Understanding the intricacies of risky indebtedness, impulse buying and perceived risk in buy-now-pay-later adoption

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Abstract

Purpose – This study aims to establish that the relationship between the risky indebtedness behavior (RIB) of consumers and their attitude toward adopting buy-now-pay-later (BNPL) is not immediate but is mediated through impulse buying. Moreover, it explores how perceived risk moderates the association between the attitude to adopt BNPL and its adoption intention.

Design/methodology/approach – This study used the existing theoretical and empirical evidence to propose a model and validated it using the data collected from 339 young shoppers in India. Analysis of data is conducted using partial least squares structural equation modeling.

Findings – The study results show that consumers’ RIB is not directly related to their attitude toward BNPL. However, impulse buying fully mediates this relationship, influencing the attitude toward BNPL. Impulse buying and attitude serially mediate the relationship between RIB and BNPL adoption intention. Further, in the context of BNPL, perceived risk strengthens the attitude-intention gap.

Practical implications – This study advises policymakers and BNPL providers to carefully assess users’ creditworthiness to prevent those already in debt from entering into a detrimental loop.

Originality/value – This study provides novel perspectives on consumer’s RIB and BNPL within the Indian context. The study additionally identifies the mediating influence of impulse buying and the moderating effect of perceived risk on BNPL adoption intention.

Keywords Buy-now-pay-later (BNPL), Risky indebtedness behavior (RIB), PLS-SEM, Perceived risk, Impulse buying

Paper type Research paper

Introduction

The emerging technologies in online shopping have provided numerous ways to make payments. Across the world, many e-commerce platforms offer various payment methods, such as cash, debit and credit cards. In India, popular online shopping destinations such as Amazon, Flipkart and Myntra use mobile wallets and UPI [1]. A recent addition to the existing payment methods is buy-now-pay-later (BNPL). This method allows the customer to buy goods and services and delay their payment for a stipulated period (Gerrans et al., 2021; Schomburgk and Hoffmann, 2023). Customers have the option to repay in full or in installments; timely payments incur no interest, but late payments may attract charges depending on the terms and conditions of BNPL companies.

LeadingTree survey reports Americans using BNPL services increased from 31% in 2021 to 43% in 2022 (Schulz, 2023). Strewheckers Group’s study reveals that around 39% of USA consumers have tried BNPL, and 85% intend to continue its usage (Feng et al., 2023). About half of UK online stores, encompassing approximately 17 million, employ this payment method (Sheik, 2021). As per Global Payment Report 2023, BNPL accounted for 5% of worldwide e-commerce transaction value in 2022 and is projected to reach 6% by 2026 (FIS, 2023).

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PWC predicts a tenfold growth in adopting BNPL by Indian millennials in 5 years (PWC, 2022). This short-term credit product is one of the prospering financial technologies of 2021 (Feng et al., 2023). Nevertheless, there is an ongoing debate over whether BNPL is a boon or a bane. Highlighting this concern, Ahn and Nam (2022) reported that consumers involved in mobile payments are at risk of overspending. Moreover, BNPL does not make users feel the pain of paying due to a procrastinated settlement, potentially fueling increased spending (Prelec and George, 1998). Guttman-Kenney et al. (2023) questioned the BNPL users’ ability to pay back, as a large number of users in the UK were youngsters from deprived areas and were charging BNPL bills on credit cards, raising a regulatory concern of settling an unsecured debt with another debt.

Studies have found that using credit cards resulted in overspending (Feinberg, 1986; Soman, 2001), leading consumers into indebtedness (Flores and Vieira, 2014; Matos et al., 2019). This state of overindebtedness is not the root cause that makes consumers unfit to meet their financial obligations (Marron, 2012). Instead, it serves as a symptom, indicating a continuous cycle of vicious debt traps described as risky indebtedness behavior (RIB) by Abrantes-Braga and Veludo-de-Oliveira (2020). RIB is a hazardous debt trap an individual falls into due to excessive spending, which destroys their financial stability and potentially damages their financial well-being (Abrantes-Braga and Veludo-de-Oliveira, 2019).

Research by Akram et al. (2018) and Pradhan et al. (2018) demonstrates that utilizing credit products enhances customers’ propensity for impulsive purchases both online and offline. Impulsivity significantly contributes to consumer indebtedness, as impulsive consumers accumulate more debts through spending (Ottaviani and Vandone, 2011). Ah Fook and McNeill (2020) study indicated higher impulsive buying behaviour among BNPL consumers in New Zealand. It also exhibits a higher probability of BNPL use for future purchases, potentially contributing to excessive expenditure. Previous studies examined credit cards, which are more secure and regulated than other credit products like BNPL (Schomburgk and Hoffmann, 2023). The chances of an individual with distressed financial capacity owning a credit card are comparatively low due to strict credit background assessment. In contrast, BNPL represents an unsecured and unregulated credit, exempt from rigorous credit scrutiny in most countries (Johnson et al., 2021), making it easily accessible, especially by vulnerable customers (Schomburgk and Hoffmann, 2023).

The increasing dependence on BNPL, even for essential purchases, is highly alarming in light of the escalating living expenses and inflation (Bank of England, 2022). Raj et al. (2023a) examined the influence of materialism on BNPL use and impulsive and compulsive buying. In the same context, Raj et al. (2023b) investigated privacy concerns and the influence of trust on consumers’ attitudes. Trust influences perceived risk, and the relationship between the two is non-reciprocal (Mitchell, 1999). Currently, there is a dearth of studies exploring the relationship between RIB, impulse buying, perceived risk and its impact both on the attitude and the adoption intention of BNPL platforms.

Therefore, examining whether people undergoing RIB intend to adopt the BNPL platform for short-term credit facilities is essential. In this context, it is also worth examining whether impulse buying significantly enhances BNPL adoption. Hence, the following are the crucial questions that this study attempts to address; how consumers already in debt due to excessive spending would consider BNPL adoption to manage their current state, whether impulse buying mediates the relationship between RIB and adoption intention and whether perceived risk moderates the relationship between attitude to adopt BNPL and its adoption intention?

The rest of this article contains theoretical background, literature review, hypotheses development, followed by a methodology, a discussion section backed up by results, implications and limitations of the study, and future research directions for this study.
Theoretical background

The marketing and consumer behavior literature on BNPL is in an early stage of development, as highlighted by Cook et al. (2023) and Schomburgk and Hoffmann (2023). Limited academic research has delved into diverse aspects like the economic perspective of BNPL (Guttman-Kenney et al., 2023), mindfulness and overall well-being (Schomburgk and Hoffmann, 2023), psychological determinants (Relja et al., 2023), materialism and compulsive buying (Raj et al., 2023a), BNPL apps and products (Aalders, 2023) and so forth (see Table 1). In its current state, the literature lacks complete formation and is likely to display fluidity and ambiguity, particularly due to the limited existing research to offer a comprehensive perspective for understanding the context of BNPL, as pointed out by Relja et al. (2023). This dilemma is not limited to academic literature; rather, a lack of consistency exists in the regulatory environment. Regulators are concerned about the lack of specific regulations for point-of-sale credit and the potential risks it may pose to consumers, as Maggio et al. (2022) noted. Hence, we also depended on various psychological assumptions, theories and relevant literature on credit cards and mobile payments to frame the arguments for this study.

BNPL providers claim that their offering serves as a tool for consumer empowerment and aids in promoting responsible spending by acting as a proactive budgetary tool (Afterpay, 2023; Gerrans et al., 2021). On the other hand, these services are promoted to potential merchant partners, claiming their utilization reduces “cart abandonment” – a phenomenon where online customers exit the site after selecting items but before completing the payment (Relja et al., 2023). In the case of BNPL services, eligibility criteria and credit allocation are smoother and simpler than credit cards, with many instances where no minimum income or excellent credit history is necessary (Khosla and Jain, 2022; Raj et al., 2023a). Accordingly, BNPL services are forming as a component of a recent increase and normalization of consumer credit (Pellandini-Simányi and Vargha, 2020). Hence, there is a high chance of vulnerable consumers already in a state of RIB trying to use BNPL to overcome their current state. Past literature shows credit products are often positioned as consumer products to encourage aspirations and desires (Marron, 2014). However, consumers lacked adequate information about the potential risks of these credit products, such as becoming indebted (Relja et al., 2023). For instance, BNPL providers present themselves as schemes without interest and fees, which exempts them from the necessity of conducting formal affordability checks (Consumer Financial Protection Bureau [CFPB], 2022). The scarcity of academic literature creates inattention to this issue of consumer indebtedness in the BNPL context.

Consumers inclined toward impulsive buying are anticipated to have positive feelings for BNPL and use it more frequently, as these payment schemes, akin to credit cards, cater to the desire to make immediate purchases (Schomburgk and Hoffmann, 2023). These impulse buying may be triggered as a means to compensate for unmet needs or emotional deficits due to RIB, as pointed out in compensatory consumption theory (Koles et al., 2018). Raj et al. (2023b) acknowledged the relevance of the “theory of planned behaviour (TPB)” in the context of BNPL by extending their model to include privacy concerns and their impact on consumer trust. Similarly, BNPL adoption can be attenuated by the level of perceived risk, where consumers perceive a greater risk associated with BNPL compared to conventional credit cards (Gerrans et al., 2021). Therefore, the tendency of individuals to modify their frame of mind to avoid future vulnerabilities is high, as postulated by the protection motivation theory (Rogers, 1975).

Literature review and hypotheses development

Risky indebtedness behavior (RIB) and attitude toward BNPL

An individual facing risky indebtedness understands their hazardous debt crisis, which will affect their financial preparedness for emergencies. The RIB will damage their financial
<table>
<thead>
<tr>
<th>Study</th>
<th>Context</th>
<th>Methodological approach</th>
<th>Research type</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schomburgk and Hoffmann</td>
<td>Australian BNPL users</td>
<td>Cross-sectional survey with SEM</td>
<td>Quantitative</td>
<td>Mindfulness lowers the use of BNPL by decreasing impulse buying tendencies and increasing their financial self-control. BNPL usage will lower overall well-being due to an individual’s current money management stress and decrease their expected future financial security.</td>
</tr>
<tr>
<td>Relja et al. (2023)</td>
<td>BNPL users in the UK</td>
<td>Projective techniques, template analysis</td>
<td>Qualitative</td>
<td>Identified five psychological determinants of BNPL: Pain of payment, attitude, transparency, psychological ownership and transaction convenience.</td>
</tr>
<tr>
<td>Gutman-Kenney et al. (2023)</td>
<td>UK BNPL market (secondary data)</td>
<td>Linear regression</td>
<td>Quantitative</td>
<td>Reports that most young consumers from deprived areas are charging their BNPL bills on credit cards. The study analyzed individuals’ preferences regarding BNPL and credit cards in light of financial literacy and personality traits like propensity to save.</td>
</tr>
<tr>
<td>Gerrans et al. (2021)</td>
<td>Australian respondents</td>
<td>Factor analysis, regression</td>
<td>Quantitative</td>
<td>The study analyzed individuals’ preferences regarding BNPL and credit cards in light of financial literacy and personality traits like propensity to save.</td>
</tr>
<tr>
<td>Aalders (2023)</td>
<td>Generic</td>
<td>Walk-through method</td>
<td>Qualitative</td>
<td>The study examines how Afterpay, Klarna and Zip – three well-known BNPL products – define responsible lending and spending.</td>
</tr>
<tr>
<td>Raj et al. (2023a)</td>
<td>Indian BNPL users</td>
<td>Cross-sectional survey with SEM</td>
<td>Quantitative</td>
<td>Materialism affects the utilization of BNPL and heightens the propensity for impulsive buying, which leads to compulsive buying.</td>
</tr>
<tr>
<td>Raj et al. (2023b)</td>
<td>Indian respondents</td>
<td>Online cross-sectional survey with SEM</td>
<td>Quantitative</td>
<td>The authors discovered that privacy concerns negatively impact customers’ trust and perception of BNPL. In particular, it was shown that attitude, subjective norms and perceived behavioral control significantly predicted customers’ intentions to utilize BNPL.</td>
</tr>
</tbody>
</table>

Table 1. Research exploring various aspects of BNPL (continued)
stability and goals, due to which reasonable purchases now become unaffordable (Abrantes-Braga and Veludo-de-Oliveira, 2019), which further leads to anxiety (Engelberg and Sjöberg, 2006). Anxiety is a mental as well as emotional state characterized by a desire to prevent possible negative consequences from happening (Markman et al., 2007). Studies have shown that people try to cope with their anxiety by indulging in excessive purchases (Islam et al., 2021; Ridgway et al., 2008). An unsecured credit product like BNPL can potentially stimulate such overspending (Schulz, 2023), irrespective of their financial stability, and push them to fall into a debt trap. Hence, those individuals who are in RIB will hold a repulsive attitude toward this payment method and will be compelled to exercise restraint behavior due to their excessive spending. This behavior can be posited from the prevention focus of regulatory focus theory (Shah and Higgins, 1997). A prevention-focused individual will try to avoid risky financial planning in order to avoid negative consequences in the future (Pereira and Coelho, 2020). Therefore, we hypothesize that:

**H1.** RIB is negatively associated with attitude toward BNPL.

**RIB and impulse buying**

RIB is a state where a person finds themselves unable to manage their creditworthiness and, therefore, are pushed into a situation where they find it difficult to meet debt obligations due to excessive spending. RIB is thus defined as “a behavioral tendency to get into hazardous debt revealed by repetitive debts due to spending more than one can afford” (Abrantes-Braga and Veludo-de-Oliveira, 2019, p. 1029). The person unable to meet their credit obligations not only experiences financial stress but also acute stress, emotional problems, behavioral disorders and even physical illness (Kim et al., 2006). Excessive debt leads to depressive moods and negativity (Liu et al., 2021), which can be quashed by unplanned purchases

<table>
<thead>
<tr>
<th>Study</th>
<th>Context</th>
<th>Methodological approach</th>
<th>Research type</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cook et al. (2023)</td>
<td>Australian BNPL users</td>
<td>content analysis, walking ethnography and interviews</td>
<td>Qualitative</td>
<td>The study reports that BNPL services cultivate a “structure of feeling” reminiscent of digitally intimate online environments. They assert that, through creating a sense of enjoyment and amusement, they differentiate themselves from other financial services that are often perceived as more “serious.”</td>
</tr>
<tr>
<td>Powell et al. (2023)</td>
<td>Australian BNPL users</td>
<td>Cross-sectional survey with SEM</td>
<td>Quantitative</td>
<td>Examined the relationship that exists between recommended financially responsible BNPL behavior and financial well-being and found that terms and conditions, budgeting and planning and compulsive buying behavior influence financial well-being</td>
</tr>
</tbody>
</table>

Table 1.
(Atalay and Meloy, 2011). When a purchase is unplanned, accompanied by difficulty to control, and is effectuated by an emotional drive, it becomes impulse buying (Verplanken and Sato, 2011). This relationship can also be postulated through self-regulation theory, which argues the capacity to control impulses is reduced if resources used to regulate mood and restore equilibrium are diverted from those that would otherwise be accessible (Baumeister, 2002; Vohs and Baumeister, 2004). Therefore, we believe consumers who are in the state of RIB will be positively inclined toward impulse buying, and thus hypothesize:

**H2.** RIB will lead to a positive and significant relationship toward impulse buying.

**Impulse buying to attitude toward BNPL**

Impulse buying is when “a customer experiences a sudden, often powerful and persistent urge to buy something” (Rook, 1987, p. 191). Online buying situations are more propitious toward impulse buying tendencies than offline setups (Eroglu et al., 2001). This is particularly relevant given that BNPL platforms mainly operate in online business (Sheik, 2021). Additionally, many BNPL platforms make significant efforts to encourage impulse buying among their users (Schomburgk and Hoffmann, 2023). A qualitative study conducted on college students revealed that those exhibiting impulsive buying tendencies are the ones who jump into a credit product like BNPL without even worrying about its consequences (Wang and Xiao, 2009). Consumers with a higher propensity for impulse purchases are anticipated to use BNPL more frequently as, like credit cards, these payment methods encourage the desire to make an immediate purchase (Bernthal et al., 2005). B. F. Skinner’s operant conditioning theory elucidates this phenomenon, wherein impulse buying generates positive feelings (Verplanken and Sato, 2011), forming a positive reinforcement and strengthening the probability of its recurrence (Leeder, 2022).

Consequently, lucrative credit products like BNPL will entice impulse buyers to persist in their shopping habits. With these arguments, we also believe that individuals who are impulse buyers will hold a positive attitude toward BNPL products. Therefore, we hypothesize that:

**H3.** Impulse buying is positively related to attitude toward BNPL.

**Mediation of impulse buying between RIB and attitude toward BNPL**

Impulse buying cannot be just limited to an unplanned purchase; rather, it is an inherent powerful urge to buy without considering the aftereffects (Rook, 1987). This urge extends beyond physical stores and is stimulated by the online browsing experience, the attractiveness of online merchandise and the website’s communication style (Floh and Madlberger, 2013; Verhagen and van Dolen, 2011). The top BNPL providers are pushing retailers to make their websites more vibrant and active on social media to boost impulse purchases (Schomburgk and Hoffmann, 2023). Therefore, such dynamic online platforms, sufficient finances and lack of self-control will necessitate impulse buying engagement (Baumeister, 2002). The individuals who are impulsive would have less self-control over themselves to exert prevention focus (Shah and Higgins, 1997) and, therefore, will have a greater tendency to gain a positive attitude toward BNPL platforms. Previous research also states that people with low self-control are not good at managing their money, saving less and spending more (Romal and Kaplan, 1995). Moreover, those impulse buyers in the state of RIB will undergo stress due to a lack of resources (i.e. money). Individuals with excessive spending due to impulse buying habits face cognitive dissonance as they desire to buy but cannot do so due to financial constraints. To overcome this cognitive dissonance, they may easily be induced into an interest-free, unsecured short-term credit. Hence, impulsive buyers facing RIB would have a greater tendency to choose BNPL platforms while shopping online. Therefore, we hypothesize:
**H4.** Impulse buying will positively mediate the relationship between risky indebtedness behavior and attitude toward BNPL.

**Attitude to adoption intention**

Behavioral theories like the technology acceptance model (Davis, 1989) and TPB (Ajzen, 1985) successfully predicted intention through attitude in numerous contexts. An individual with a positive attitude toward a behavior would likelier perform such behavior. Previous studies in closely related contexts like mobile commerce (Khoi et al., 2018) and mobile banking (Elhajjar and Ouaida, 2019) effectively anticipated behavioral intention with attitude. Similarly, Raj et al. (2023b) reported the presence of this occurrence in the BNPL context with the help of an extended TPB model. Hence, in this study, we also presume that consumers having a positive attitude toward BNPL as a payment option while shopping online would have greater intention to adopt BNPL. Therefore, we hypothesize:

**H5.** Attitude toward BNPL is positively related to its adoption intention.

**Moderation of perceived risk between attitude and adoption intention**

Adopting any technology is hindered by the level of risk perceived by its users (Klerck and Sweeney, 2007). Mallat (2007) reported that people would be more comfortable with trustworthy platforms as they feel less risk associated with them. For instance, established banks and credit card companies are perceived as less risky while making payments. Perceived risk is an individual's fear of uncertainty and fear of negative consequences (Curras-Perez et al., 2017). The perceived risk of BNPL is higher than that of credit cards, especially for those with a greater propensity toward savings (Gerrans et al., 2021). The negative perception majorly stems from fraud in procuring, transferring and storing users' sensitive information online (Wang et al., 2019). This perception creates a threat appraisal among consumers, contributing to an increased attitude-intention gap, aligning with the protection motivation theory (Rogers, 1975). As per this theory, individual attitudes are shaped by their judgments regarding the severity and vulnerability of connected risks. In the context of BNPL, high perceived risk might lead to a more negative attitude toward adoption. Moreover, many studies in various similar contexts reported the negative effect of perceived risk on consumers’ adoption intention (Tan and Teo, 2000; Thakur and Srivastava, 2014; Wang, 2008). Therefore, we hypothesize:

**H6.** Perceived risk will negatively moderate the association between attitude toward BNPL and BNPL adoption intention.

**Serial mediation effect of impulse buying and attitude toward BNPL**

In the state of RIB, consumers do not hold a significant relationship with a positive attitude toward adopting BNPL (H1). However, their impulse buying behavior impels them to generate a positive attitude toward BNPL products (H4). Similarly, attitude toward BNPL is a positive predictor of its adoption intention. Therefore, both of these constructs might have a dynamic relationship between RIB and BNPL adoption intention. Previous studies in different contexts support the combination of impulse buying and attitude to form intention (Chen et al., 2022; Gunden et al., 2020). Chopdar et al. (2022) also pointed out that impulsiveness positively influences the installation of mobile shopping applications. Therefore, though we do not assume any direct effect between RIB and adoption intention, we, however, assume that the indirect effect of impulse buying and attitude toward BNPL would make this relationship positively significant (see Figure 1). Therefore, we hypothesize that:

**H7.** The association between RIB and BNPL adoption intention is serially mediated by impulse buying and attitude.
Research methodology

Participants and approach

The data were collected with a tablet-based face-to-face interview through a structured questionnaire using a non-probability quota sampling during mid-2022 from three public universities in two different cities in India. The respondents were online shoppers who use digital payment methods. Respondents were offered two response options: they could either utilize the provided tablet or scan the enumerator-provided QR code to complete the survey on their device in the enumerator’s presence. Of the responses received, 339 were fit for data analysis. The sample size is sufficient as per the “10 times rules” suggested for PLS-SEM studies (Hair *et al*., 2011). As more than 60% of respondents were male, we conducted an independent sample t-test to ensure no significant mean difference exists among both genders ($t = 0.127, p = 0.899$) to confirm that respondents’ gender does not influence their responses. The detailed sociodemographic characteristics are provided in Table 2.

Study context

India, as the world’s 5th largest economy with a GDP of $3,730 billion *(International Monetary Fund [IMF], 2023)*, has established itself as a global payment leader. One key factor contributing to

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Value</th>
<th>Frequency ($N = 339$)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>206</td>
<td>60.7</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>133</td>
<td>39.3</td>
</tr>
<tr>
<td>Age</td>
<td>18–24 years</td>
<td>92</td>
<td>27.1</td>
</tr>
<tr>
<td></td>
<td>24–30 years</td>
<td>111</td>
<td>32.7</td>
</tr>
<tr>
<td></td>
<td>30–36 years</td>
<td>98</td>
<td>28.9</td>
</tr>
<tr>
<td></td>
<td>36 above</td>
<td>38</td>
<td>11.2</td>
</tr>
<tr>
<td>Education level</td>
<td>Higher secondary and below</td>
<td>55</td>
<td>16.2</td>
</tr>
<tr>
<td></td>
<td>Graduate</td>
<td>120</td>
<td>35.4</td>
</tr>
<tr>
<td></td>
<td>Postgraduate and above</td>
<td>164</td>
<td>48.4</td>
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<tr>
<td>Monthly income (INR)</td>
<td>Below 10,000</td>
<td>124</td>
<td>36.6</td>
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<tr>
<td></td>
<td>10,000–35,000</td>
<td>160</td>
<td>47.2</td>
</tr>
<tr>
<td></td>
<td>Above 35,000</td>
<td>55</td>
<td>16.2</td>
</tr>
</tbody>
</table>

*Figure 1.* Conceptual model

Note(s): Dotted arrows represent indirect relationships
this success is the development of next-generation real-time payment infrastructure (FIS, 2023). This leadership is evident in the remarkable volume of real-time payment transactions in 2022, where India leads the world with 89.5 billion transactions (ACI, 2023), showing the widespread adoption of digital payment methods in the country. The cutting-edge payment infrastructure has also fostered growth in India’s fintech sector, with BNPL emerging as a significant contributor, accounting for approximately $3.32 billion in India’s GDP (FIS, 2023). The Indian BNPL market encompasses companies that provide services through various channels, including apps like Simpl and LazyPay, e-commerce platforms like Amazon and Flipkart through their pay-later services, card-based systems and mobile wallets. The substantial growth of BNPL in India is driven by a sizable population of educated, young, urban and semi-urban digital natives with higher disposable incomes, a burgeoning awareness of financial literacy and a preference for real-time payments (Asian Development Bank [ADB], 2022; Schultz and Jain, 2018). Hence, it is worthwhile to explore the context of BNPL in India.

### Measures

Scales from earlier research were utilized in this study to measure the constructs (see Appendix). Five-item scale of RIB was adapted from Abrantes-Braga and Veludo-de-Oliveira (2020), impulse buying from Rook and Fisher (1995), attitude from Ajzen (1991), intention from Fishbein and Ajzen (1975) and perceived risk from Alalwan et al. (2018) and Singh et al. (2021). To ensure content validity, we approached experienced marketing and consumer behavior scholars, who recommended slight modifications to the questionnaire language for alignment with our study context. A pilot test was conducted with 60 respondents to assess readability and understanding of the questionnaire. All the study constructs were determined on a 5-point Likert scale.

### Results

We conducted data analysis using partial least squares-structural equation modeling (PLS-SEM) with the help of SmartPLS 4.0.9.5. This approach combines factor analysis with linear regression to check the relationship between latent variables using observed data (Hair et al., 2019b). This study employed a two-step approach: first, utilizing Confirmatory Factor Analysis (CFA) to confirm the reliability and validity of the constructs, and second, path analysis to validate the hypotheses (Anderson and Gerbing, 1988).

#### Measurement results

Firstly, we checked all the constructs’ validity, reliability and internal consistency. All factor loadings exceed 0.826, complying with the 0.7 threshold limit. Moreover, the AVE and CR values for all constructs exceeded the recommended thresholds of 0.5 and 0.7, confirming both internal reliability and convergent validity (Hair et al., 2019a) (see Table 3).

The square root of AVE of all latent variables is greater than their associated correlation coefficients for each factor, ensuring discriminant validity (Fornell and Larcker, 1981). The heterotrait-monotrait criterion (Henseler et al., 2015) was also used to confirm discriminant validity in this study (see Table 4).

We checked the correlation coefficient for all latent variables, confirming their significance and ensuring values are below 0.9. This mitigated multicollinearity concerns (Tabachnick and Fidell, 2012). The VIF values of all the items is less than 5, ensuring that the items used to measure study variables are free from multicollinearity issues (Hair et al., 2019a).

### Common method bias

The study’s cross-sectional nature elevates the chances of common method bias (CMB). Therefore, to ensure the study is free from CMB, we performed Harman’s single-factor test...
revealing a result of less than 50%, confirming the absence of CMB (Podsakoff et al., 2003). Also, precautions were taken before and during the data collection to avoid CMB. The questionnaire’s structure was divided into sections to create emotional and proximal separations, allowing the respondents’ perspectives to be recalibrated to reduce the chances of CMB (Podsakoff et al., 2003). Additionally, participants were assured that their responses, solely for academic purposes, are confidential, with no right or wrong answers, to mitigate bias (MacKenzie and Podsakoff, 2012). Finally, we also employed the full collinearity test suggested for PLS-SEM studies and found that the VIF obtained was less than 3.3, which ensures the absence of CMB (Kock, 2015).

### Measurement results

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Items</th>
<th>OL</th>
<th>CA</th>
<th>AVE</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived risk</td>
<td>RISK1</td>
<td>0.864</td>
<td>0.887</td>
<td>0.748</td>
<td>0.922</td>
</tr>
<tr>
<td></td>
<td>RISK2</td>
<td>0.891</td>
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<td></td>
<td>RISK3</td>
<td>0.876</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>RISK4</td>
<td>0.826</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitude</td>
<td>ATT1</td>
<td>0.914</td>
<td>0.906</td>
<td>0.842</td>
<td>0.941</td>
</tr>
<tr>
<td></td>
<td>ATT2</td>
<td>0.927</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>ATT3</td>
<td>0.912</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adoption intention</td>
<td>INT1</td>
<td>0.937</td>
<td>0.929</td>
<td>0.876</td>
<td>0.955</td>
</tr>
<tr>
<td></td>
<td>INT2</td>
<td>0.933</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>INT3</td>
<td>0.939</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risky indebted behavior</td>
<td>RIB1</td>
<td>0.886</td>
<td>0.934</td>
<td>0.792</td>
<td>0.950</td>
</tr>
<tr>
<td></td>
<td>RIB2</td>
<td>0.889</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>RIB3</td>
<td>0.901</td>
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<td></td>
<td>RIB4</td>
<td>0.922</td>
<td></td>
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<tr>
<td></td>
<td>RIB5</td>
<td>0.849</td>
<td></td>
<td></td>
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<tr>
<td>Impulse buying</td>
<td>IMP1</td>
<td>0.871</td>
<td>0.929</td>
<td>0.825</td>
<td>0.950</td>
</tr>
<tr>
<td></td>
<td>IMP2</td>
<td>0.915</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>IMP3</td>
<td>0.919</td>
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<td></td>
<td>IMP4</td>
<td>0.927</td>
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</table>

**Table 3.** Measurement results

<table>
<thead>
<tr>
<th>Discriminant validity</th>
<th>RIB</th>
<th>ATT</th>
<th>INT</th>
<th>IMP</th>
<th>RISK</th>
</tr>
</thead>
<tbody>
<tr>
<td>RIB</td>
<td>0.890</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATT</td>
<td>0.163</td>
<td>0.918</td>
<td></td>
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<td></td>
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<tr>
<td>INT</td>
<td>0.198</td>
<td>0.785</td>
<td>0.936</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IMP</td>
<td>0.391</td>
<td>0.448</td>
<td>0.502</td>
<td>0.908</td>
<td></td>
</tr>
<tr>
<td>RISK</td>
<td>0.210</td>
<td>0.645</td>
<td>0.702</td>
<td>0.584</td>
<td>0.865</td>
</tr>
</tbody>
</table>

**Table 4.** Discriminant results

Note(s): RIB: risky indebtedness behavior; ATT: attitude toward BNPL; INT: BNPL adoption intention; IMP: impulse buying; RISK: perceived risk

Italic font is used for the diagonal element, which displays the square root of AVE for each construct.

### Structural model results

The structural model was estimated following the recommendations of Hair et al. (2017). The scrutiny of collinearity in the study was done on structural relationships to ensure the absence of collinearity issues. All research variables had VIF values lower than 5, which supported the absence of collinearity. The $Q^2$ values via PLS Predict for all the endogenous
variables used to build the structural model were greater than zero, hence suggesting predictive relevance ($Q^2_{(ATT)} = 0.021, Q^2_{(IMP)} = 0.147, Q^2_{(INT)} = 0.356$) (Hair et al., 2017). Similarly, another most common and suggested measure to assess the structural model is $R^2$ (Hair et al., 2017); the current study’s endogenous variables exhibited acceptable $R^2$ ($R^2_{(ATT)} = 0.201, R^2_{(IMP)} = 0.153, R^2_{(INT)} = 0.691$). SRMR is also a well-received measure of model fit (Benitez et al., 2020; Pavlov et al., 2021). The SRMR value is 0.042, which is below the threshold value of 0.08 suggested by Benitez et al. (2020), which substantiates acceptable model fit.

All hypotheses tested were significant except H1 (as shown in Table 5 and Figure 2). The results affirmed that RIB does not hold any direct relationship to attitude toward BNPL ($β = -0.015, p > 0.05, t = 0.303$), rejecting H1, and RIB is positively related to impulse buying ($β = 0.391, p < 0.01, t = 8.805$), confirming H2. Impulse buying, on the other hand, was positively related to attitude toward BNPL ($β = 0.454, p < 0.01, t = 10.048$), confirming H3. Attitude positively predicts BNPL adoption intention ($β = 0.540, p < 0.01, t = 10.797$), confirming H5. In the case of indirect effects of mediation, results revealed that impulse buying mediates the relationship between RIB and attitude toward BNPL ($β = 0.178, p < 0.01, t = 6.492$), confirming H4. The moderation effect of perceived risk between attitude toward

<table>
<thead>
<tr>
<th>Hypotheses</th>
<th>Structural path</th>
<th>Path coefficient</th>
<th>$t$-value</th>
<th>Hypothesis supported?</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1 RIB $→$ ATT</td>
<td>-0.015</td>
<td>0.303</td>
<td>NO</td>
<td></td>
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<tr>
<td>H2 RIB $→$ IMP</td>
<td>0.391</td>
<td>8.805</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>H3 IMP $→$ ATT</td>
<td>0.454</td>
<td>10.083</td>
<td>YES</td>
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<tr>
<td>H4 RIB $→$ IMP $→$ ATT</td>
<td>0.178</td>
<td>6.534</td>
<td>YES</td>
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<tr>
<td>H5 IMP $→$ INT</td>
<td>0.078</td>
<td>1.678</td>
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<tr>
<td>H6 ATT $→$ INT</td>
<td>0.529</td>
<td>10.453</td>
<td>YES</td>
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</tr>
<tr>
<td>H7 RIB $→$ IMP $→$ ATT $→$ INT</td>
<td>-0.070</td>
<td>2.186</td>
<td>YES</td>
<td></td>
</tr>
</tbody>
</table>

Note(s): RIB: risky indebtedness behavior; ATT: attitude toward BNPL; INT: BNPL adoption intention; IMP: impulse buying; RISK: perceived risk

Table 5. PLS-SEM results

Figure 2. Structured path model
BNPL and its adoption intention was negative and significant ($\beta = -0.070$, $p < 0.05$, $t = 2.186$). The serial mediation effect of impulse buying and attitude toward BNPL on its adoption intention was also positive and significant ($\beta = 0.094$, $p < 0.01$, $t = 5.357$), confirming H7.

Discussion

This research examines the adoption of BNPL services in the e-commerce context, which is under-researched. BNPL, an easily accessible unsecured credit product, should promote responsible lending by ensuring customers’ creditworthiness to reduce the risk of credit misuse. As highlighted by Guttman-Kenney et al. (2023), caution should be taken against settling unsecured credit bills against another credit product which pushes users into a vicious debt trap. Schomburgk and Hoffmann (2023) examined the influence of some antecedents and consequences of BNPL usage, like mindfulness, financial self-control and financial well-being, but overlooked attitude and intention regarding adoption. They also called for studies to understand context-specific antecedents and consequences of consumers’ BNPL usage. Through this study, we checked the relationship between RIB and the adoption of BNPL through the mediating effect of impulse buying and attitude.

The study results indicate that consumers already in a state of RIB would be positively inclined toward BNPL and will intend to adopt it. Though the direct relationship between RIB and attitude is insignificant (H1), the full mediation effect of impulse buying between RIB and attitude capacitates this relationship to be positive and significant (confirming H4). This full mediation of impulse buying could be contemplated through the lens of cognitive dissonance theory (Festinger, 1957).

Previous studies explored how materialism would impact impulse buying and compulsive buying in the context of BNPL (Raj et al., 2023a) and credit cards (Pradhan et al., 2018). However, both these studies overlooked how impulse buying and attitude toward BNPL could influence the adoption intention, which we empirically validated in our study. The findings depict that attitude, along with impulse buying, serially mediates the relationship between RIB and adoption intention (confirming H7).

Furthermore, this study shows that RIB is positively associated with impulse buying (confirming H2); this means individuals in RIB engage in impulse buying to overcome their stress, even though the reason behind their current situation is excessive spending. These findings align with impulse buying literature, which indicates negative feelings positively affect impulse behavior (Gardner, 1985; Rook and Gardner, 1993).

Raj et al. (2023b) focused on the trust aspect and ignored the element of perceived risk, which would impact BNPL adoption; however, in our study, we considered perceived risk as a moderator between attitude and adoption. The desire to adopt BNPL will get attenuated with perceived risk (confirming H6), which means those who perceive it as a risky payment option will not intend to adopt it even if they have a positive attitude. The moderation effect of perceived risk depicted in this study aligns with Featherman and Pavlou’s (2003) findings of perceived risk’s negative effect on e-services adoption intention. Relja et al. (2023), in their qualitative study, described the psychological determinants of BNPL in the UK from the users’ perspective and pointed out attitude toward BNPL as a psychological determinant.

We, through our study, quantitatively validated this determinant that attitude toward BNPL positively related to its adoption intention (confirming H5).
Implications
The study holds significant implications for academia as well as industry. The context of BNPL and online shoppers’ behavior in terms of its adoption is given little attention in academic literature. Theoretical frameworks related to adopting financial technologies like BNPL may benefit from including variables such as RIB, impulse buying and perceived risk, presenting a more holistic perspective on the adoption process. The presence of RIB is seldom referred to in financial technology adoption literature. Our study reveals a strong inclination among individuals in the state of RIB to adopt BNPL, with impulse buying as a mediator. Abrantes-Braga and Veludo-de-Oliveira (2020) underlined RIB as an outcome of impulse buying; however, our results identify that RIB is not merely an outcome but can also be a predictor for impulse buying. Moreover, this study enhances impulse buying literature through the findings, which show that individuals in the state of RIB have a high tendency to be impulse buyers. Additionally, impulse buyers’ tendency toward attitude and BNPL adoption is significant. The study, through its negative moderation of perceived risk, can also be a theoretical contribution toward the attitude-intention gap in the BNPL context.

This study extends its implication to policymakers and e-commerce companies providing BNPL facilities. Companies should take utmost care while assessing the creditworthiness of prospective users to avoid people in debt falling into further vicious debt traps. Moreover, BNPL providers should alert the customers with instant messages about their level of purchase and debt while making every transaction to promote responsible and sustainable lending. The companies should also ensure that the prospective user applying for this facility is not a defaulter of any other similar short-term credit products. The BNPL companies should promptly report the defaulters to credit bureaus so that users would be more cautious while using such platforms. This study holds up the question Guttmann-Kenney et al. (2023) raised to regulators regarding the settlement of debt with another unsecured debt. BNPL, potentially a source of disposable spending for those deprived of other credit sources, requires careful approval consideration by providers. This study provides insights that could contribute to more accurate risk assessments, allowing for better-informed lending decisions. Moreover, providers can market their product with more tailored communication, especially focusing on individuals already in debt, emphasizing their product as a responsible and trustable credit payment checkout option.

Our findings reveal that impulse buying mediates the relationship between RIB and attitude toward BNPL; thus, it is recommended to consistently display customers’ current debt level while browsing e-commerce applications to foster mindful purchases, exercise financial self-control and avoid falling into hazardous debt trap.

This study reveals that perceived risk negatively moderates the relationship between attitude toward BNPL and adoption intention. Thus, companies providing BNPL services for online shopping should prioritize trust-building efforts to reduce the perceived risk toward the payment platform. Increasing awareness regarding BNPL platforms and their operations will bring more clarity and, eventually, reduce perceived risk. Financial institutions and regulators should adopt comprehensive communication regarding the terms and conditions of BNPL services, specifically addressing concerns around concealed fees, interest rates and overall financial risk.

Limitations and future research
This study situated in India, an emerging economy with a lower per capita income than advanced economies like the US and UK, could yield different outcomes if data were collected from other countries. Similarly, the cultural aspect might impact the attitude toward a credit product. Future studies should explore the cultural dimension of BNPL adoption across different countries.
The study solely examines the influence of impulse buying tendency on strengthening the risky attitude of indebted individuals towards BNPL products. Other personality traits, like materialism and conspicuous consumption, may also intensify this relationship, and future studies could explore the impact of these variables in the BNPL adoption context. Similarly, the study used only one moderator between attitude to adopt BNPL and its adoption intention, and many other variables might strengthen or mitigate the attitude-intention gap. Future researchers can include moderators like trust and convenience to check their impact on BNPL adoption. Future researchers can vanquish the limitation of the cross-sectional nature of this study through longitudinal studies and experiments.

Note
1. UPI - In India, UPI (Unified Payment Interface) is a real-time instant payment system that enables the quick transfer of money between two bank accounts via a smartphone interface.

References


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FIS (2023), “Global payment report 2023”.


Khosla, R. and Jain, A. (2022), *How Are Credit Cards and Buy Now Pay Later Cards Different?*, Forbes, NJ.


Appendix

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Items</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risky indebtedness behavior</td>
<td>RIB1: I am often in debt much more than I can pay</td>
<td>Abrantes-Braga and Veludo-de-Oliveira (2020)</td>
</tr>
<tr>
<td></td>
<td>RIB2: I often have to pay fines (or interests) for paying overdue bills</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RIB3: I often borrow money to pay off my debts</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RIB4: I am often in debt for much more than my monthly income</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RIB5: My debts damage my life goals, such as saving money, investing in education or buying my own home</td>
<td></td>
</tr>
<tr>
<td>Impulse buying</td>
<td>IMP1: When I shop online, I often buy things spontaneously</td>
<td>Rook and Fisher (1995)</td>
</tr>
<tr>
<td></td>
<td>IMP2: When I use shop online, I often buy things without thinking beforehand</td>
<td></td>
</tr>
<tr>
<td></td>
<td>IMP3: When I shop online, sometimes I feel like buying things on the spur-of-the-moment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>IMP4: “Just do it” describes the way I buy things online</td>
<td></td>
</tr>
<tr>
<td>Attitude to adopt BNPL</td>
<td>ATT1: Using BNPL as a payment option in the near future would be very good</td>
<td>Ajzen (1991)</td>
</tr>
<tr>
<td></td>
<td>ATT2: Using BNPL as a payment option in the near future will offer lot of advantages</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ATT3: Using BNPL as a payment option in the near future will add lot of value</td>
<td></td>
</tr>
<tr>
<td>BNPL adoption intention</td>
<td>INT1: I will use BNPL as a payment option while shopping online in the future</td>
<td>Fishbein and Ajzen (1975)</td>
</tr>
<tr>
<td></td>
<td>INT2: I intend to use BNPL as a payment option while shopping in the future</td>
<td></td>
</tr>
<tr>
<td></td>
<td>INT3: I can see myself using BNPL as a payment option in the future</td>
<td></td>
</tr>
<tr>
<td>Perceived risk</td>
<td>RISK1: I feel that using BNPL as a payment option while shopping online exposes me to potential fraud</td>
<td>Alalwan et al. (2018) and Singh et al. (2021)</td>
</tr>
<tr>
<td></td>
<td>RISK 2: I fear that while using BNPL as a payment option during online shopping, my privacy is at risk</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RISK 3: I fear that while I am using BNPL as a payment option while shopping online, someone may hack my bank account</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RISK 4: I fear that using BNPL as a payment option while shopping online exposes me to an overall risk</td>
<td></td>
</tr>
</tbody>
</table>

Table A1. Constructs used in the study with scales and sources.
About the authors
Syam Kumar is working as a doctoral research scholar in the Department of Management Studies, Indian Institute of Technology, Roorkee, India. He holds two postgraduate degrees, one in commerce and another in business administration, from Banaras Hindu University and Pondicherry University, respectively. He is pursuing his Ph.D. in consumer behavior and payment methods in online shopping contexts. His research interests are BNPL, payment methods and consumer psychology.

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