

Determinants of Buy Now, Pay Later Acceptance among Baby Boomers in Rural Malaysia: An Extended Technology Acceptance Model

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ABSTRACT

Buy Now, Pay Later (BNPL) has become a widely used digital payment innovation, yet most empirical studies on its acceptance focus on younger, urban, and digitally active consumers, leaving it unclear whether Technology Acceptance Model (TAM) determinants operate similarly among older adults in rural settings. This study examined BNPL acceptance among baby boomers (born 1946-1964, spanning their early sixties to eighties at the time of data collection) residing in rural regions of Malaysia using an extended TAM incorporating perceived usefulness (PU), perceived ease of use (PEOU), perceived risk (PR), and digital financial literacy (DFL). Data were collected from 302 respondents through an online and on-site questionnaire survey and analysed using descriptive statistics, Pearson correlation, and multiple linear regression in SPSS version 29. Most respondents (91.7%) had already used a BNPL service, indicating that the findings speak primarily to continuance rather than first-time adoption among this cohort. The four predictors jointly explained 69.9% of the variance in BNPL acceptance ($R^2 = .699$, $F(4, 297) = 172.009$, $p < .001$), and were associated with three of the four hypothesised paths. Perceived ease of use showed the strongest association ($\beta = .442$, $p < .001$), followed by digital financial literacy ($\beta = .267$, $p < .001$) and perceived usefulness ($\beta = .177$, $p = .013$); perceived risk was not significant ($\beta = .023$, $p = .503$). These results suggest that usability and digital competence, more than risk avoidance, are associated with continued BNPL acceptance among rural baby boomers, pointing to intuitive application design and targeted digital-financial-literacy support as potentially more effective than risk-reassurance or benefit-focused messaging for this demographic.

Keywords: Buy Now Pay Later; Baby Boomers; Technology Acceptance Model; Digital Financial Literacy; Rural Malaysia; Digital Payment Acceptance

INTRODUCTION

Digital payment adoption in Malaysia has expanded rapidly over the past decade, with internet penetration reaching 97.4% of the population and the digital economy contributing 23.2% of national GDP [1], [2]. Within this ecosystem, Buy Now, Pay Later (BNPL) has emerged as a fast-growing short-term, typically interest-free instalment credit option that is accessible directly at the point of checkout [3]. According to the Consumer Credit Oversight Board (CCOB) Task Force, Malaysia recorded 77.3 million BNPL transactions worth RM6.2 billion in 2023, a pace that continued into the first quarter of 2024 with a further 29 million transactions worth RM2.3 billion, drawn from at least 3.7 million active BNPL accountholders [4]. By December 2024 the market was

served by 12 licensed BNPL providers, including four Shariah-compliant schemes, with three providers—SPayLater, PayLater by Grab, and Atome—together accounting for more than 95% of active accountholders, transaction volume, and transaction value [4]. BNPL has therefore moved from a niche checkout feature to a structurally significant component of Malaysia's retail payment ecosystem.

This growth, however, remains heavily concentrated among younger consumers: CCOB figures show BNPL accountholders are predominantly aged between 21 and 45 [4], and academic attention has followed the same pattern, with most BNPL adoption studies examining millennials and Generation Z in urban or online retail settings [5], [6]. Baby boomers—individuals born between 1946 and 1964 [8]—represent a substantial and economically active segment of the Malaysian population, yet a preprint study on mobile payment barriers among this cohort reports that usage complexity, perceived value, risk, tradition, self-image, and lack of information continue to discourage adoption [34]. Despite this documented hesitancy, baby boomers are rarely the explicit focus of BNPL acceptance research, leaving providers and policymakers with limited evidence on how to design services that this group will actually trust and use.

The gap is sharper still in rural Malaysia. Rural areas are officially characterised by lower population density and comparatively limited digital infrastructure [9], and residents in these areas continue to experience inconsistent internet connectivity and lower digital literacy that widen the urban-rural digital divide, particularly among older age groups [10]. Because digital skills, infrastructure quality, financial experience, and risk perception plausibly differ between urban and rural settings, it cannot simply be assumed that the determinants identified in general BNPL or urban-elderly studies [18] transfer directly to rural baby boomers. This intersection of an under-studied age cohort and an under-studied geography constitutes the specific research gap addressed by this study.

To address this gap, this study investigates the factors influencing BNPL acceptance among baby boomers in rural Malaysia through an extended Technology Acceptance Model (TAM) that incorporates perceived usefulness (PU), perceived ease of use (PEOU), perceived risk (PR), and digital financial literacy (DFL) alongside the two original TAM constructs. Specifically, the study aims to: (1) determine the level of BNPL usage among baby boomers in rural areas; (2) examine the effect of PU, PEOU, PR, and DFL on BNPL acceptance in this population; and (3) evaluate which of these extended-TAM determinants significantly predict acceptance once all four are considered jointly. Four hypotheses (H1-H4), developed in Section II, guide this investigation.

The contribution of this study is twofold. Theoretically, it tests whether an extended TAM—incorporating risk and digital financial literacy alongside the original usefulness and ease-of-use constructs—holds among a demographic and geographic segment largely absent from the BNPL literature. Practically, its findings can inform how BNPL providers, financial institutions, and policymakers design more inclusive digital payment services for Malaysia's ageing, rural population. The remainder of this paper reviews the relevant literature and develops the study hypotheses, describes the survey-based methodology, reports the descriptive and inferential results, and discusses their theoretical and managerial implications.

LITERATURE REVIEW

A. BNPL as a Digital Credit and Payment Innovation

BNPL allows consumers to spread the cost of a purchase over a short period, usually through fixed, interest-free instalments, rather than paying in full at checkout [3]. The Bank for International Settlements frames BNPL as a form of digital credit rather than a neutral payment method, since it defers repayment obligations while lowering the immediate entry barrier to a purchase [3], [11]. This dual identity brings genuine convenience benefits alongside a risk of over-commitment and debt accumulation if repayment is not managed carefully [12]. A recent systematic and bibliometric analysis of the BNPL literature confirms that studies are split between framing BNPL as a financial-inclusion innovation and framing it as a new avenue to consumer debt, underscoring the need for context-specific empirical evidence such as the rural, older-adult setting examined in this study [6].

In Malaysia, BNPL operates alongside other digital payment instruments such as DuitNow bank transfers, credit and debit cards, e-wallets, and DuitNow QR, all of which have expanded rapidly under national cashless-society initiatives led by Bank Negara Malaysia and Payments Network Malaysia [13]. Responsible-lending scholarship cautions that the convenience of BNPL should be balanced against adequate consumer protection and regulatory oversight, particularly for demographic groups with less exposure to consumer credit products [12].

B. Technology Acceptance among Older and Rural Consumers

Rural areas in Malaysia are officially characterised by lower population density and comparatively limited digital infrastructure [9]. This infrastructural gap, combined with lower digital literacy among older residents, restricts the adoption of financial technology in these areas [7], [10]. Baby boomers additionally face documented barriers to digital adoption—including fear of complexity, low self-efficacy, and a preference for familiar tools such as WhatsApp and Facebook over unfamiliar applications—that can shape how they evaluate new financial technologies [14].

Age-related declines in technology confidence and unfamiliarity with mobile interfaces have long been documented as barriers to fintech adoption among older users [15]. Cohort-segmentation research further cautions that baby boomers are not a homogeneous group: younger and older boomers differ meaningfully in digital confidence and spending attitudes, so acceptance findings for this cohort should not be over-generalised across its full age range [17]. Recent evidence on elderly fintech adoption similarly finds that everyday digital engagement and familiarity—rather than product novelty—are the primary drivers of adoption in this age group [18], lending support to examining PEOU as a central determinant in the present study.

C. Extended Technology Acceptance Model for BNPL

The Technology Acceptance Model, originally proposed by Davis [19] and extended by Venkatesh and Davis [16], [20], explains technology adoption through two core beliefs: perceived usefulness (the degree to which a person believes a system will enhance their performance) and perceived ease of use (the degree to which a person believes using a system will be free of effort). Fig. 1 illustrates the original TAM structure linking these constructs to behavioural intention and actual system use.

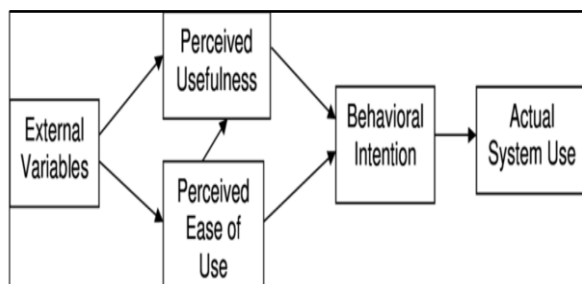


Fig. 1 Technology Acceptance Model (TAM) [Source: Venkatesh & Davis, 1996]

Because BNPL functions as a form of digital credit, financial-technology adoption research typically extends core TAM with perceived risk—the uncertainty a consumer feels due to incomplete understanding of a product [21]—and with financial capability constructs [22]. This study likewise extends TAM with perceived risk [21], [23] and digital financial literacy, defined as the combination of financial knowledge and digital skill needed to use online financial services confidently [22], [24]. Both extensions move the model beyond core TAM and are treated as such, rather than as original TAM constructs, in the discussion that follows.

D. Hypothesis Development

Perceived usefulness. Consumers adopt BNPL when they believe it improves their purchasing flexibility and eases cash-flow management. Evidence from installment-payment research shows that BNPL availability measurably changes purchase behaviour by lowering the perceived cost barrier at checkout [25], while adoption-perspective studies confirm that performance-related benefits are a consistent predictor of BNPL uptake across

markets [5]. Perceived benefit has also been shown to positively predict behavioural intention to use BNPL directly [26]. Accordingly:

H1. Perceived usefulness is positively associated with BNPL acceptance among baby boomers in rural Malaysia.

Perceived ease of use. Older users are more likely to adopt a financial application when its instructions, terms, and interface are simple and require little digital literacy [15], [18]. Psychological-determinant research on BNPL in developed markets identifies ease of budgeting and use as central to sustained usage [27], and effort-expectancy evidence from a technology-adoption-perspective study of BNPL similarly supports a positive usability effect [5]. Given the added cognitive load older adults may experience with unfamiliar interfaces [15], ease of use is expected to matter strongly in this population:

H2. Perceived ease of use is positively associated with BNPL acceptance among baby boomers in rural Malaysia.

Perceived risk. Because BNPL defers payment obligations, it carries risk associated with overspending, unclear terms, and potential fees for missed payments [11], [12]. Risk-and-benefit research on BNPL behavioural intention finds that perceived risk can negatively affect willingness to adopt [26], and positioning BNPL explicitly as a credit product—rather than a neutral payment method—has been shown to heighten consumer caution [11]. Older adults, who tend to be more risk-averse toward unfamiliar financial products [21], may weigh these concerns more heavily:

H3. Perceived risk is negatively associated with BNPL acceptance among baby boomers in rural Malaysia.

Digital financial literacy. Digital financial literacy enables users to navigate BNPL applications, interpret repayment schedules, and manage transaction records with confidence [22], [24]. Evidence on elderly fintech adoption similarly finds that everyday digital engagement and comfort—not generic usefulness or ease-of-use perceptions alone—distinguish fintech adopters from non-adopters within this age group [18]. Because financial-literacy evidence linking DFL directly to BNPL use in older populations remains limited, this study treats the relationship as an open empirical question consistent with prior calls for further research [28]:

H4. Digital financial literacy is positively associated with BNPL acceptance among baby boomers in rural Malaysia.

E. Research Gap and Conceptual Framework

Taken together, the reviewed literature shows that BNPL acceptance has been examined mainly among younger, urban, and digitally confident consumers, leaving open how an extended TAM performs among older adults in rural, infrastructure-constrained settings [5], [6], [18]. Fig. 2 presents the conceptual framework guiding this study, linking the four independent variables to overall BNPL acceptance through hypotheses H1-H4.

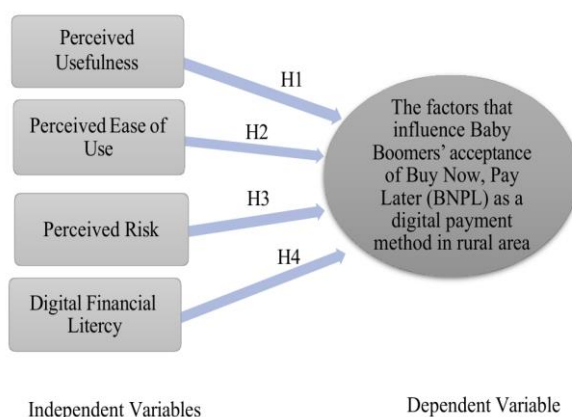


Fig. 2 Conceptual framework of the study [adapted from Venkatesh & Davis, 1996; Bauer, 1960; Lyons & Kass-Hanna, 2021]

RESEARCH METHODOLOGY

A. Research Design and Data Sources

This study adopted a quantitative, descriptive-correlational research design, appropriate for identifying and describing the factors that influence baby boomers' acceptance of BNPL without manipulating the variables under study [29]. A structured survey approach was chosen over qualitative methods because it enables measurable, comparable data collection from a clearly defined demographic group and supports statistical testing of the hypothesised relationships developed in Section II [29]. Primary data were collected directly from baby boomer respondents through a structured questionnaire, while secondary data—drawn from peer-reviewed databases (Google Scholar, ScienceDirect, Emerald Insight) and official industry reports such as the Consumer Credit Oversight Board (CCOB)—were used to inform the literature review and contextualise the primary findings.

B. Population and Sampling Procedure

Because this study targets a specific demographic and experiential profile, a purposive (judgemental) sampling technique was used rather than probability sampling [30]. Respondents were required to meet two criteria: (i) belonging to the baby boomer cohort, born between 1946 and 1964, and (ii) possessing at least basic awareness of digital payment methods, including BNPL. This approach was appropriate because it allowed the researcher to reach individuals who could meaningfully answer questions specific to BNPL acceptance, rather than a broader population unfamiliar with the service [31]. Because sampling was purposive rather than random, the resulting sample is not statistically representative of all rural Malaysian baby boomers, and the findings should be generalised with caution.

Sample size adequacy was benchmarked against the Krejcie and Morgan [32] table for an accessible population of approximately 1,200-1,500—the researcher's own estimate of the rural baby boomer population reachable through the community networks and care homes used for recruitment, rather than an official census figure. This table was used only as a rule-of-thumb benchmark for a sufficient sample size; because the sample itself was purposive rather than probability-based, the associated confidence-level and margin-of-error interpretation does not strictly apply and is not claimed here. Against this benchmark, the study obtained 302 usable responses, drawn from across the Central/East, Northern, Eastern, and Southern rural regions of Malaysia.

C. Research Instrument and Pilot Test

Data were collected using a structured questionnaire comprising three sections. Section A captured respondents' demographic profile (gender, age, race, region, BNPL usage); Section B measured the dependent variable, BNPL acceptance, using six items covering comfort, preference, continuance intention, trust, recommendation, and met expectations (e.g., “I feel comfortable using BNPL to buy things,” “I plan to use BNPL again in the future”); and Section C measured the four independent variables (PU, PEOU, PR, DFL) using four items each (e.g., PU: “BNPL helps me buy things when I don't have enough cash”; PEOU: “It is easy for me to use BNPL applications”; PR: “I worry I might overspend because of BNPL”; DFL: “I feel confident managing my BNPL payments through my phone”). All Section B and C items were operationalised on a 5-point Likert scale ranging from “Strongly Disagree” to “Strongly Agree,” adapted from established TAM-based instruments used in prior technology-acceptance and BNPL research (Section II). The six BNPL acceptance items combine related but conceptually distinct facets (comfort, preference, continuance, trust) into a single composite score, consistent with common practice in TAM-based survey research that treats “acceptance” as a broad attitudinal construct; this composite treatment is nonetheless a simplification, and Section V (Conclusion) notes it as a limitation requiring dimension-level validation in future work.

Before full-scale distribution, a pilot test was conducted with 30 respondents drawn from the target rural baby boomer population to check item clarity and confirm instrument reliability. Pilot testing is considered an essential step in survey research because it exposes ambiguous wording or design problems that would otherwise compromise data quality once distributed at scale [33], [35]. The pilot produced a Cronbach's alpha of .926,

indicating excellent internal consistency; minor wording refinements were made before the questionnaire was finalised for full distribution.

D. Data Collection Procedure

The finalised questionnaire was distributed through two complementary channels to maximise reach and representativeness. Online distribution used a Google Forms link shared via WhatsApp, Facebook, and email with baby boomer community groups across all four sampled regions. This was supplemented by on-site data collection at six residential care homes and community centres in Selangor, Melaka, and Negeri Sembilan—falling within the Central/East and Southern rural regions reported in Table I—where the researcher explained the study's purpose in person and guided respondents with limited digital access through the questionnaire. Combining both channels reduced the risk that respondents with lower digital literacy or internet access—arguably the segment most relevant to this study's research question—would be systematically excluded from the sample, though it also means the Northern and Eastern regions were reached primarily through online rather than in-person channels. Participation was voluntary, and respondents were informed of the study's purpose and assured of confidentiality before completing the questionnaire.

E. Data Analysis, Validity, and Reliability

Collected data were analysed in SPSS version 29 using three complementary techniques. Descriptive statistics (frequency, percentage, mean, standard deviation) summarised the demographic profile and construct-level responses [36]. A normality check on the dependent variable found that the distribution deviated from normal (Kolmogorov-Smirnov = .314, $p < .001$; Shapiro-Wilk = .773, $p < .001$; skewness = -1.249), which is common in large-sample survey data and does not necessarily preclude parametric analysis [36]; results should nonetheless be interpreted with this deviation in mind. Pearson correlation analysis then examined the bivariate strength and direction of association between each independent variable and BNPL acceptance, interpreted against conventional strength bands (very weak, $r < .20$; weak, .21-.40; moderate, .41-.60; strong, .61-.80; very strong, .81-1.00) [37]. Multiple linear regression was used to test H1-H4 simultaneously and to identify which predictors remained significantly associated with acceptance once shared variance among the four independent variables was accounted for, consistent with the study's extended-TAM framework. Formal multicollinearity diagnostics (e.g., variance inflation factor, tolerance) were not computed in the original analysis; this is noted as a limitation in Section V (Conclusion), and any interpretation involving shared variance among predictors (Section IV-F) should be read as tentative pending such diagnostics.

Instrument reliability was assessed using Cronbach's alpha, with .70 or above considered acceptable for social science research [38]; the final 23-item instrument achieved an alpha of .940 (Section IV-B). Content validity was addressed by adapting items from previously validated TAM, perceived-risk, and digital-financial-literacy instruments in the literature and refining them through the pilot test, consistent with recommended validity practice for survey-based quantitative research [38].

RESULTS AND DISCUSSION

A. Respondent Profile

The most striking feature of the sample is not that baby boomers use BNPL, but how established that use already is: 91.7% of the 302 respondents reported having used a BNPL service such as Shopee PayLater, Grab PayLater, or Atome (Table I). This addresses the study's first objective directly and reframes what “acceptance” means for this population—the central question is not whether rural baby boomers will try BNPL, but why those who already use it continue to do so.

Table I profiles the remaining sample characteristics: 55.3% of respondents were female and 44.7% male; the largest age band was 60-67 years (38.1%), followed by 68-73 years (26.5%), 74-79 years (25.2%), and above 79 years (10.3%); and the sample was 61.9% Malay, 25.2% Chinese, and 12.9% Indian, drawn fairly evenly from the Central/East (31.1%), Northern (30.1%), Eastern (27.5%), and Southern (11.3%) rural regions of Malaysia. Most current users engaged with BNPL only “sometimes” (34.8%) rather than frequently.

Table I. DEMOGRAPHIC AND USAGE PROFILE OF RESPONDENTS (N = 302)

Variable	Category	f	%
Gender	Female	167	55.3
	Male	135	44.7
Age	60–67	115	38.1
	68–73	80	26.5
	74–79	76	25.2
	>79	31	10.3
Race	Malay	187	61.9
	Chinese	76	25.2
	Indian	39	12.9
Region	Central/East	94	31.1
	Northern	91	30.1
	Eastern	83	27.5
	Southern	34	11.3
BNPL user	Yes	277	91.7
	No	25	8.3

Because the sample predominantly reflects existing users rather than non-adopters, the results reported in Sections IV-C to IV-E are best interpreted as determinants of continuance acceptance, not first-time adoption intention—a distinction that matters for how the findings should be applied by practitioners (Section IV-F).

B. Reliability and Descriptive Analysis

Instrument reliability was excellent: the 23 items in the final survey yielded a Cronbach's alpha of .940 [33], confirming that the constructs were measured consistently before proceeding to inferential analysis. Descriptive analysis showed generally favourable perceptions across all four constructs, with item means ranging approximately 3.8–4.1 on the 5-point scale.

Two item-level patterns stand out. First, perceived usefulness items scored highest for BNPL's role in enabling purchases without sufficient cash on hand, and perceived ease of use items scored highest for application simplicity—both consistent with the strong regression effects reported in Section IV-D. Second, perceived risk items scored highest for fear of extra charges on missed payments, indicating that fee-related anxiety remains a live concern for this group even though, as shown next, perceived risk does not survive as a significant predictor once the other three variables are considered jointly.

C. Pearson Correlation Analysis

At the bivariate level, all four independent variables were positively and significantly correlated with BNPL acceptance at the .01 level (two-tailed) (Table II). However, the correlations were not uniform in strength:

perceived usefulness ($r = .798$), perceived ease of use ($r = .778$), and digital financial literacy ($r = .752$) each showed strong-to-very-strong associations, while perceived risk showed a comparatively moderate correlation ($r = .338$).

Table II. Pearson Correlation With Bnpl Acceptance (N = 301)

Variable	r	Sig. (2-tailed)
Perceived usefulness	.798	< .01
Perceived ease of use	.778	< .01
Digital financial literacy	.752	< .01
Perceived risk	.338	< .01

Note. $n = 301$ due to pairwise exclusion of two incomplete cases.

This gap is an early signal, not a final answer: because PU, PEOU, and DFL are themselves likely correlated with one another, perceived risk's weaker bivariate relationship could either reflect a genuinely weaker effect or simply be masked by shared variance with the other three predictors. Multiple regression, reported next, was needed to disentangle these overlapping effects and test H1-H4 on equal footing.

D. Multiple Regression Analysis

The extended TAM model explained a substantial share of the variance in BNPL acceptance. Entered simultaneously, the four predictors produced a statistically significant model, $F(4, 297) = 172.009$, $p < .001$, accounting for 69.9% of the variance in acceptance ($R = .836$, $R^2 = .699$) (Table III).

Table III. Model Summary And Anova

R	R ²	F	df1, df2	Sig.
0.836	0.699	172.009	4, 297	< .001

Table IV ranks the predictors by standardised effect size. Perceived ease of use emerged as the strongest predictor ($\beta = .442$, $p < .001$), ahead of digital financial literacy ($\beta = .267$, $p < .001$) and perceived usefulness ($\beta = .177$, $p = .013$); perceived risk, consistent with its weaker bivariate correlation in Table II, did not reach significance ($\beta = .023$, $p = .503$).

Table IV. Multiple Regression Coefficients

Predictor	B	β	t	Sig.
(Constant)	0.719	—	—	—
Perceived ease of use	0.680	.442	7.287	< .001
Perceived usefulness	0.274	.177	2.502	.013
Perceived risk	0.030	.023	0.670	.503
Digital financial literacy	0.451	.267	4.568	< .001

The resulting regression equation is: BNPL Acceptance = $0.719 + 0.680(\text{PEOU}) + 0.274(\text{PU}) + 0.030(\text{PR}) + 0.451(\text{DFL})$. This ordering directly answers the study's second and third objectives: ease of use and digital competence, not perceived benefit or risk avoidance, are what most strongly separate higher- from lower-acceptance respondents in this rural, older-adult sample.

E. Hypothesis Testing Summary

Table V. Summary Of Hypothesis Testing

Hyp.	Path	Result
H1	PU → Acceptance (+)	Supported
H2	PEOU → Acceptance (+)	Supported
H3	PR → Acceptance (-)	Not supported
H4	DFL → Acceptance (+)	Supported

Three of the four hypothesised paths (H1, H2, H4) were supported; H3 was not. The pattern maps cleanly onto Fig. 2's conceptual framework: three of the four proposed arrows into BNPL acceptance held under simultaneous testing, while the perceived-risk path did not survive once shared variance with the other predictors was accounted for.

DISCUSSION

The dominance of perceived ease of use diverges from BNPL studies in general adult populations, where perceived benefit or performance expectancy is often reported as the leading predictor [5], [25]. For rural baby boomers, the accessibility and simplicity of the interface appears to matter more than the perceived financial benefit alone—consistent with evidence that older consumers' technology confidence and everyday digital familiarity, more than product novelty or benefit, shape their fintech adoption [15], [18]. This suggests that the age- and geography-specific barriers discussed in Section II-B (limited digital infrastructure, lower digital confidence) do not merely reduce BNPL acceptance overall; they actively reshape which TAM constructs matter most, elevating ease of use above benefit.

H3's rejection is best read alongside Table II rather than in isolation: perceived risk was significantly correlated with acceptance on its own, but lost significance once PEOU, PU, and DFL were included together. One plausible explanation is that its effect overlaps with shared variance among the other three predictors; however, as noted in Section III-E, formal multicollinearity diagnostics were not computed in this study, so this explanation remains tentative rather than confirmed, and a genuinely weak direct effect of perceived risk cannot be ruled out. This pattern is broadly consistent with risk-and-benefit research showing that risk effects on BNPL intention can be attenuated once usability and benefit perceptions are accounted for [5], [26]. It may also reflect the profile of this specific sample: because 91.7% of respondents were already using BNPL (Section IV-A), risk concerns may be tempered by direct usage experience and familiarity with established providers—a reassurance that first-time, non-adopting baby boomers would not yet have.

Read together, Sections IV-A to IV-E indicate that BNPL acceptance among rural baby boomers is most strongly associated with how easy and digitally manageable the service feels, not with how much money it might save or how risky it might be. For BNPL providers and policymakers, this points toward a specific and actionable lever: continuance among this demographic may be more responsive to simplifying the application experience and building digital-financial confidence than to risk-reassurance messaging or benefit-focused marketing alone.

CONCLUSION

This study set out to determine the level of BNPL usage among baby boomers in rural Malaysia and to identify which extended-TAM determinants—perceived usefulness, perceived ease of use, perceived risk, and digital financial literacy—significantly predict their acceptance of the service.

Three findings stand out. First, BNPL use among this group is already widespread (91.7%), meaning the more pressing question is what sustains continued use rather than what triggers first adoption. Second, perceived ease of use, digital financial literacy, and perceived usefulness were all significantly associated with acceptance, with ease of use showing the strongest association—an ordering that departs from general-population BNPL research, where benefit perceptions typically lead. Third, perceived risk was not significantly associated with acceptance once the other three variables were controlled for, suggesting that for baby boomers already using BNPL, usability and digital competence are more strongly linked to continued acceptance than risk concerns are.

Theoretically, the study extends TAM to an under-studied demographic and geographic context and shows that the relative importance of its constructs can shift with that context. Practically, BNPL providers and policymakers seeking to deepen inclusive adoption among older rural users should prioritise simple, intuitive application design and targeted digital-financial-literacy support—for example, tutorials or assisted onboarding at community or care-home level—over messaging centred solely on financial benefit or risk reassurance.

This study has several limitations. Its cross-sectional, self-report, quantitative design and its exclusive focus on rural respondents restrict generalisability to urban or semi-urban baby boomers. Its predominantly current-user sample (91.7%) means the findings speak to continuance rather than first-time adoption, and its purposive, non-probability sampling means the results should not be generalised to the wider rural baby boomer population with statistical confidence. Formal multicollinearity diagnostics (e.g., variance inflation factor) were not computed, so the interpretation that perceived risk's non-significance reflects shared variance with other predictors (Section IV-F) remains tentative. The six-item acceptance measure combined related but conceptually distinct notions (comfort, preference, continuance, trust) into a single score without separate dimension-level validation, and the accessible population size used to benchmark the sample was the researcher's own estimate rather than an official figure. Future research should address these gaps by using probability sampling with a documented sampling frame, reporting full regression diagnostics, validating the acceptance measure as separate sub-dimensions, directly comparing rural and urban baby boomers using the same extended-TAM instrument, examining whether the ease-of-use-dominant pattern found here also holds for non-users being onboarded for the first time, and adopting longitudinal designs to track how the weight of these determinants changes as rural baby boomers gain more BNPL experience over time.

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REFERENCES

1. Department of Statistics Malaysia. (2023). ICT use and access by individuals and households survey report, Malaysia 2022. DOSM.
2. Malaysia Digital Economy Corporation (MDEC). (2023). Malaysia digital economy blueprint: Progress and updates. MDEC.
3. Bank for International Settlements (BIS). (2023, December). Buy now, pay later: The digital credit reshaping consumer payments. BIS Quarterly Review.
4. Consumer Credit Oversight Board Task Force. (2024). Buy Now Pay Later (BNPL) industry in Malaysia 2023-2024. CCOB.
5. Dadra, R., Sonavane, A., Bachwani, S., & Behera, C. (2024). Beyond credit cards: A TEP perspective on buy-now-pay-later adoption. *Journal of Global Scholars of Marketing Science*. <https://doi.org/10.1080/21639159.2024.2391282>

6. Ishak, N., Nasah, C. R. J., & Salleh, M. S. (2025). The rise of Buy Now, Pay Later (BNPL): Financial innovation or a new avenue to debt? A systematic and bibliometric analysis. *International Journal of Electronic Commerce Studies*. <https://doi.org/10.7903/IJECS.2596>
7. Gazali, H. M., & Jumadi, J. (2022). The acceptance of digital finance (DiFi) among Muslim consumers in Malaysia. *Labuan Bulletin of International Business and Finance*, 20(2), 107-119. <https://doi.org/10.51200/lbibf.v20i2.3544>
8. Ting, H., Lim, T.-Y., de Run, E. C., & Koh, H. (2017). Are we Baby Boomers, Gen X and Gen Y? A qualitative inquiry into generation cohorts in Malaysia. *Kasetsart Journal of Social Sciences*, 38(3), 329-339. <https://doi.org/10.1016/j.kjss.2017.06.004>
9. Department of Statistics Malaysia. (2020). Population distribution and basic demographic characteristics report 2020. DOSM.
10. Malaysian Communications and Multimedia Commission (MCMC). (2021). Internet Users Survey 2021. MCMC.
11. Schomburgk, L., & Hoffmann, A. O. I. (2023). Buy now, pay later ... on your credit card. *Journal of Behavioral and Experimental Finance*. <https://doi.org/10.1016/j.jbef.2023.100788>
12. Browne, M. (2021). Fintech and responsibility: Buy-now-pay-later arrangements. *Australian Journal of Management*. <https://doi.org/10.1177/03128962211032448>
13. Malay Mail. (2021, March 29). Boost joins DuitNow QR system to support economic regeneration in a contactless way. Malay Mail.
14. Ahmad, N. A., Mohd Ali, M. A., & Tengku Shahdan, T. S. (2025). Intergenerational instructional strategies and elderly preferences for digital applications: A Malaysian case study. *PLOS ONE*, 20(8), e0328481. <https://doi.org/10.1371/journal.pone.0328481>
15. Czaja, S. J., Charness, N., Fisk, A. D., Hertzog, C., Nair, S. N., Rogers, W. A., & Sharit, J. (2006). Factors predicting the use of technology: Findings from the CREATE project. *Psychology and Aging*, 21(2), 333-352. <https://doi.org/10.1037/0882-7974.21.2.333>
16. Venkatesh, V., & Davis, F. D. (1996). A model of the antecedents of perceived ease of use: Development and test. *Decision Sciences*, 27(3), 451-481. <https://doi.org/10.1111/j.1540-5915.1996.tb00860.x>
17. Reisenwitz, T. H., & Iyer, R. (2007). A comparison of younger and older Baby Boomers: Investigating the viability of cohort segmentation. *Journal of Consumer Marketing*, 24(4), 202-213. <https://doi.org/10.1108/07363760710755918>
18. Choi, Y., Han, S., & Lee, C. (2024). Exploring drivers of fintech adoption among elderly consumers. *Technology in Society*, 78, 102669. <https://doi.org/10.1016/j.techsoc.2024.102669>
19. Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319-340.
20. Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science*, 46(2), 186-204. <https://doi.org/10.1287/mnsc.46.2.186.11926>
21. Bauer, R. A. (1960). Consumer behavior as risk taking. In R. S. Hancock (Ed.), *Dynamic marketing for a changing world* (pp. 389-398). American Marketing Association.
22. Lyons, A. C., & Kass-Hanna, J. (2021). A methodological overview to defining and measuring “digital” financial literacy. *Financial Planning Review*, 4(2), e1113.
23. Lee, M. C. (2009). Factors influencing the adoption of internet banking: An integration of TAM and TPB with perceived risk and perceived benefit. *Electronic Commerce Research and Applications*, 8(3), 130-141. <https://doi.org/10.1016/j.elrap.2008.11.006>
24. Vuori, S., & Holmlund-Rytkönen, M. (2005). 55+ people as internet users. *Marketing Intelligence & Planning*, 23(1), 58-76. <https://doi.org/10.1108/02634500510577408>
25. Kumar, A., Salo, J., & Bezawada, R. (2024). Buy Now, Pay Later: Impact of installment payments on customer purchases. *Journal of Marketing*. <https://doi.org/10.1177/00222429241282414>
26. Raj, V. A., Jasrotia, S., & Rai, S. (2024). Role of perceived risks and perceived benefits on consumers' behavioural intention to use Buy-Now, Pay-Later services. *Journal of Facilities Management*. <https://doi.org/10.1108/JFM-01-2023-0004>
27. Relja, R., Ward, P., & Zhao, A. (2023). Understanding the psychological determinants of buy-now-pay-later in the UK: A user perspective. *International Journal of Bank Marketing*. <https://doi.org/10.1108/IJBM-07-2022-0324>

28. Wulandari, R. T., & Damayanti, S. M. (2022). The importance of digital financial literacy to anticipate impulsive buying behaviour in buy-now-pay-later mode. *International Journal of Business and Economy*, 4(3), 170-182.
29. Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications.
30. Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, 5(1), 1-4. <https://doi.org/10.11648/j.ajtas.20160501.11>
31. Tongco, M. D. C. (2007). Purposive sampling as a tool for informant selection. *Ethnobotany Research and Applications*, 5, 147-158. <https://doi.org/10.17348/era.5.0.147-158>
32. Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, 30(3), 607-610.
33. van Teijlingen, E., & Hundley, V. (2001). The importance of pilot studies. *Social Research Update*, (35), 1-4.
34. Hao Lao, U., Lee, L. E., Lew, D. K., Loo, L. S., Ooi, S. X., Lee, V. H., Loh, X. M., & Tan, G. W. H. (2021). Mobile payment adoption: Barriers for baby boomers in Malaysia [Preprint]. EasyChair Preprints. <https://easychair.org/publications/preprint/2dggw>
35. Hassan, Z. A., Schattner, P., & Mazza, D. (2006). Doing a pilot study: Why is it essential? *Malaysian Family Physician*, 1(2-3), 70-73.
36. Pallant, J. (2020). *SPSS survival manual: A step by step guide to data analysis using IBM SPSS* (7th ed.). Routledge.
37. Evans, J. D. (1996). *Straightforward statistics for the behavioral sciences*. Brooks/Cole.
38. Heale, R., & Twycross, A. (2015). Validity and reliability in quantitative studies. *Evidence-Based Nursing*, 18(3), 66-67. <https://doi.org/10.1136/eb-2015-102129>