product. Burg and Keil (2026) provide a related interpretation through a dual-self framework: a planning self may impose financial rules in advance, while a short-run self responds to the current consumption opportunity. When BNPL appears at checkout, the immediate liquidity constraint can be weakened precisely when the short-run preference is strongest.

The temporal structure of BNPL matters because consumption and payment no longer occur as a single event. A conventional immediate-payment transaction makes the economic cost of a purchase salient at the moment the consumer receives the product. BNPL instead allows the benefit of consumption to be realized immediately while at least part of the payment obligation is transferred to later periods. The distinction is central to behavioral economics because the weight consumers place on immediate and delayed consequences is not necessarily symmetric. The literature reviewed in the original study correctly identifies present bias and hyperbolic discounting as mechanisms that can make an immediately available product psychologically more attractive than a future financial obligation.

3.7 Price focalism, numerosity and installment presentation

This mechanism motivates perceived affordability as a mediator in the present study. If higher BNPL usage is associated with a stronger perception that purchases are manageable, and that perception is in turn associated with greater impulsive buying, then affordability can provide an explanatory bridge between the payment mechanism and the behavioural outcome. The analysis will test this pathway without assuming that mediation has already been established for 18–24-year-old Gen Z consumers.

The distinction between objective affordability and perceived affordability is therefore fundamental. Objective affordability asks whether a consumer has sufficient resources, including expected future income, to service the full obligation. Perceived affordability asks whether the purchase feels manageable at the moment of decision. Those concepts can diverge. An installment of ₹1,000 may feel

compatible with a monthly discretionary budget even when the total liability is ₹4,000. The consumer need not misunderstand arithmetic for the psychological benchmark to shift.

The Central Bank of Ireland experiment by Jose, Kelly, King and McCarthy provides particularly strong evidence for this mechanism. Using a nationally representative sample of approximately 3,000 Irish consumers, the authors created a multi-round shopping environment with a €1,000 budget. Participants using BNPL spent 4.39% more than participants using debit cards. More importantly, participants who used BNPL in earlier shopping rounds were 22.2% more likely to buy a later discretionary product even when later payment conditions were standardized. The paper interprets this pattern as evidence that consumers can mentally incorporate the deferred payment structure into their perception of how much money remains available.

Mental accounting provides a second mechanism that is especially relevant to the transition from one BNPL purchase to subsequent consumption. Consumers do not evaluate all financial resources only through formal accounting rules. They often construct psychologically meaningful spending budgets and monitor the depletion of those budgets. BNPL can alter the timing and salience of the depletion. The total economic liability remains unchanged, but the immediately visible reduction in available resources may be smaller than it would be under a debit or cash payment.

3.8 Financial self-control as a boundary condition

For the present research, price focalism also helps explain why “can I afford this installment?” is not equivalent to “can I comfortably afford the full obligation?” A questionnaire that measures only usage frequency would miss this cognitive layer. The inclusion of perceived affordability, and the conceptual distinction between affordability and total cost, therefore improves the explanatory precision of the study.

These results extend the present-bias argument. Present bias concerns the timing of rewards and costs; numerosity concerns the representation of the cost itself. A consumer may place greater weight on the present while simultaneously evaluating the purchase against the smaller installment amount. The mechanisms can therefore reinforce each other. Payment deferral makes the financial consequence less immediate, while installment framing can make the amount currently visible appear smaller.

The experimental evidence is unusually useful because the authors do not rely solely on self-report attitudes. Across transaction data and five controlled experiments, they show higher spending under BNPL than under other payment modes and demonstrate that installment presentation can reduce perceived expensiveness. In one experiment, 53.8% of participants using BNPL chose the more expensive option compared with 36.9% using credit cards. The effect was statistically significant. Other experiments show that the number of installments, the size of the first installment and whether the installment price is explicitly displayed moderate the spending response.

Ashby, Sharifi, Yao and Ang (2025) strengthen the theoretical explanation by showing that BNPL can influence spending through the numerical presentation of the payment itself. Price focalism refers to the tendency to attend to one component of a multi-part price rather than to the total obligation. BNPL commonly transforms a single total price into several smaller installment amounts. The total economic cost remains the same, but the smaller number can become the psychologically salient benchmark.

3.9 Rational liquidity management versus behavioural distortion

The proposed moderation hypothesis is stronger than a simple correlation between self-control and impulsive buying because it tests whether the payment mechanism and the consumer characteristic interact. The expected pattern is not that BNPL is associated with impulsive buying for everyone, but that the association is steeper among consumers with weaker self-control and flatter among consumers with stronger self-control. This is a direct empirical test of heterogeneity.

Jose et al. also identify self-control as relevant to BNPL behaviour. Their findings indicate that people with stronger financial self-control are less likely to engage with BNPL. This does not prove a causal path from self-control to usage, but it supports the proposition that individual regulation capacity is relevant to how consumers interact with deferred payment. The present study extends this idea by asking whether financial self-control weakens the BNPL-impulsive-buying association among Gen Z consumers.

Burg and Keil (2026) make this logic explicit in their dual-self framework. They construct multiple behavioural proxies for shopping visits that are more likely to involve impulse activity, including product-ad exposure and product-category conditions. In their randomized setting, BNPL availability increases purchase completion among customers associated with greater impulsive propensity, while non-impulsive visits show little response. The same groups also display higher default and late-payment outcomes. The evidence does not establish that all BNPL users are impulsive; it demonstrates heterogeneity in the response to BNPL availability.

Self-control is not treated in this research as simply another demographic control. It is a theoretically meaningful boundary condition. The core idea is that consumers differ in the strength of the mechanisms they use to regulate immediate consumption. If immediate payment acts as a natural spending constraint, BNPL can partially remove that constraint. A consumer with strong financial self-control may compensate by mentally accounting for future installments or by delaying the purchase. A consumer with weaker self-control may be more likely to act immediately once the payment barrier is lowered.

3.10 Hedonic consumption, purchase cues and online retail context

The present study therefore avoids normative language in the hypotheses. A positive relationship between BNPL usage and impulsive buying would support an association between usage intensity and a behavioural tendency; it would not prove that every use is harmful or irrational. Conversely, a null relationship would be informative because it would suggest that the spending increases found in transaction studies do not necessarily translate into a generalized impulsive-buying tendency within the specific Gen Z population studied.

Burg and Keil provide another part of this balance. Their randomized experiment finds weaker and less robust evidence for some rational responses to changes in maturity and interest charges than for the impulse-related response. The implication is not that rational behaviour is absent, but that the behavioural vulnerability of some consumers can be an independent channel. This makes consumer heterogeneity central to understanding the welfare implications of BNPL rather than an afterthought.

This finding matters for behavioural interpretation. A consumer who uses BNPL because current liquidity is constrained may be using the product for a rational financing purpose. The existence of higher spending does not reveal whether the additional spending is desirable, unnecessary or impulsive.

Likewise, a higher conversion rate can arise because consumers who could not or did not want to pay immediately are able to smooth payment over time. The same financing mechanism can therefore have both welfare-improving and welfare-reducing applications.

A central strength of the recent BNPL literature is that it resists a simplistic “BNPL is harmful” interpretation. Berg, Burg, Keil and Puri (2024) show that BNPL can create real economic value for merchants and consumers because it bundles a purchase with subsidized short-term financing. Their German e-commerce evidence shows that making BNPL available increased sales by about 20%, with particularly strong responses among lower-creditworthiness customers. From the merchant perspective, BNPL can function as a form of price discrimination and can expand the set of consumers who complete a purchase.

3.11 Generation Z as a heterogeneous research population

Product category should therefore be recorded in the questionnaire even if it is not a primary causal variable. A clothing purchase, a replacement appliance, and a planned laptop purchase are not behaviourally equivalent simply because all are financed through BNPL. Recording the category permits subgroup analysis and helps avoid the analytical error of treating every financed transaction as an impulse purchase.

The Gen Z literature reinforces the relevance of hedonic consumption while also warning against overgeneralization. Susanto, Apriza and Muthiarsih (2024) examine Gen Z Shopee users and report positive relationships between BNPL use, hedonic shopping motivation and impulse buying. Their PLS-SEM model reports an R^2 of 0.684 for impulse buying, a BNPL-to-impulse path coefficient of 0.252 ($p = 0.004$), and a hedonic-motivation path coefficient of 0.637. These results are informative as a contextual benchmark, but they come from a 100-person Indonesian sample and use a different model from the present research.

Burg and Keil distinguish between shopping contexts that are more likely to involve impulse triggers and contexts where search efficiency is the dominant objective. Their seven impulsiveness proxies include advertising exposure, product characteristics and browsing patterns. The consistency across proxies strengthens the interpretation that BNPL can amplify an already activated purchase impulse rather than simply creating demand independently of context. This is especially relevant for hedonic categories where immediate emotional reward is part of the product appeal.

Impulse buying is also shaped by the environment in which a purchase occurs. Digital retail reduces procedural friction between product discovery, evaluation and payment. Consumers can encounter a product, see a limited-time promotion, select a payment method and complete the purchase within seconds. BNPL is unusually well suited to this environment because financing is placed directly inside the checkout experience rather than requiring a separate credit application.

3.12 Financial literacy versus financial self-control

The population choice also has a legal and analytical rationale. Restricting the empirical sample to adults reduces problems associated with minors and parental financial oversight. It also creates a more coherent developmental group in which respondents are beginning to manage independent spending decisions. The trade-off is narrower generalizability. That trade-off is accepted because the core research question

concerns the relationship within a defined young-adult population rather than the behaviour of the entire Gen Z cohort.

The direct Gen Z literature is useful but geographically bounded. Izham et al. (2025) study 350 Generation Z respondents in Shah Alam, Malaysia and report significant relationships between ease of use, deferred payment structure, perceived affordability and impulsive buying. Their reported correlation coefficients are approximately 0.46 for ease of use, 0.825 for deferred payment and 0.814 for affordability; their regression model reports an adjusted R^2 of approximately 0.754, with standardized coefficients of 0.286, 0.338 and 0.304 respectively. These results provide a strong empirical benchmark, but the sample is local, self-reported and cross-sectional, so the findings should not be generalized automatically to Indian or global Gen Z consumers.

Kumar et al. report that the spending response to BNPL is stronger among younger and lower-income consumers. Their transaction evidence therefore supports attention to young consumers but does not establish that they are more impulsive. Younger consumers can respond more strongly because they have lower liquid resources, less established access to traditional credit or greater exposure to digital commerce. The present study consequently examines variation within the Gen Z segment rather than comparing Gen Z against older generations.

The focus on consumers aged 18–24 is justified by the intersection of digital commerce exposure, early-stage financial independence and increasing access to embedded consumer credit. The original paper used a broader conceptual definition of Gen Z in the literature review, but the empirical design deliberately narrows the analysis to 18–24. This is an important methodological decision because people aged 18 and 28 can differ substantially in income, employment, financial autonomy, credit history and living arrangements.

3.13 Methodological divergence in the literature

This separation improves interpretation of the main relationship. Suppose two respondents use BNPL equally often, but one has high financial literacy and strong self-control while the other has low literacy and weak self-control. Their behavioural response to the payment mechanism may differ even when their observed usage frequency is the same. Controlling for, and where appropriate testing the interaction with, these individual characteristics is therefore preferable to treating BNPL usage as an isolated determinant.

The distinction becomes important for measurement. The present study should not use self-rated financial knowledge as a substitute for objective literacy. A defensible design separates a small objective knowledge test from confidence in one's own knowledge. The original research design appropriately flags overconfidence as a separate behavioural issue. The Central Bank of Ireland evidence also indicates that financial sophistication and self-regulation are relevant to BNPL behaviour, supporting the decision to keep the constructs analytically separate.

Financial literacy and financial self-control are related but conceptually distinct. Financial literacy concerns knowledge: understanding interest, installment obligations, budgeting and the cumulative cost of credit. Financial self-control concerns regulation: the ability to resist immediate consumption when that consumption conflicts with longer-term goals. A consumer can know exactly how BNPL works and

still make impulsive purchases. Conversely, a consumer with modest financial knowledge may avoid BNPL because of strong personal spending rules.

3.14 Integrated literature synthesis and refined research gap

The literature also reveals a recurring tension between external and internal validity. Real transaction data provide behavioural realism but often omit psychological constructs. Laboratory or online experiments provide stronger causal identification but simplify the shopping environment. Surveys make it possible to capture perceptions and individual differences but introduce recall and common-method problems. A cross-sectional survey cannot resolve causality, but it can answer a narrower and still valuable question: whether variation in actual BNPL use is statistically associated with variation in impulsive buying within a defined Gen Z sample after accounting for key individual characteristics.

The same principle applies to impulsive buying. Burg and Keil operationalize impulsiveness through behavioural proxies; Izham et al. use self-report scale scores; Susanto et al. use a latent SEM construct. None of these measures should be treated as identical. The present study therefore positions itself between behavioural realism and psychological measurement: it uses observed self-reported BNPL engagement as the independent variable while measuring impulsive buying, perceived affordability and self-control through multi-item constructs.

These designs are complementary rather than interchangeable. A 20% sales increase, a 6.42% change in order size, a 4.39% spending difference, a 22.2% increase in the probability of a later discretionary purchase and a 53.8% versus 36.9% choice rate are not competing estimates of one universal “BNPL effect.” They measure different dependent variables, in different populations, under different institutional environments. Comparing them without regard to design would create false precision.

The current evidence base is methodologically diverse. Transaction-level studies such as Kumar et al. use observed purchasing behaviour and quasi-experimental identification. Merchant-level studies such as Berg et al. study sales conversion and revenue. Experiments such as Jose et al. and Ashby et al. manipulate payment conditions to isolate behavioural mechanisms. Burg and Keil use randomized BNPL availability in a real online-shop environment and construct behavioural proxies for impulsive visits. Gen Z studies such as Izham et al. and Susanto et al. use questionnaire data and self-reported constructs.

4. Theoretical Framework

The framework is built around four complementary mechanisms rather than one claim that “BNPL causes impulse buying.”

Mechanism	Core idea	Predicted relevance
Present bias	Immediate consumption benefits can receive more psychological weight than future payment costs.	May increase responsiveness to immediate purchase opportunities.
Mental accounting	Consumers organize resources into psychological budgets; deferred payment may make	May increase perceived remaining financial capacity.

Mechanism	Core idea	Predicted relevance
	current depletion look smaller.	
Price focalism / numerosity	Installment amounts are numerically smaller than total purchase prices and may become the salient benchmark.	May reduce perceived expensiveness at checkout.
Self-control	Consumers differ in their ability to resist immediate gratification and enforce spending rules.	May weaken or strengthen the BNPL-impulsivity association.

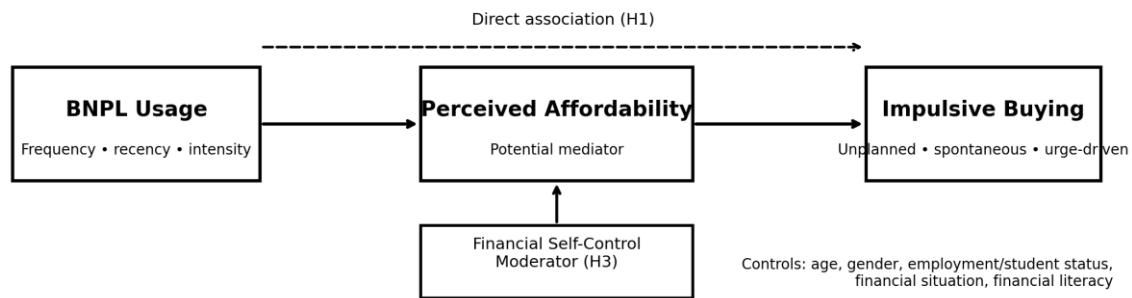


Figure 6. Proposed conceptual model.

Source: Author synthesis based on Kumar et al. (2024), Ashby et al. (2025), Jose et al. (2026), Burg & Keil, and Gen-Z survey evidence.

The model is intentionally asymmetric. BNPL is an observed behavioural exposure; perceived affordability is a psychological mediator; impulsive buying is the behavioural outcome; and self-control is a moderator. This structure reflects the literature more faithfully than treating all variables as interchangeable predictors in a single regression equation.

The integrated model can therefore be represented as: BNPL usage → perceived affordability → impulsive buying, with a direct BNPL → impulsive buying path and financial self-control moderating the direct association. Demographic and financial variables provide controls for competing explanations such as age within the 18–24 range, income or financial status, employment/student status and gender. Financial literacy is included as a separate explanatory variable because it may be associated with BNPL use independently of self-control.

4.1 Why one theory is insufficient

Mechanism	What changes under BNPL	Psychological consequence	Expected link to impulse buying	Main supporting evidence
Present bias	Benefit now; payments later	Immediate gratification receives greater relative weight	Higher willingness to execute immediate purchases	Kumar et al. (2024); Burg & Keil (2026)
Mental accounting	Current budget depletion appears smaller	Perceived remaining resources may be inflated	Lower financial barrier to later discretionary purchases	Jose et al. (2026)
Price focalism / numerosity	Total price displayed as smaller installments	Installment becomes salient; purchase seems less expensive	Higher spending / selection of premium options	Ashby et al. (2025)
Self-control	Immediate liquidity constraint is relaxed	Less effective spending restraint for some consumers	Stronger BNPL-impulse association among lower self-control consumers	Burg & Keil (2026); Jose et al. (2026)
Digital convenience	Credit appears inside checkout	Less procedural friction between urge and purchase	Faster realization of spontaneous purchase intentions	Burg & Keil (2026); Izham et al. (2025)

4.2 Present-bias pathway

The integrated framework begins with BNPL usage as the primary exposure. Usage changes the timing and presentation of the payment obligation. That change can affect perceived affordability and the salience of the total financial commitment. Perceived affordability can then alter the threshold for completing a spontaneous purchase. Financial self-control is positioned as a boundary condition because the same payment environment may be interpreted or acted upon differently by consumers with different regulatory capacity.

No single theoretical perspective adequately captures the BNPL-impulsive-buying question. Present bias explains why immediate benefits can receive disproportionate weight. Mental accounting explains how consumers may organize current and future financial resources. Price focalism explains how installment numerosity can influence the representation of cost. Self-control theory explains why consumers differ in their ability to resist immediate gratification. A useful framework therefore combines these mechanisms rather than choosing one in isolation.

4.3 Mental-accounting pathway

Present bias also explains why the first installment can become disproportionately important. The first payment is temporally closer than later installments. When combined with an explicit installment display, it can become the most accessible representation of cost. This provides a bridge between temporal discounting and price focalism.

The present-bias pathway can be stated as a sequence: immediate access to the product -> immediate consumption benefit -> delayed financial cost -> lower relative weight placed on the future cost -> greater willingness to complete an immediate purchase. This sequence should be understood as a behavioural mechanism rather than a deterministic chain. A consumer can experience the first three stages and still make a deliberate decision not to buy.

4.4 Price-focalism pathway

The mental-accounting pathway begins when a purchase is evaluated against a perceived spending budget. Immediate payment depletes that budget visibly. BNPL, by moving part of the liability into later periods, can make current depletion appear smaller. The consumer may then perceive more discretionary capacity for a later purchase even though total resources have not increased. The Jose et al. experiment is particularly informative because the subsequent-purchase effect appears after the initial BNPL transaction, which is difficult to explain using only a one-transaction liquidity story.

4.5 Self-control as a moderator

Price focalism provides an independent but reinforcing mechanism. A total price of ₹4,000 and an installment price of ₹1,000 are mathematically equivalent representations of the same obligation when multiplied by four, but they are not psychologically identical. The lower-numerosity value can become the focal point. Ashby et al. show that this presentation effect can reduce perceived expensiveness and increase selection of more expensive alternatives. In the present model, perceived affordability partly captures this subjective assessment.

4.6 Financial literacy as a distinct individual characteristic

The moderation logic follows from the observation that immediate liquidity constraints can act as a self-control device. When that constraint is relaxed, consumers with stronger self-control may substitute another control mechanism, such as delaying the purchase or explicitly accounting for future installments. Consumers with weaker self-control may be less likely to impose such a corrective. The interaction term BNPL usage x financial self-control therefore tests whether the slope of the BNPL-impulsive-buying relationship changes across levels of self-regulatory capacity.

4.7 Conditional conceptual model

Financial literacy is included because knowledge can affect how consumers evaluate the total repayment burden. It is not modelled as a proxy for self-control. A person may correctly calculate the total cost of a four-installment purchase and still choose it for a discretionary item. Separating knowledge from regulation allows the empirical analysis to identify whether apparent behavioural differences are associated with what consumers know, how they behave, or both.

5. Hypotheses and Analytical Model

Hypothesis	Proposition	Test
H1	BNPL usage is positively associated with impulsive buying behaviour among Gen Z consumers aged 18-24.	Multiple regression coefficient for BNPL usage.
H2	Financial self-control is negatively associated with impulsive buying behaviour.	Regression coefficient for self-control.
H3	Financial self-control negatively moderates the BNPL usage $\rightarrow$ impulsive buying association.	BNPL x self-control interaction + simple slopes.
H4	Perceived affordability mediates the BNPL usage $\rightarrow$ impulsive buying association.	Indirect effect with bootstrap confidence interval.
H5	Higher financial literacy is associated with lower BNPL usage.	Regression of BNPL usage on financial literacy.

Important wording choice: the hypotheses use “associated with”, not “causes”. The proposed study is cross-sectional and therefore does not provide causal identification by itself.

5.1 H1: BNPL usage and impulsive buying

Hypothesis	Structural relation	Expected direction	Primary test	Decision quantity
H1	BNPL usage $\rightarrow$ Impulsive buying	Positive	Multiple regression	$\beta_1 > 0$
H2	Financial self-control $\rightarrow$ Impulsive buying	Negative	Multiple regression	$\beta_2 < 0$
H3	BNPL usage x self-control $\rightarrow$ Impulsive buying	Negative interaction	Moderation	$\beta_3 < 0$
H4	BNPL usage $\rightarrow$ Perceived affordability $\rightarrow$ Impulsive buying	Positive indirect path	Mediation / bootstrap CI	$ab > 0$
H5	Financial literacy $\rightarrow$ BNPL usage	Negative	Regression / correlation	$\beta_5 < 0$

5.2 H2: Financial self-control and impulsive buying

The hypothesis is supported conceptually by the convergence of transaction-level and experimental evidence. Kumar et al. show that BNPL adoption increases order size; Jose et al. show greater spending and later discretionary purchasing among actual BNPL users; Ashby et al. identify a mechanism through

installment presentation; and Burg and Keil show stronger responses to BNPL availability among visits associated with impulse propensity. The present study extends these findings by measuring impulsive buying directly in a Gen Z population.

H1 is the central proposition: higher BNPL usage is positively associated with impulsive buying behaviour among Gen Z consumers aged 18-24. The wording is deliberately associational. A cross-sectional survey can establish whether variables covary after adjustment for controls, but it cannot determine whether BNPL use precedes impulsive buying or whether consumers with stronger pre-existing impulse tendencies select BNPL more often.

5.3 H3: Financial self-control as a moderator

H2 predicts a negative association between financial self-control and impulsive buying. The logic is straightforward: a consumer who is better able to regulate immediate spending should, on average, be less likely to report spontaneous and unplanned purchasing. This relationship is independently relevant even before introducing BNPL. It also provides the foundation for the moderation hypothesis.

5.4 H4: Perceived affordability as a mediator

H3 predicts that financial self-control negatively moderates the BNPL usage → impulsive buying association. In practical terms, the expected interaction means that the increase in impulsive-buying tendency associated with higher BNPL usage should be smaller for respondents with stronger self-control. The hypothesis is not a claim that self-control eliminates impulse buying; it is a claim about the slope of the association.

5.5 H5: Financial literacy and BNPL usage

H4 predicts that perceived affordability mediates the positive relationship between BNPL usage and impulsive buying. Mediation requires more than a simple correlation. The analysis must estimate whether BNPL usage predicts perceived affordability and whether perceived affordability predicts impulsive buying after accounting for BNPL usage and relevant controls. The indirect effect will be evaluated using bootstrap confidence intervals rather than relying only on stepwise significance tests.

5.6 Hypothesis-to-analysis matrix

H5 predicts that higher objective financial literacy is negatively associated with BNPL usage. This is treated more cautiously than H1-H4 because the evidence is less directly tied to the complete Gen Z behavioural model. The expected relationship is grounded in the idea that greater financial knowledge can increase attention to total repayment obligations, but the study explicitly distinguishes knowledge from self-control.

6. Methodology - Rebuilt and Streamlined

6.1 Research design

A deductive, quantitative, cross-sectional survey design is appropriate because the central constructs can be operationalized numerically and analyzed through multivariable statistical models. The design is aimed at testing an association model, not at establishing causal effects.

6.2 Target population and sampling

Element	Refurbished specification
Target population	Gen Z consumers aged 18-24.
Eligibility	18-24 years old with actual prior BNPL use for the main analysis.
Recruitment	Purposive online recruitment through universities, relevant online communities and networks; controlled snowball recruitment only as a supplement.
Target usable sample	Approximately 350 valid respondents.
Recruitment target	Approximately 400-450 completed responses to allow screening exclusions.
Generalizability	Limited by non-probability sampling; conclusions should be framed as sample associations, not population estimates.

The 350 target is a practical design choice rather than a magical statistical threshold. It is large enough to support a multivariable model with interaction and mediation terms more credibly than a 100-person convenience sample, while remaining feasible for an online student-led study.

6.3 Variables and operationalization

Construct	Primary measurement	Role
BNPL usage	Actual use frequency, recency, intensity, and context.	Primary predictor (X).
Impulsive buying behaviour	Validated multi-item measure of spontaneous, unplanned, urge-driven buying.	Primary outcome (Y).
Perceived affordability	Multi-item perception of whether BNPL-financed purchases feel financially manageable.	Mediator (M).
Financial self-control	Multi-item measure of ability to regulate immediate spending and resist gratification.	Moderator (W).
Financial literacy	Objective knowledge items, analysed separately from confidence/self-efficacy.	Control / secondary predictor.
Controls	Age, gender, student/employment status, income or discretionary budget, financial situation.	Covariates.

6.4 Questionnaire architecture

1. Screening: age, prior BNPL use, consent.
2. BNPL behaviour: frequency, recency, number of active plans, approximate share of purchases using BNPL, purchase categories.
3. Impulsive buying: validated multi-item scale.
4. Perceived affordability: perceived manageability and perceived expensiveness under installments.
5. Financial self-control: behavioural regulation items.
6. Financial literacy: short objective knowledge test plus separate confidence measure if retained.
7. Demographics and financial context.

6.5 Data quality and ethics

- Use informed consent, anonymous responses and voluntary participation.
- Pre-specify exclusion rules for ineligible age, no actual BNPL use, high missingness and clearly careless responses.
- Do not delete observations solely because they weaken statistical significance.
- Report total responses, exclusions and final valid sample separately.
- Treat self-report measures as subject to recall, social-desirability and common-method bias.

The empirical credibility of the study would improve if the hypotheses, primary variables, exclusion criteria and main statistical models were documented before examining the final results. At minimum, the researcher should preserve a dated analysis plan, a clean data dictionary and a record of all exclusions. Exploratory analyses may still be reported, but they should be labeled as exploratory rather than presented as pre-specified hypothesis tests.

6.6 Sampling logic and recruitment protocol

Construct	Role	Primary indicators	Scale type	Planned treatment
BNPL usage	Independent variable	Actual use, frequency, recency, active plans, purchase share	Behavioural / ordinal	Primary usage index + robustness variants
Impulsive buying	Dependent variable	Spontaneous urge, unplanned purchase, resistance difficulty, immediacy	Multi-item Likert	Composite score after reliability checks
Perceived affordability	Mediator	Manageability of installment, perceived expensiveness,	Multi-item Likert	Composite mediator score

Construct	Role	Primary indicators	Scale type	Planned treatment
		focus on installment		
Financial self-control	Moderator	Budget discipline, future consequences, restraint, delay of gratification	Multi-item Likert	Composite moderator score; mean-centered for interaction
Financial literacy	Covariate / H5	Objective financial knowledge + optional confidence	Objective items	Score as % correct; confidence kept separate
Income / financial status	Control	Self-reported financial situation	Ordinal	Dummy/ordinal coding as appropriate
Employment / student status	Control	Student, employed, other	Nominal	Indicator variables
Product category	Context / robustness	Fashion, electronics, food, travel, household, other	Nominal	Subgroup / robustness analysis

6.7 Sample-size reasoning

The study should distinguish three numbers in the final report: total responses received, eligible responses after screening, and the final analytical sample after data-quality exclusions. The planned recruitment target of roughly 400-450 responses is not itself a result. It is a buffer intended to produce approximately 300-400 usable observations after exclusions. The final paper must report the actual achieved sample rather than retaining the planned target as though it were observed.

The target population is Gen Z consumers aged 18-24 who have actual experience using BNPL. The original design proposes purposive recruitment supplemented by controlled snowball recruitment because there is no complete public sampling frame of BNPL users in this age bracket. Recruitment can occur through universities, student communities, online networks and relevant social-media channels, but every respondent must pass the same screening criteria.

6.8 Measurement design: BNPL usage

The appropriate justification, however, is not that 350 is a universal threshold. Final power analysis should be based on the chosen regression model, the number of predictors and a conservative assumed

effect size. The study should prioritize enough observations to detect modest effects and interactions, not simply enough observations to reproduce a large effect reported in another paper.

The study contains a direct effect, a moderation term and a mediation pathway. These features make a small sample less desirable than in a simple two-variable correlation study. A sample of approximately 350 valid respondents is a practical target because it provides greater stability for multiple predictors, allows interaction testing and reduces the risk that a null result is simply an artefact of low statistical power.

6.9 Measurement design: impulsive buying

A primary usage index may be formed only after examining the measurement properties and distribution of the behavioural indicators. Because frequency, recency and number of active plans are not necessarily interchangeable, the researcher should avoid automatically averaging them into a reflective Likert scale. A transparent primary measure can use a frequency/intensity coding while the remaining indicators are retained for robustness checks.

BNPL usage should be measured as behavioural engagement rather than attitude or intention. The proposed instrument therefore records whether the respondent has actually used BNPL, how recently they used it, how frequently they use it, how many active installment plans they have and, where feasible, the approximate share of purchases made through BNPL. Purchase category should be recorded to support subgroup analysis.

6.10 Measurement design: perceived affordability and price perception

The final instrument should state the source scale, adaptation decisions and response anchors. A pilot test should assess whether respondents interpret the items as intended. Because the construct is psychologically sensitive, the survey should emphasize that there are no right or wrong answers and that responses are anonymous. This reduces pressure to present oneself as financially disciplined.

Impulsive buying should be measured separately from spending. The instrument can use a validated multi-item scale covering spontaneous urges, unplanned purchase decisions, difficulty resisting purchase impulses and tendency to buy without extensive consideration. Items should be worded so that respondents evaluate their general behaviour rather than a single memorable transaction. Negatively keyed items, if used, should be reverse-coded consistently.

6.11 Measurement design: financial self-control

Perceived affordability should capture the respondent's subjective assessment of whether BNPL-financed purchases feel manageable. Example dimensions include whether installments make a purchase feel easier to afford, whether the consumer focuses on the installment rather than total cost, and whether BNPL makes a purchase appear financially within reach. The scale should avoid directly asking respondents whether BNPL 'causes' impulsive purchases; doing so would reveal the hypothesis and risk demand effects.

6.12 Measurement design: financial literacy

Financial self-control should capture behavioural regulation rather than financial knowledge. Items can address resisting unnecessary purchases, delaying gratification, sticking to a spending limit, considering future consequences and avoiding purchases that create repayment stress. Responses should be

aggregated only after internal-consistency checks. A single self-rated question is insufficient for the planned moderation analysis.

6.13 Questionnaire architecture

Objective financial literacy should be measured with a small set of knowledge questions involving interest, installment obligations, budgeting, inflation or compound-growth concepts where appropriate. Confidence can be collected separately if overconfidence is analytically useful. The distinction matters because self-perceived financial competence and objectively measured knowledge can diverge. The final analysis should avoid treating confidence as a direct substitute for knowledge.

6.14 Pilot testing and instrument refinement

The recommended questionnaire length is approximately 8-12 minutes. The aim is to measure the constructs adequately without creating fatigue that encourages straight-line responses. A pilot with a small group of eligible respondents should identify ambiguous wording, excessive item redundancy and any response categories that are rarely selected.

A defensible questionnaire should follow the sequence below. Screening comes first so that ineligible respondents do not complete the full instrument. Behavioural BNPL questions should precede abstract attitudinal questions to reduce framing effects. Impulsive-buying and self-control sections should be separated conceptually. Financial-literacy questions should be objective and should not be mixed with subjective financial-confidence items. Demographic and financial-context variables should appear at the end unless they are needed for eligibility.

6.15 Ethics and respondent protection

Before the main survey, a pilot should examine completion time, item comprehension, response distributions and preliminary internal consistency. Items with poor comprehension should be rewritten rather than simply deleted. The pilot should also test the BNPL frequency categories because usage rates in the final sample may cluster heavily in one category. Any change made after the pilot should be documented so that the final paper remains transparent about instrument development.

6.16 Common-method risk and response bias

The study concerns financial behaviour, which can be sensitive. Participation should be voluntary, consent should be explicit and no personally identifying financial account information should be collected. The study should not request bank statements, card numbers or login information. Data should be stored in an access-controlled environment, and reporting should use aggregate statistics only.

6.17 Pre-registration and reproducibility

Several key constructs are obtained from the same questionnaire. This creates the possibility that correlations are inflated by shared response style, mood, social-desirability bias or common measurement method. The study should therefore use neutral wording, separate constructs into distinct sections, avoid revealing the expected direction of the hypotheses, and preserve anonymity. Statistical diagnostics can supplement these procedural protections, but no single test fully removes common-method variance.

7. Statistical Analysis Plan

This section replaces the original draft's many repeated descriptions of what the eventual results might say. The final paper should contain only the numerical outputs produced by the actual dataset, with the following analysis sequence.

1. Data screening and coding. Verify eligibility, missingness, careless-response indicators, outliers and coding errors.
2. Descriptive statistics. Report N, mean, SD, range and, where appropriate, median and IQR for the main constructs.
3. Measurement quality. Report internal consistency and construct validity for multi-item scales; do not copy reliability coefficients from other papers as if they were this study's coefficients.
4. Correlation analysis. Use Pearson correlations where assumptions are reasonable and report effect size, direction and uncertainty.
5. Hierarchical multiple regression. Enter demographic/financial controls first, self-control and financial literacy next, then BNPL usage to estimate incremental explanatory power.
6. Moderation. Test the BNPL x financial self-control interaction; use simple-slope analysis to interpret the interaction if significant.
7. Mediation. Estimate the indirect path BNPL usage → perceived affordability → impulsive buying using bootstrap confidence intervals.
8. Robustness. Check multicollinearity, heteroscedasticity, influential observations and sensitivity to alternative BNPL-use coding.

Analysis	Key output	Interpretation rule
Descriptive	Mean, SD, range, distribution	Describes the sample; does not test the hypotheses.
Reliability / validity	Alpha/omega/CR as appropriate; factor evidence	Shows whether the constructs are measured consistently and distinctly.
H1 regression	B, beta, SE, CI, p for BNPL usage	Positive coefficient with adequate precision supports the directional association; magnitude matters.
H2 regression	Coefficient for self-control	Negative coefficient supports the hypothesized direct association.
H3 moderation	BNPL x self-control coefficient + slopes	Negative interaction supports a weaker BNPL-impulsivity link at higher self-control.
H4 mediation	Indirect effect ab + bootstrap CI	A CI excluding zero supports an indirect association; do not call it causal mediation in a

Analysis	Key output	Interpretation rule
		cross-sectional design.
H5 regression	Coefficient for financial literacy	Negative coefficient supports the hypothesized association with lower BNPL usage.

The final empirical section should follow a strict decision rule: statistical significance does not equal practical importance; association does not equal causation; and a large coefficient in another study is not an expected coefficient for this study. Each hypothesis should be evaluated using the exact estimate, uncertainty and sample underlying the present analysis.

7.1 Data screening and coding

Analysis	Primary output	Question answered	What it cannot establish
Descriptives	N, mean, SD, range, frequencies	What does the sample look like?	Causal relationship
Reliability / validity	α , CR, AVE, loadings / HTMT where applicable	Are constructs measured coherently and distinctly?	Whether hypotheses are supported
Correlation	r / ρ with CI and p	Do variables move together?	Temporal direction or causality
Hierarchical regression	β , SE, CI, p, R^2 , ΔR^2	Does BNPL add explanatory power beyond controls?	Causal effect
Moderation	Interaction β , simple slopes	Does self-control change the BNPL-impulse slope?	Why the interaction occurs
Mediation	a, b, c, c', indirect effect + bootstrap CI	Is perceived affordability statistically consistent with the proposed mechanism?	Causal mediation in cross-sectional data
Robustness	Alternative specifications	Is the conclusion stable?	Universal generalizability

7.2 Descriptive statistics

The first analytical stage should describe the raw sample before any hypothesis testing. Report the number of responses received, the number excluded at each screening stage and the final analytical N. Eligibility exclusions should be rule-based and applied identically to every respondent. Missingness should be described before deciding whether cases or variables require treatment.

7.3 Reliability and construct validity

For each principal construct, report N, mean, standard deviation, minimum and maximum. Where distributions are clearly skewed or ordinal, median and interquartile range should be added. A separate frequency table should show BNPL-use categories because an average can conceal important concentration. Descriptive analysis answers “what does the sample look like?”; it does not answer whether BNPL is associated with impulsive buying.

7.4 Correlation analysis

The final paper must use the coefficients generated by the present sample. Reliability numbers from Izham et al. or Susanto et al. are evidence about those papers, not about this research. This distinction is crucial and was one of the central weaknesses of the original draft.

Multi-item scales require an explicit measurement-quality stage before hypothesis testing. Internal consistency can be reported using Cronbach's alpha and, where appropriate, composite reliability. Item-total correlations and factor-loading information should be used to identify problematic items. Convergent validity can be considered through average variance extracted if a latent-variable model is used. Discriminant validity is relevant because BNPL-related perceptions, self-control and impulsive buying are theoretically related but should remain empirically distinct.

7.5 Hierarchical multiple regression

Correlation analysis provides the first inferential view of the association structure. Pearson correlations are appropriate when variables can reasonably be treated as continuous and assumptions are acceptable. Spearman correlations can be used for strongly ordinal or non-normal variables as a sensitivity check. Confidence intervals should be reported when feasible because statistical significance alone does not indicate the magnitude or precision of an association.

7.6 Moderation analysis

The regression coefficient for BNPL usage is the main test of H1. The model should report B or β , standard error, confidence interval, p-value, R^2 , adjusted R^2 and the overall F statistic. Standardized coefficients are useful for comparing predictors within the model, but they should not be interpreted as causal effects.

The preferred direct-effect model enters variables in an analytically meaningful order. Model 1 can contain demographic and financial controls. Model 2 can add financial self-control and financial literacy. Model 3 then adds BNPL usage. The change in R^2 from Model 2 to Model 3 shows whether BNPL usage explains additional variance in impulsive buying beyond the consumer characteristics already included.

7.7 Mediation analysis

The interaction term is the core evidence for moderation. A significant negative interaction would support the hypothesis that stronger self-control weakens the association. A non-significant interaction would not mean self-control is irrelevant; it would mean that the study does not establish different BNPL-impulse slopes across the measured range of self-control.

To test H3, the interaction BNPL usage x financial self-control is added to the regression. Continuous predictors should ordinarily be mean-centered before forming the interaction to reduce non-essential

multicollinearity and improve coefficient interpretation. A statistically meaningful interaction should be followed by a simple-slope or conditional-effect analysis showing the estimated BNPL slope at low, average and high levels of self-control.

7.8 Robustness and sensitivity analysis

The paper should avoid causal language such as “BNPL causes perceived affordability which causes impulsive buying.” In a cross-sectional survey, a statistically significant indirect effect is evidence consistent with the hypothesized pattern, not proof of temporal mediation. Alternative causal ordering remains possible.

H4 is evaluated using a mediation model in which BNPL usage predicts perceived affordability, perceived affordability predicts impulsive buying, and the indirect effect is estimated as the product of the two path coefficients. Bootstrap confidence intervals are preferable to normal-theory tests because indirect effects are often non-normally distributed. The analysis should report the a path, b path, direct effect c', total effect c and indirect effect ab with its confidence interval.

7.9 Assumption diagnostics

Where product-category data are sufficient, separate estimates can be compared for more hedonic categories such as fashion and electronics versus utilitarian categories. Such subgroup analysis should remain secondary unless the sample is large enough to avoid unstable estimates.

Robustness checks should test whether the main conclusion depends on one coding choice or one set of observations. Useful checks include alternative BNPL-frequency coding, excluding extreme usage values, using rank-based correlations, heteroscedasticity-robust standard errors, and checking influential observations. The final paper should report only sensitivity tests that were actually conducted.

7.10 Interpretation rule for the final results

Regression diagnostics should assess multicollinearity, residual behaviour, influential observations and the functional form of the relationship. Variance inflation factors can identify excessive overlap among predictors. Heteroscedasticity can be addressed with robust standard errors where appropriate. Diagnostics are not a ritual appendix; they matter because a coefficient can appear precise while being sensitive to model violations.

8. Empirical Evidence Benchmarks

The evidence tables in this section summarise results reported by prior studies. They provide benchmarks for interpreting the hypotheses in the present research, while keeping published-study statistics distinct from any future respondent-level results.

Evidence component	Published benchmark	Status for this paper
Sample profile	Izham et al.: 350 Gen-Z respondents; Susanto et al.: 100 Gen-Z Shopee users	Benchmark only; not the present sample
Descriptive / spending evidence	Ashby pilot: BNPL mean \$196.85 vs \$120.81 other	Published benchmark

Evidence component	Published benchmark	Status for this paper
	modes	
Gen-Z regression evidence	Izham: $\beta=.286, .338, .304$; adjusted $R^2\approx.754$	Published benchmark
Gen-Z structural evidence	Susanto: BNPL→impulse $\beta=.252, p=.004$; $R^2\approx.684$	Published benchmark
Mechanism evidence	Ashby: premium-option choice 53.8% vs 36.9%; indirect $b=.10, 95\% \text{ CI } [.005,.215]$	Published benchmark
Mental-accounting evidence	Jose: +4.39% spending; +22.2% later discretionary-purchase likelihood; +3.1% current debit spending	Published benchmark
Impulse-context evidence	Burg & Keil: $\geq 17\%$ greater purchase likelihood on impulse-proxy visits under randomized BNPL availability	Published benchmark
Present study H1-H5	No respondent-level dataset supplied in the current paper version	Must be tested using the actual survey dataset

8.1 Published empirical benchmarks

Because the present survey dataset is not included in this version, the tables below report published empirical benchmarks from the BNPL literature. They are included to anchor the analysis in observed results from comparable studies and must not be interpreted as results from the present sample.

Study	N / setting	Outcome	BNPL comparison	Reported result	Interpretive boundary
Ashby et al. (2025) - pilot	95,652 purchases; 49,865 BNPL, 45,787 other	Average amount spent per purchase	BNPL vs other payment modes	\$196.85 (SD \$242.53) vs \$120.81 (SD \$183.40); $F(1,95,650)=2951, p<.001, \eta^2=.030$	Spending outcome, not a direct measure of impulsive buying
Jose et al. (2026)	~3,000 Irish consumers; randomized shopping experiment	Spending	BNPL vs debit card	BNPL users spent 4.39% more on average	Experimental adult sample; not Gen-Z-specific

Study	N / setting	Outcome	BNPL comparison	Reported result	Interpretive boundary
Jose et al. (2026)	~3,000 Irish consumers; later shopping round	Subsequent discretionary purchase	Prior BNPL use vs debit-card use	22.2% higher likelihood of buying the discretionary product	Supports a mental-accounting mechanism; not a self-report impulse score
Berg et al. (2024)	German e-commerce merchant; RCT + observational data	Sales	BNPL available vs not available	Sales increased by about 20%; effects stronger among lower-creditworthiness customers	Merchant demand outcome, not psychological impulsivity
Burg & Keil (2026)	German online shop RCT	Purchase completion on impulse-proxy visits	BNPL availability vs no BNPL	At least 17% greater purchase likelihood among impulse-proxy visits; higher defaults and late charges	Uses behavioural proxies; current March 2026 version
Ashby et al. (2025) - Study 2	260 U.S. participants	Choice of more expensive option	BNPL vs credit card	53.8% vs 36.9%; $\chi^2(1)=7.43$, $p=.006$, $d=.34$	Controlled experiment; mechanism-focused rather than Gen-Z-specific
Izham et al. (2025)	350 Gen-Z respondents, Shah Alam	Impulsive buying	Ease of use, deferred payment, affordability	All three predictors significant; adjusted $R^2 \approx .754$	Cross-sectional self-report; geographically bounded
Study	Predictor path	Estimate	p	Model fit / test	Boundary
Izham et al. (2025)	Ease of use → impulsive buying	$\beta=.286$	<.001	Multiple regression; adjusted $R^2 \approx .754$	Shah Alam Gen-Z sample
Izham et al.	Deferred	$\beta=.338$	<.001	Multiple	Study-specific

Study	N / setting	Outcome	BNPL comparison	Reported result	Interpretive boundary
(2025)	payment structure → impulsive buying			regression; adjusted $R^2 \approx .754$	predictor coefficient
Izham et al. (2025)	Perceived affordability → impulsive buying	$\beta = .304$	$< .001$	Multiple regression; adjusted $R^2 \approx .754$	Affordability is a predictor, not a tested mediator in the same model
Susanto et al. (2024)	BNPL → impulse buying	$\beta = .252$	.004	PLS-SEM; $t = 2.909$	100 Gen-Z Shopee users; model differs from present design
Susanto et al. (2024)	Hedonic motivation → impulse buying	$\beta = .637$	$< .001$	PLS-SEM; $t = 6.786$	Contextual mechanism rather than a primary present-study hypothesis
Kumar et al. (2024)	BNPL adoption → online spending	+6.42%	Statistically significant	Synthetic difference-in-differences	Order size is not an impulsive-buying score
Study mechanism	Path comparison	Estimate	SE / test	95% CI / other	Interpretation
Ashby et al. (2025)	BNPL → expensive-option choice	53.8% vs 36.9%	$\chi^2(1) = 7.43$; $p = .006$; $d = .34$	—	Installment-based BNPL increased selection of the premium alternative
Ashby et al. (2025)	BNPL vs credit card: perceived expensiveness	6.06 vs 7.46	SD 2.48 vs 2.09; $t = 4.92$; $p < .001$; $d = .61$	—	BNPL lowered perceived expensiveness
Ashby et al.	Payment	Indirect $b = .10$	SE = .05	95% CI [.005,	Supports a

Study	N / setting	Outcome	BNPL comparison /	Reported result	Interpretive boundary
(2025)	mode → purchase intention via perceived expensiveness			.215]	psychological pricing mechanism consistent with H4
Jose et al. (2026)	BNPL use → subsequent discretionary purchase	+22.2% likelihood	Randomized multi-round experiment	—	Consistent with inflated perceived remaining budget / mental accounting
Jose et al. (2026)	Expected future BNPL access → current debit spending	+3.1%	Randomized information condition	—	Anticipated future liquidity can affect current spending

9. Discussion - How the Results Should Be Interpreted

The discussion should begin with the empirical result from the present sample, then compare it with the literature. It should not start by restating the literature and only later disclose that the survey produced no result. This is a major structural improvement over the original draft.

Possible empirical pattern	Defensible interpretation	Overclaim to avoid
Positive and significant H1	BNPL usage is positively associated with impulsive buying in this sample after adjustment for controls.	BNPL causes impulsive buying.
Null H1	The study does not detect a meaningful BNPL-impulsivity association in the observed sample.	BNPL has no behavioural effect at all.
Significant H4	Perceived affordability is consistent with a mediating pathway in the cross-sectional data.	Perceived affordability causes the BNPL effect.
Significant H3	The BNPL-impulsivity	Self-control eliminates BNPL

Possible empirical pattern	Defensible interpretation	Overclaim to avoid
	association varies with financial self-control.	risk.
Null H4 / H3	The proposed mechanism or boundary condition is not supported in this sample.	The mechanism is disproven universally.

The literature gives a strong reason to expect heterogeneity. Kumar et al. find that the spending effect of BNPL varies with age, income and product characteristics. The present study therefore gains value if it can show that psychological self-control or perceived affordability similarly condition the relationship at the individual level.

9.1 Discussion architecture

A particularly valuable extension is to study the mechanism in the Indian digital-commerce and fintech environment. Indian Gen Z consumers may differ from Western or Southeast Asian samples in credit-card penetration, UPI usage, household financial dependence, family-based financial support and familiarity with app-based credit. The same psychological mechanism may therefore operate under different financial constraints. A future Indian study should document the specific BNPL products, fee structures and repayment schedules used by respondents rather than assuming international product equivalence.

9.2 How to interpret a positive H1 result

The discussion should begin with the central empirical finding rather than restating the entire literature review. The first paragraph should answer the research question in one sentence and quantify the relationship. The next paragraphs should explain the result through the theoretical model and compare it with the strongest prior evidence. Where the present result diverges from prior studies, the divergence should be explained through differences in sample, outcome, BNPL product, measurement or identification rather than dismissed as contradictory evidence.

9.3 How to interpret a null H1 result

A positive result should then be compared carefully with Burg and Keil's RCT evidence, Jose et al.'s subsequent discretionary-purchase effect and the Gen-Z survey studies. Convergence would strengthen the interpretation that BNPL can operate as a behavioural facilitator. However, the cross-sectional nature of the present survey means the result would remain an association. Pre-existing impulsivity could increase BNPL usage, BNPL usage could be one contributor to impulsive buying, or another unobserved factor could affect both.

If H1 is supported, the contribution is not simply that BNPL users spend more. The stronger statement would be that higher BNPL engagement is associated with higher self-reported impulsive-buying tendency within the studied 18–24 population after adjustment for the chosen covariates. The result would connect transaction-level evidence about spending with a psychological construct that the major transaction studies do not observe directly.

9.4 Interpreting perceived affordability

A null result is not a failed study. It would demonstrate that increased spending observed in transaction or experimental studies does not automatically map onto a broad self-reported impulsive-buying tendency among this specific Gen Z sample. The distinction between spending volume and impulsivity would then become a substantive finding. It could also imply that BNPL is used primarily for planned purchases or liquidity management in the study population, or that the psychological effect is concentrated in subgroups rather than visible in the average association.

9.5 Interpreting the self-control interaction

If mediation is not supported, the study should not conclude that affordability is irrelevant. The absence of an indirect effect could indicate that present bias, self-control, product category, convenience or another mechanism plays a larger role in this population. A null mediation is therefore useful for refining the theory.

If the indirect pathway through perceived affordability is supported, the result would suggest that the psychological perception of financial manageability is one mechanism consistent with the BNPL-impulse relationship. This would align conceptually with Ashby et al.'s evidence that installment presentation lowers perceived expensiveness and with Jose et al.'s evidence that prior BNPL use alters perceived remaining budget.

9.6 Comparison with Gen-Z studies

A non-significant interaction would similarly be informative. It would indicate that the observed BNPL-impulse association, if any, is not materially different across the measured self-control range. That outcome would argue against assuming that self-control is the primary boundary condition and would motivate examination of other moderators such as financial stress, product category or digital shopping intensity.

A significant negative interaction would establish a conditional relationship: BNPL usage is more strongly associated with impulsive buying among respondents with weaker financial self-control. This result would extend the heterogeneity perspective found in the broader BNPL literature from demographic characteristics toward psychological characteristics.

9.7 Implications for theory

Susanto et al. provide another useful benchmark by incorporating hedonic motivation alongside BNPL in a Gen-Z Shopee sample. Their positive BNPL path reinforces the idea that impulse buying in digital commerce is shaped by both payment mechanisms and consumption motivation. The present model treats hedonic category and shopping context as contextual variables rather than assuming that all BNPL use is hedonic.

The study by Izham et al. is the closest substantive precedent because it directly measures BNPL-related characteristics and impulsive buying among Gen Z. Its significant relationships provide an empirical benchmark, but the present study changes the model in three important ways: it narrows the age range to 18–24, measures actual BNPL usage rather than relying mainly on BNPL feature perceptions, and introduces self-control and perceived affordability as a moderator and mediator.

9.8 Implications for research design

The principal theoretical contribution of the present study is a shift from a generic BNPL -> spending relationship toward a conditional behavioural model. The distinction between total spending and impulsive buying prevents the theory from treating all expenditure increases as behavioural distortion. The mediation and moderation components further position perceived affordability and self-control as mechanisms and boundary conditions that can be tested rather than merely discussed.

10. Implications

For consumers, the practical issue is not that BNPL is inherently harmful; it is that the installment frame can make the immediate payment feel smaller than the total obligation. For platforms and merchants, the evidence suggests a trade-off between lower checkout friction and greater behavioural salience. For policymakers, the relevant design question is how to preserve useful short-term liquidity while improving transparency around cumulative obligations and repeat borrowing.

The CFPB's 2025 market data underline why repeat use matters: average BNPL loans per user at a surveyed lender increased from 5.7 in 2022 to 6.3 in 2023, while average annual dollar amounts rose from \$745 to \$848. More frequent usage does not prove harm, but it makes cumulative affordability an important design and consumer-protection consideration.

10.1 Consumer implications

10.2 Merchant and platform implications

Consumers should be encouraged to evaluate the total BNPL obligation rather than the size of the immediate installment. The practical problem is not simply arithmetic; it is attention. The strongest evidence reviewed here suggests that installment presentation can change perceived expensiveness and that prior BNPL usage can alter the perception of remaining financial capacity. A useful consumer intervention therefore makes the total amount, number of future payments and repayment schedule visually salient at the moment of purchase.

10.3 BNPL-provider implications

The merchant evidence explains why BNPL is commercially attractive. Berg et al. report about a 20% increase in sales in their setting, while Kumar et al. find a 6.42% increase in online spending after adoption. These gains create incentives for retailers to present BNPL prominently. The behavioural evidence implies that such prominence should be balanced with transparent repayment information. A platform can pursue conversion while still reducing avoidable behavioural distortion through clear total-cost displays and reminders.

10.4 Policy implications

Providers should distinguish responsible access from frictionless conversion. The research reviewed here suggests that risk disclosures can improve comprehension, but Jose et al. report that better comprehension in their experiment did not significantly change usage or spending. This implies that disclosure alone may not be sufficient. Product design, repayment scheduling, affordability assessment and the prominence of future obligations may matter alongside disclosure.

10.5 Implication for research in India

The policy question is broader than whether BNPL should be permitted. The evidence raises questions about creditworthiness assessment, cumulative obligations, transparency of total repayment, late-payment charges and the treatment of vulnerable consumers. Burg and Keil show that customers with stronger impulse-related indicators also experience worse repayment outcomes in their setting. That does not prove a universal relationship, but it provides a rationale for targeted consumer-protection mechanisms that address behavioural vulnerability as well as financial capacity.

11. Limitations

- Cross-sectional design limits causal inference and temporal ordering.
- Purposive / snowball recruitment limits population representativeness.
- Self-reported BNPL use and impulsive buying may differ from observed transaction behaviour.
- Common-method variance may inflate correlations because several constructs are measured in the same questionnaire.
- Geography, product category, platform and economic context may change the strength of the relationship.
- Mediation and moderation in cross-sectional data should be interpreted as conditional associations, not causal mechanisms.

12. Future Research

- Use longitudinal data to observe behaviour before and after BNPL adoption and across repayment cycles.
- Combine survey measures with transaction-level purchase records where ethically and legally feasible.
- Test behavioural disclosure interventions experimentally at checkout.
- Examine category differences between hedonic and utilitarian purchases.
- Compare countries with different BNPL market maturity and regulatory structures.

13. Conclusion

The strongest conclusion available at this stage is not that BNPL makes Gen Z consumers impulsive. The evidence supports a more conditional proposition. BNPL is a meaningful and expanding form of embedded consumer credit; transaction and experimental studies show that payment structure can change spending and choice; and Gen-Z survey evidence links BNPL-related characteristics such as affordability and deferred payment with impulsive purchasing. The unresolved question is whether actual BNPL usage intensity is associated with a distinct impulsive-buying tendency after individual financial characteristics are taken into account.

The refurbished research design addresses that gap with a focused model: BNPL usage is the primary exposure, impulsive buying is the behavioural outcome, perceived affordability is the proposed mechanism, and financial self-control is the proposed boundary condition. The value of the final empirical contribution will therefore depend on the actual survey results. Until those data are collected,

the paper should be presented as a rigorous evidence-informed study design rather than as a completed causal or correlational finding.

The study also demonstrates why triangulation matters. Transaction studies can establish what consumers actually purchase. Experiments can isolate how payment framing changes decisions. Surveys can measure psychological states that transaction records cannot observe easily. No single method answers every question. The contribution of the present design is therefore strongest when it explicitly translates experimental and transaction-level mechanisms into testable individual-level constructs while maintaining the appropriate causal limitations.

Cross-country research can test whether institutional differences alter the BNPL-impulse relationship. Relevant differences include credit-card penetration, digital-payment adoption, consumer-protection rules, income volatility, household financial dependence and the maturity of BNPL markets. A multi-country design would be more informative than simply pooling respondents from different countries without modeling these institutional characteristics.

Cross-country comparative research

Future studies should separate hedonic and utilitarian purchases. The same financing mechanism may be relatively neutral for a planned appliance replacement but more behaviourally potent for fashion, beauty, entertainment or trend-driven products. Category-specific analysis could therefore identify where BNPL-related interventions are most valuable.

Product-category heterogeneity

The Ashby and Jose studies imply that interface design itself can change behaviour. Future experiments should randomize the presentation of total cost, first installment, number of installments, repayment calendar and cumulative active obligations. This would move beyond asking whether BNPL affects behaviour toward identifying which interface designs reduce or amplify behavioural risk.

Experimental disclosure and interface research

The strongest methodological extension would connect validated psychological measures with anonymized transaction records. Survey data could measure impulsive propensity, self-control and perceived affordability, while transaction data could measure purchase frequency, order size, product category and BNPL repayment behaviour. The combination would reduce reliance on self-reported spending and permit more precise tests of whether psychological vulnerability predicts actual behaviour.

Transaction-linked survey research

A longitudinal design would be the most direct next step. Respondents could be surveyed before first BNPL adoption, immediately after use and across subsequent repayment cycles. This would help separate pre-existing impulse-buying tendencies from behavioural changes following exposure to BNPL. Repeated measures would also allow the study to examine whether the effect persists or decays over time.

Longitudinal research

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Appendix A. Final Data Dictionary

Variable	Coding / scale	Primary analysis use
BNPL_use_freq	Behavioural ordinal categories; refine after pilot	X
BNPL_recency	Days / months since last BNPL use	Secondary / robustness
BNPL_intensity	Share of purchases or number of active plans	Alternative X / robustness
IBB_score	Mean of validated multi-item scale	Y
PA_score	Mean of perceived-affordability items	Mediator M
FSC_score	Mean of financial self-control items	Moderator W
FL_score	Objective financial-literacy score	Control / H5
Income_status	Pre-defined ordinal categories	Control
Employment	Student / employed / part-time / other	Control
Gender	Research-ethics appropriate categories	Control
Age	18-24 eligibility	Eligibility / descriptive

Appendix B. Refurbishment Change Log

- Removed repeated explanations of present bias, mental accounting and self-control and consolidated them into a single theoretical framework.
- Replaced speculative “future results” prose with a clearly labelled empirical results architecture.
- Converted placeholder tables into a concise, data-ready measurement and analysis plan.
- Added factual charts using CFPB 2019-2023 market data, CFPB 2022-2023 usage data, Jose et al. experimental estimates, Ashby et al. experimental choice data, and Worldpay 2025-2030 BNPL value estimates.
- Added a study-comparison table to distinguish transaction, experimental and survey evidence.
- Tightened the research gap around the distinction between spending volume and impulsive buying.
- Reframed the conclusion so that it does not claim empirical findings that the uploaded draft does not contain.
- Updated the literature base to include 2024-2026 evidence where publicly verifiable.

Appendix C. Detailed Data Dictionary

Variable	Definition	Coding interpretation /	Scale
BNPL_USE_MAIN	Primary BNPL usage measure	Higher values indicate more frequent/intensive actual BNPL engagement.	Ordinal / behavioural
BNPL_RECENCY	Recency of last BNPL use	Days or categorical recency; lower values indicate more recent use.	Ordinal
BNPL_ACTIVE	Number of current active BNPL plans	Count at time of survey.	Count
BNPL_SHARE	Approximate share of recent purchases financed by BNPL	Self-reported proportion.	Percentage / ordinal
IBB_SCORE	Impulsive buying composite	Mean of validated impulse-buying items after reverse coding where required.	Continuous composite
PA_SCORE	Perceived affordability composite	Mean of items capturing perceived manageability / expensiveness.	Continuous composite
FSC_SCORE	Financial self-control composite	Mean of self-regulation items.	Continuous composite
FL_SCORE	Objective financial literacy	Percentage of knowledge questions answered correctly.	Percentage
FL_CONF	Financial-literacy confidence	Self-rated confidence in financial knowledge.	Continuous / ordinal
AGE	Age in years	Eligibility restricted to 18-24.	Continuous
GENDER	Gender category	Reported in respondent-preferred category.	Nominal

Variable	Definition	Coding interpretation /	Scale
STATUS	Student / employment status	Student, employed, both, unemployed / other as applicable.	Nominal
INCOME	Personal or household financial status	Use clearly defined brackets appropriate to population.	Ordinal
CATEGORY	Most recent / most frequent BNPL purchase category	Fashion, electronics, food, travel, household, other.	Nominal
REPAY_STRESS	Experienced difficulty meeting installments	Optional contextual variable for future welfare analysis.	Ordinal

Appendix D. Draft Questionnaire Architecture and Item Bank

Section A - Screening

- Q1. What is your age? [18-24 eligible; other values screened out]
- Q2. Have you ever personally used a Buy Now, Pay Later service to make a purchase? [Yes / No]
- Q3. Which BNPL services have you used? [Multiple selection; include Other]

Section B - BNPL Behaviour

- Q4. How frequently have you used BNPL in the past six months? [Never / Once / 2-3 times / 4-5 times / 6-10 times / More than 10 times]
- Q5. When did you last use BNPL? [Within 7 days / 1-4 weeks / 1-3 months / More than 3 months]
- Q6. How many BNPL installment plans are currently active? [0 / 1 / 2 / 3 / 4+]
- Q7. Approximately what share of your recent online purchases used BNPL? [0-100% range or bands]
- Q8. What categories do you most often purchase through BNPL? [Fashion / Electronics / Food / Travel / Household / Beauty / Other]

Section C - Impulsive Buying

- Use a validated multi-item impulse-buying scale. Candidate dimensions: spontaneous purchase tendency; difficulty resisting urges; buying without planning; immediate purchase pressure; post-purchase reflection.
- Response format: 5-point agreement scale from strongly disagree to strongly agree.
- Randomize non-ordered item presentation where technically feasible, but preserve reverse-coded items and scoring documentation.

Section D - Perceived Affordability

- Candidate dimensions: installments make purchases feel manageable; BNPL makes expensive items appear more accessible; attention to the installment amount; confidence that future payments will be manageable; difference between immediate and total cost perception.
- Response format: 5-point agreement scale.

Section E - Financial Self-Control

- Candidate dimensions: sticking to a spending limit; resisting unnecessary purchases; delaying gratification; considering future consequences; avoiding purchases that create repayment stress.
- Response format: 5-point agreement scale.

Section F - Financial Literacy

- Use objective questions rather than self-rating. Candidate topics: simple interest; installment totals; compounding; inflation; budget trade-offs; late-payment cost implications.
- Immediately after the objective items, an optional confidence score can be collected separately.

Section G - Demographic and financial context

- Gender, student/employment status, personal or household financial situation, living arrangement where relevant, and typical monthly discretionary spending.
- Only collect variables that are required for the analysis or meaningful subgroup interpretation. Avoid unnecessary sensitive data.

Appendix E. Evidence Map by Research Question

Research question	Best supporting evidence	What it establishes	What remains open
Question	Best supporting evidence	What it establishes	What remains open
Does BNPL change spending?	Kumar et al.; Berg et al.; Jose et al.; Ashby et al.	BNPL can increase order size, sales, spending, or premium-option selection in studied settings.	Whether increased spending is impulsive in a specific Gen Z population.
Does payment framing matter?	Ashby et al.	Installment presentation can reduce perceived expensiveness and alter purchase choice.	How large the effect is in Indian Gen Z consumers.
Does prior BNPL use affect later consumption?	Jose et al.	Prior BNPL use associated with 22.2% greater likelihood of later discretionary	Whether same pattern holds for 18-24 Gen Z survey respondents.

Research question	Best supporting evidence	What it establishes	What remains open
		purchase in experiment.	
Does BNPL interact with impulse propensity?	Burg & Keil	Impulse-proxy visits respond more to randomized BNPL availability and show worse repayment outcomes.	Whether a validated self-report impulse scale shows the same conditional relationship.
Are Gen Z consumers directly affected?	Izham et al.; Susanto et al.	Gen-Z survey studies report positive relationships between BNPL characteristics / use and impulsive buying.	Cross-country generalizability and role of self-control.
Can perceived affordability explain behaviour?	Jose et al.; Ashby et al.; Izham et al.	Evidence supports budget-perception and perceived-expensiveness mechanisms.	Whether perceived affordability statistically mediates the relationship in the present sample.

Appendix F. Final Reporting Checklist

- Report total responses, exclusions and final valid N separately.
- State the exact BNPL-use coding used in the primary model.
- Report reliability and validity coefficients from the present sample only.
- Report descriptive statistics before inferential tests.
- Report effect size and uncertainty, not p-values alone.
- Do not describe a cross-sectional coefficient as causal.
- Report the BNPL x self-control interaction and simple slopes if moderation is tested.
- Report mediation as an indirect effect with a bootstrap confidence interval.
- Keep financial literacy separate from financial self-control.
- Label subgroup analyses as secondary unless they were pre-specified and adequately powered.
- Explain divergences from Kumar, Jose, Ashby, Berg, Burg & Keil, Izham and Susanto through design or context rather than selecting whichever study agrees with the result.
- Make all graphs traceable to a source or clearly label them as author analysis of the study dataset.
- Do not fill any bracketed placeholder with an assumed number.

Mediation models: $PA_i = \alpha_1 + a \text{BNPLU}_i + \gamma_1' \text{Controls}_i + \varepsilon_{1_i}$; $IBB_i = \alpha_2 + c' \text{BNPLU}_i + b \text{PA}_i + \gamma_2' \text{Controls}_i + \varepsilon_{2_i}$. The indirect association is ab . Bootstrap confidence intervals should be used for the indirect effect.

Moderation model: $IBB_i = \alpha + \beta_1 \text{BNPLU}_i + \beta_2 \text{FSC}_i + \beta_3(\text{BNPLU}_i \times \text{FSC}_i) + \beta_4 \text{FL}_i + \gamma' \text{Controls}_i + \varepsilon_i$. The interaction coefficient β_3 is the key test of H3.

Primary regression model: $IBB_i = \alpha + \beta_1 \text{BNPLU}_i + \beta_2 \text{FSC}_i + \beta_3 \text{FL}_i + \gamma' \text{Controls}_i + \varepsilon_i$. Here IBB denotes impulsive-buying behaviour, BNPLU denotes BNPL usage, FSC denotes financial self-control and FL denotes financial literacy.

Appendix G. Model Equations Used in the Empirical Plan

The final discussion should then triangulate the result against the strongest external evidence. If the result aligns with Jose et al., Ashby et al. or Burg and Keil, explain the specific conceptual connection rather than saying it “proves” the earlier research. If it differs, identify plausible differences in population, outcome measurement, BNPL product structure, sample composition, or identification strategy. This approach makes the contribution credible because disagreement is treated analytically rather than hidden.

For moderation, report the interaction term and conditional slopes. A suitable template is: “The BNPL usage x financial self-control interaction was negative and statistically significant ($\beta = X$, $p = X$). Conditional estimates indicate that the association between BNPL usage and impulsive buying was stronger at low self-control and weaker at high self-control.” The interpretation should remain conditional and should not imply that self-control eliminates all behavioural risk.

For mediation, use the language “consistent with an indirect association” rather than “proved the mechanism.” A suitable template is: “The indirect association between BNPL usage and impulsive buying through perceived affordability was estimated at $ab = X$, with a 95% bootstrap confidence interval of $[L, U]$. Because the interval does / does not exclude zero, the data provide / do not provide statistical support for the hypothesized indirect pathway. Given the cross-sectional design, this result should not be interpreted as evidence of temporal causal mediation.”

For a non-significant result, the correct formulation is not “BNPL has no effect.” A more defensible formulation is: “The association between BNPL usage and impulsive buying was not statistically distinguishable from zero in the present sample ($\beta = X$, 95% CI $[L, U]$, $p = X$).” The second sentence can then explain the uncertainty or the possibility that the effect is smaller than the study could detect. This distinction is particularly important in cross-sectional survey research.

The final paper should use standardized language so that the statistical evidence is not overstated. A strong results paragraph identifies the estimate, uncertainty and sample, followed by a restrained interpretation. For example: “Higher BNPL usage was positively associated with impulsive-buying scores ($\beta = X$, 95% CI $[L, U]$, $p = X$), controlling for age, financial status, employment/student status, gender, financial self-control and financial literacy.” This language states exactly what the regression estimates without implying causation.

Appendix H. Reporting Language Templates for the Final Empirical Study

The final manuscript should also preserve a clear boundary between evidence generated in the present survey and evidence inherited from prior literature. External studies can establish the plausibility of a mechanism and provide comparison points, but only the present dataset can determine whether H1-H5 are supported in this specific 18-24 sample.

Any unexpected result should trigger a search for plausible measurement or context explanations before a theoretical conclusion is drawn. For example, a weak BNPL-impulse association could reflect low variation in BNPL use, a sample dominated by planned purchases, a high-self-control respondent pool, or a mismatch between the chosen impulse scale and the type of behaviour most affected by BNPL. These are empirical possibilities, not conclusions to be imposed in advance.

Substantive interpretation should distinguish statistical importance from managerial or policy importance. A small but precisely estimated relationship may matter when BNPL is used millions of times, while a larger relationship in a very small convenience sample may have limited generalizability. The discussion should therefore link magnitude, uncertainty, sample composition and market context rather than ranking studies only by p-values.

Where confidence intervals are available, they should appear directly beside the estimate in the main results tables. Confidence intervals communicate both direction and precision and prevent the discussion from becoming a binary significant/non-significant exercise. A result with $p < 0.05$ but a very wide interval may be less decision-useful than a similar estimate with a narrow interval.

Effect sizes should also be interpreted in relation to the measurement scale. A standardized coefficient of 0.20 does not mean that impulse buying rises by 20 percent. It represents a one-standard-deviation change in the predictor associated with a 0.20-standard-deviation change in the outcome, conditional on the model specification. Likewise, an R^2 of 0.40 does not mean the model has “proven” 40 percent of the behavioural mechanism; it means the included predictors explain 40 percent of observed variance in the dependent variable in that sample.

Source note. The expanded version uses the original research draft as the conceptual and methodological foundation and incorporates evidence from the newly uploaded Burg & Keil (2026), Jose et al. (2026), Berg et al. (2024), Kumar et al. (2024), Ashby et al. (2025), Izham et al. (2025), and Susanto et al. (2024) papers. Results reported for those studies are presented as external evidence, not as findings of the present survey.