



The Indebtedness of Generation Z in Using Buy Now, Pay Later: The Mediating Role of Materialism (A Study of BNPL Users in Jabodetabek)

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Abstract

Purpose – The rising popularity of Buy Now, Pay Later (BNPL) services has been accompanied by growing concerns regarding over-indebtedness. Therefore, this study aims to examine the relationships among financial literacy, risk perception, materialism, and indebtedness within the context of Generation Z BNPL users in Jabodetabek.

Methodology – A quantitative approach was employed using Partial Least Squares Structural Equation Modeling (PLS-SEM) to analyze the relationships among variables. Data were collected from 315 BNPL users selected through purposive sampling via an online questionnaire.

Findings – The findings show that financial literacy and risk perception play crucial roles in managing indebtedness among Generation Z BNPL users in Indonesia. However, materialism acts as a mediating mechanism, whereby the pursuit of happiness and social status through possessions connects financial literacy and risk perception to higher levels of indebtedness.

Originality – This study offers originality by focusing on the mediating role of materialism in the relationships between financial literacy, risk perception, and indebtedness within the Indonesian BNPL context.

1. Introduction

The development of digital financial services has rapidly transformed consumer behavior, particularly through the emergence of Buy Now, Pay Later (BNPL) services. This innovation offers instant, interest-free credit and has become highly attractive to young consumers. However, as BNPL gains wider adoption, concerns regarding excessive indebtedness have increased. In 2024, Indonesia's BNPL non-performing loan (NPL) ratios fluctuated around 5% before stabilizing at 3.33% (Pefindo, 2024), a figure approaching the standard banking threshold. These trends underscore the importance of examining the risks associated with BNPL to ensure financial stability.

This study focuses on Generation Z, the demographic group with the highest adoption rate of BNPL services. According to McKinsey (2023), nearly half of Generation Z is projected to use

BNPL by 2025, reflecting this cohort's strong affinity for digital technology. Compared with older generations, Generation Z is more vulnerable to excessive debt due to high engagement with digital financial services combined with limited financial literacy. Regional data further reinforce this concern. For instance, Jakarta recorded the highest BNPL NPL ratio at 6.68% in 2023 (Bisnis.com, 2024), indicating that the spending behavior of Generation Z warrants closer examination than that of other demographic groups.

The study investigates the interrelationships among financial literacy, risk perception, materialism, and indebtedness within the BNPL framework. Financial literacy enhances individuals' capacity to manage credit responsibly, whereas weak risk perception increases the likelihood of debt accumulation. Materialism, which emphasizes possessions as a primary source of happiness, often encourages unplanned spending and borrowing. Together, these variables form an interconnected framework in which financial literacy and risk perception influence indebtedness, with materialism potentially acting as a mediating variable.

Numerous studies have examined financial literacy, risk perception, and indebtedness; however, the findings remain inconsistent. For example, Rahman et al. (2020) and Maghfira et al. (2023) identified a significant relationship between financial literacy and indebtedness, whereas Pamungkas et al. (2024) reported no such association. Risk perception has also been shown to influence indebtedness. Moreover, recent studies on BNPL usage (Bian et al., 2023; Gumilar, 2024) emphasize its increasing adoption but rarely address the mediating role of materialism in shaping debt-related behavior. This gap highlights the need for further investigation, particularly within the context of Indonesian Generation Z.

Based on this research gap, this study offers an original contribution by exploring the interaction between financial literacy and risk perception in relation to indebtedness, with materialism acting as an intervening variable among Generation Z consumers who use Buy Now, Pay Later (BNPL) services in Jabodetabek. This study is expected to contribute to the academic literature by extending prior research on young consumers' financial behavior in the digital era, while also providing practical insights for financial service providers and regulators in formulating appropriate policies to mitigate credit risk. The objective is to assess the influence of financial literacy and risk perception on indebtedness through materialism as an intervening variable in the BNPL context in Jabodetabek.

1.1. Stimulus-Organism-Response

Within the framework of the Stimulus–Organism–Response (S–O–R) theory developed by Mehrabian and Russell in 1974, external stimuli are explained as interacting with individuals' internal cognitive and affective processes, which subsequently trigger specific behavioral responses. This model advances traditional behavioral approaches by emphasizing that individuals do not respond directly to external stimuli; instead, such stimuli are cognitively and emotionally processed before behavioral action occurs (Hochreiter et al., 2023).

In the context of financial behavior, particularly the use of Buy Now, Pay Later (BNPL) services, external factors such as promotional offers, instant discounts, lifestyle symbols, and ease of access to credit function as stimuli that shape individual perceptions. These stimuli are processed through internal constructs within the organism, including financial literacy, risk perception, and materialism, which in turn influence borrowing behavior. For example, stronger financial literacy may encourage more rational evaluations of credit options, whereas high levels of materialism can intensify emotional desires and increase the likelihood of indebtedness, particularly when risk perception is low. Within this framework, indebtedness emerges as the response, representing the outcome of interactions between external financial stimuli and internal

psychological mechanisms. This study applies the S–O–R model to explain how financial literacy and risk perception (stimuli) are processed through materialism (organism) to influence indebtedness (response), thereby extending the application of the theory to digital financial services and providing deeper insights into the borrowing behavior of Generation Z in Jabodetabek.

1.2. Financial Literacy on Indebtedness

Based on definitions and findings from previous studies, the most important indicators of financial literacy encompass several core aspects. Knowledge of fundamental financial concepts emphasizes an understanding of budgeting, savings, interest rates, and debt management as essential foundations for making sound financial decisions. Knowledge of credit impacts highlights the ability to evaluate the benefits and risks of borrowing, including modern credit products such as Buy Now, Pay Later (BNPL), which have become widely adopted among younger generations.

Decision-making ability refers to an individual's capacity to analyze alternatives and select financial options that reduce long-term risk while enhancing financial security. Lastly, behavioral discipline reflects the extent to which individuals are able to apply financial knowledge in daily financial activities, thereby ensuring alignment between understanding and practice. Collectively, these elements form the foundation of financial literacy, a critical factor in reducing the likelihood of excessive borrowing and long-term financial insecurity. Empirical evidence consistently supports this relationship, demonstrating that higher levels of financial literacy significantly reduce indebtedness risk by encouraging rational and responsible financial behavior (Rahman et al., 2020; Maghfira et al., 2020; Herison et al., 2020; Guadagnina et al., 2021).

H₁: Financial literacy significantly influences indebtedness

1.3. Risk Perception on Indebtedness

Based on previous studies, indicators of risk perception consist of several critical aspects that directly influence financial behavior. Recognition of potential losses emphasizes the ability to identify negative consequences of borrowing and the persistent risks associated with excessive indebtedness. Cognitive assessment highlights the role of personal judgment in weighing the benefits of credit against potential losses, ensuring that financial decisions are grounded in analytical reasoning rather than impulsive behavior. Emotive susceptibility refers to the influence of fear, anxiety, or overconfidence on individuals' perceptions of financial risk, which in turn affects their willingness to avoid or engage in debt.

Situational context underscores the role of external factors, such as income level, household responsibilities, and financial instability, in shaping risk perception and responses to financial risk. Collectively, these dimensions constitute the core of risk perception, which is critical in triggering responsible or excessive borrowing behavior. Empirical findings consistently show that individuals with low risk perception tend to underestimate the consequences of debt, leading to higher levels of indebtedness, particularly among economically disadvantaged groups (Rahman et al., 2020; Widjaja & Pertiwi, 2020). Conversely, a high level of risk perception reduces the tendency to engage in excessive borrowing practices (Waqas & Siddiqui, 2020).

H₂: Risk perception significantly influences indebtedness

1.4. Financial Literacy on Materialism

Financial literacy plays a crucial role in shaping attitudes toward materialism, as it equips individuals with the ability to distinguish between essential needs and impulsive desires. An understanding of financial planning underscores the importance of setting priorities and managing resources effectively, thereby helping individuals avoid an excessive emphasis on material possessions. Awareness of long-term consequences highlights the recognition that excessive consumption often leads to debt and financial stress, discouraging a lifestyle centered on status-driven acquisition.

Behavioral control reflects the capacity to resist external influences such as advertising, peer pressure, and social comparison, ensuring that consumption behavior remains aligned with financial objectives. Previous studies indicate that individuals with permissive attitudes toward debt are more likely to exhibit materialistic values, particularly among women, credit card users, and those with higher educational attainment (Lebdaoui & Chetioui, 2020). In contrast, strong financial literacy enables individuals to moderate materialistic tendencies by reinforcing responsible consumption and financial awareness (Guadagnina et al., 2024).

H₃: Financial literacy significantly influences materialism

1.5. Risk Perception on Materialism

Risk perception significantly affects materialistic tendencies, as it shapes individuals' evaluations of potential outcomes associated with consumption-oriented financial decisions. Awareness of financial risks highlights that an excessive pursuit of material goods may lead to financial instability, thereby discouraging consumption as a source of happiness or social approval. Conversely, individuals with limited awareness of consumption-related risks tend to internalize materialistic values, in which ownership becomes a central component of personal identity and life satisfaction.

Cognitive biases further contribute by fostering the underestimation of the negative consequences of consumer debt, leading individuals to pursue materialistic lifestyles without adequate consideration of long-term outcomes. Emotional desensitization also plays a role by reducing sensitivity to financial risk, thereby reinforcing consumption-oriented behavior and possession-driven aspirations. Prior research supports the association between lower risk perception and higher levels of materialism, which in turn increases the likelihood of debt accumulation (Rahman et al., 2020). This evidence highlights the dual role of risk perception, not only in informing financial decision-making but also in shaping the underlying values and motivations that drive consumption behavior.

H₄: Risk perception significantly influences materialism

1.6. Materialism on Indebtedness

Based on prior research, materialism plays a central role in shaping financial behavior, particularly in driving indebtedness. Its three indicators—centrality, happiness, and success—illustrate how possessions are perceived as the foundation of life, a source of satisfaction, and a measure of achievement, thereby encouraging excessive consumption, even through the use of credit facilities.

In the context of Buy Now, Pay Later (BNPL) adoption among Generation Z, these materialistic tendencies are further reinforced by the ease of access to credit, which blurs the distinction between needs and wants and increases the risk of debt accumulation. Empirical studies consistently confirm a significant positive relationship between materialism, indebtedness, and

impulsive consumption across various financial contexts (Rahman et al., 2020; Maghfira et al., 2020; Guadagnina et al., 2024; Lebdaoui & Chetioui, 2020; Matos et al., 2020; Widjaja & Pertiwi, 2020).

H₅: Materialism significantly influences indebtedness

1.7. Financial Literacy and Indebtedness Mediated by Materialism

Materialism functions as a mediating variable linking financial literacy to indebtedness. Low levels of financial literacy reduce individuals' ability to understand the risks associated with financial decisions, including the use of consumer credit such as PayLater. Under these conditions, individuals are more likely to be influenced by materialistic values that prioritize the possession of goods as symbols of happiness or success, even when such behavior leads to debt. Consumptive impulses that are not balanced by adequate financial understanding increase the potential for sustained debt accumulation. Materialism strengthens this relationship by emphasizing consumption, while sound financial management is not treated as a primary consideration. Previous studies have demonstrated that materialism significantly mediates the effect of financial literacy on indebtedness (De Matos et al., 2020; Guadagnina & Mariano, 2020; Widjaja & Pertiwi, 2020).

H₆: Materialism mediates the effect of financial literacy on indebtedness

1.8. Risk Perception and Indebtedness Mediated by Materialism

Materialism functions as a mediating variable linking risk perception to indebtedness. Low risk perception encourages individuals to feel more comfortable engaging in risky financial decisions, including the use of credit services such as PayLater. Under these conditions, individuals are more easily drawn toward consumption urges, hedonistic lifestyles, and the status symbolism associated with owning goods, reflecting materialistic tendencies.

This inclination reinforces motivation for impulsive and repetitive purchases, even when made through credit. In this context, materialism increases the likelihood that individuals will continue to accumulate additional debt to satisfy consumptive needs and maintain self-image. Previous studies have demonstrated that materialism significantly mediates the influence of risk perception on indebtedness (Lebdaoui & Chetioui, 2020; Xavier et al., 2020; Yusbardini & Andnani, 2020; Iswariyadi et al., 2020; Oliveira, 2020).

H₇: Materialism mediates the effect of risk perception on indebtedness

2. Research Methods

This study employed a quantitative explanatory approach designed to test hypotheses and verify existing theories regarding the effects of financial literacy and risk perception on indebtedness, with materialism serving as a mediating variable. The research was conducted among Generation Z users of BNPL services in Jabodetabek during July–August 2025, a period selected due to the rapid adoption of BNPL in the region. Respondents were selected using purposive sampling based on specific criteria: individuals aged 18–28 years, active users of BNPL for consumer goods at least once, and having income derived either from personal employment or parental support.

Table 1. Operational Variables

| Variables | Variable Definition | Indicator | Source |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| Financial Literacy | Financial literacy is an individual's ability to understand and manage finances wisely, formed through a combination of financial knowledge, attitudes, and behaviors, in order to make sound financial decisions. | <p><i>Financial Knowledge</i></p> <p>My money will increase over time if I save it in a savings account (1)</p> <p>The purchasing power of money decreases if the inflation rate is higher than the savings interest rate (2)</p> <p>Investing only in stocks is riskier compared to investing in mutual funds (3)</p> <p>I consider interest costs or other fees when making credit purchases (4)</p> <p>Before taking credit, I always compare offers by reading and understanding the terms and conditions (5)</p> <p><i>Financial Attitude</i></p> <p>I actively manage my personal finances because I believe it is important to achieve future financial goals (6)</p> <p>I invest regularly because I believe it helps me achieve long-term financial goals (7)</p> <p><i>Financial Behavior</i></p> <p>I have a habit of recording all my personal expenses (8)</p> <p>My expenses follow the budget I prepared beforehand (9)</p> <p>More than 10% of my income is allocated to installments of consumptive goods (10)</p> <p>I pay credit card bills in full to avoid interest and penalties (11)</p> <p>I have an emergency fund of at least three times my monthly income (12)</p> | Lusardi & Mitchell (2014); Flores and Vieira (2014); A.C.G. Potrich et al. |
| Risk Perception | Risk perception refers to the way individuals perceive and evaluate uncertainty in financial decision-making, shaped by concerns about material loss, feelings of anxiety or discomfort after conducting transactions, and fear of negative social judgment regarding decisions taken. | <p><i>Financial Risk</i></p> <p>I feel at risk of losing money when using unfamiliar digital payment methods (1)</p> <p>I worry about losing money when there are system disruptions while using digital payments (2)</p> <p><i>Psychological Risk</i></p> <p>I consider the financial consequences before buying unplanned items (3)</p> <p>I worry that my privacy may be compromised when using digital systems (4)</p> <p><i>Social Risk</i></p> <p>I worry that my reputation will be judged negatively if I guarantee someone else's debt (5)</p> | Jacoby and Kaplan (1972); Azma et al. (2020); Kumar & Nayak (2023) |

| Variables | Variable Definition | Indicator | Source |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|
| Materialism | Materialism refers to a worldview in which the ownership and accumulation of material goods are considered the primary measures of one's goals, happiness, and personal success. | <p><i>Centrality</i></p> <p>I feel more valued when I own luxury goods (1)</p> <p>I believe that buying branded goods increases my social status (2)</p> <p><i>Happiness</i></p> <p>I feel life would be better if I owned more things I currently do not have (3)</p> <p>I feel happier when I can buy more good (4)</p> <p>I feel uncomfortable if I cannot buy what I want (5)</p> <p><i>Success</i></p> <p>I consider expensive goods (e.g., houses, cars, luxury clothes) as symbols of success (6)</p> <p>I buy luxury goods as a way to demonstrate my success (7)</p> | Richins and Dawson (1992); De Oliveira (2020) |
| Indebtedness | Indebtedness is a condition in which individuals experience vulnerability related to debt due to purchasing goods and services on credit, driven by low income, high consumption tendencies, and a lack of saving habits, resulting in long-term financial pressure caused by the inability to meet payment obligations. | <p><i>Low Income Level</i></p> <p>I have debts exceeding my monthly income (1)</p> <p>I borrow money to repay previous debts (2)</p> <p><i>High Consumption Drive</i></p> <p>I continue to purchase goods in installments even though the total cost is higher than paying in cash (3)</p> <p>I spend more money than my income to meet consumption needs (4)</p> <p><i>Lack of Saving Behavior</i></p> <p>I prefer to use money for current needs rather than saving (5)</p> <p>Most of my spending is for current needs, so I cannot set aside money for savings (6)</p> | Katona (1975); Kumar & Nayak (2023) |

Source: processed data

The minimum required sample size was 300 respondents, determined based on the rule of five to ten times the number of indicators (Hair et al., 2023), thereby ensuring adequate statistical power for Structural Equation Modeling (SEM). Data were collected through structured questionnaires distributed via Google Forms and social media platforms, employing a five-point Likert scale with both positively and reverse-coded statements to reduce response bias. A total of 315 valid responses were obtained and included in the analysis. Data analysis was performed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 3.0, which involved evaluation of the measurement model, including validity and reliability, assessment of the structural model through R^2 , Q^2 , goodness-of-fit measures and hypothesis testing. Mediation analysis followed the procedure proposed by Baron and Kenny (1986) to determine whether

materialism functioned as a partial or full mediator in the relationships between financial literacy, risk perception, and indebtedness.

3. Results and Discussions

To obtain a comprehensive understanding of the relationships among financial literacy, risk perception, materialism, and indebtedness in the Generation Z BNPL context, this study analyzes responses collected from Generation Z individuals in Jabodetabek, Indonesia, who have recently used Buy Now, Pay Later services. The demographic profile presented below captures key characteristics of the respondents, providing rich contextual information for the subsequent analysis.

Table 2. Respondent Profile

| Demographic Characteristic | | Frequency | Percentage |
|----------------------------|-------------------------|-----------|------------|
| Gender | Male | 206 | 65.70 |
| | Female | 109 | 34.30 |
| Age | 18-22 | 13 | 4.10 |
| | 23-25 | 162 | 51.45 |
| | 26-28 | 140 | 44.45 |
| Job | Full-time Employment | 246 | 78.10 |
| | Part-time Employment | 43 | 13.60 |
| | Student | 23 | 7.30 |
| | Unemployed | 3 | 1.00 |
| Education | Undergraduate/Diploma | 220 | 69.80 |
| | Postgraduate | 63 | 20.00 |
| | Senior High School | 32 | 10.20 |
| Salary | >Rp5,000,000 | 261 | 82.90 |
| | Rp2,500,001-Rp5,000,000 | 34 | 10.80 |
| | Rp1,000,001-Rp2,500,000 | 10 | 3.20 |
| | <Rp500,000 | 5 | 1.55 |
| | Rp500,001-Rp1,000,000 | 5 | 1.55 |
| Domicile | Tangerang | 99 | 31.40 |
| | Jakarta | 89 | 28.30 |
| | Bekasi | 86 | 27.30 |
| | Depok | 17 | 5.40 |
| | Bogor | 24 | 7.60 |
| Type of BNPL use | Shopee Paylater | 222 | 70.50 |
| | Gopay Later | 27 | 8.60 |
| | Kredivo | 36 | 11.40 |
| | Akulaku Paylater | 30 | 9.50 |
| BNPL Frequency | 6-10 times | 240 | 76.20 |
| | 2-5 times | 29 | 9.20 |
| | 1 time | 22 | 7 |
| | 10-15 times | 19 | 6 |
| | >15 times | 5 | 1.60 |
| BNPL Tenure Options | 7-12 months | 87 | 27.60 |
| | 1 month | 78 | 24.80 |
| | 4-6 months | 53 | 16.80 |
| | 2-3 months | 47 | 14.90 |
| | >12 months | 50 | 15.90 |

Source: processed data

The characteristics of respondents in this study encompass demographic factors including gender, age, occupation, education, income, domicile, and BNPL usage patterns. As shown in Table 2, a total of 315 respondents participated in the study, with male respondents accounting for a larger proportion (65.7%) than female respondents (34.3%). The majority of respondents were aged 23–25 years (51.45%), followed by those aged 26–28 years (44.45%).

Most respondents were employed full time (78.1%) and held undergraduate or diploma qualifications (69.8%), while a substantial proportion reported monthly incomes exceeding Rp5,000,000 (82.9%). In terms of domicile, respondents were primarily concentrated in Tangerang, Jakarta, and Bekasi. Shopee PayLater emerged as the most frequently used BNPL service (70.5%), with usage typically occurring 6–10 times (76.2%) and preferred installment tenures of 7–12 months (27.6%) and 1 month (24.8%). Overall, this demographic profile provides a relevant foundation for analyzing indebtedness behavior among Generation Z BNPL users in the Jabodetabek area.

Table 3. Factor Loading and Reliability Test

| Variable | Item | Statement | Factor Loading | Validity Decision | Cronbach's Alpha | Reliability |
|--------------------|------|-------------------------------------------------------------------------------------------------------------|----------------|-------------------|------------------|-------------|
| Financial Literacy | FL1 | My money will increase over time if I save it in a savings account. | 0.851 | Valid | 0.962 | Reliable |
| | FL2 | The purchasing power of money decreases if the inflation rate is higher than the savings interest rate. | 0.833 | Valid | | |
| | FL3 | Investing only in stocks is riskier compared to investing in mutual funds. | 0.855 | Valid | | |
| | FL4 | I consider interest costs or other fees when making credit purchases. | 0.854 | Valid | | |
| | FL5 | Before taking credit, I always compare offers by reading and understanding the terms and conditions. | 0.853 | Valid | | |
| | FL6 | I actively manage my personal finances because I believe it is important to achieve future financial goals. | 0.853 | Valid | | |
| | FL7 | I invest regularly because I believe it helps me achieve long-term financial goals. | 0.857 | Valid | | |
| | FL8 | I have a habit of recording all my personal expenses. | 0.840 | Valid | | |
| | FL9 | My expenses follow the budget I prepared beforehand. | 0.831 | Valid | | |
| | FL10 | More than 10% of my income is allocated to installments for consumptive goods. | 0.856 | Valid | | |
| | FL11 | I pay credit card bills in full to avoid interest and penalties. | 0.848 | Valid | | |
| | FL12 | I have an emergency fund of at least three times my monthly income. | 0.863 | Valid | | |
| Risk Perception | RP1 | I feel at risk of losing money when using unfamiliar digital payment methods. | 0.860 | Valid | 0.926 | Reliable |

| Variable | Item | Statement | Factor Loading | Validity Decision | Cronbach's Alpha | Reliability |
|--------------|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|----------------|-------------------|------------------|-------------|
| Materialism | RP2 | I worry about losing money when there are system disruptions while using digital payments. | 0.869 | Valid | 0.941 | Reliable |
| | RP3 | I consider the financial consequences before buying unplanned items. | 0.867 | Valid | | |
| | RP4 | I worry that my privacy may be compromised when using digital systems. | 0.846 | Valid | | |
| | RP5 | I worry that my reputation will be judged negatively if I guarantee someone else's debt. | 0.869 | Valid | | |
| | MAT1 | I feel more valued when I own luxury goods. | 0.857 | Valid | | |
| | MAT2 | I believe that buying branded goods increases my social status. | 0.860 | Valid | | |
| | MAT3 | I feel life would be better if I owned more things that I currently do not have. | 0.857 | Valid | | |
| Indebtedness | MAT4 | I feel happier when I can buy more goods. | 0.862 | Valid | 0.913 | Reliable |
| | MAT5 | I feel uncomfortable if I cannot buy what I want. | 0.862 | Valid | | |
| | MAT6 | I consider expensive goods (e.g., houses, cars, luxury clothing) as symbols of success. | 0.845 | Valid | | |
| | MAT7 | I buy luxury goods as a way to demonstrate my success. | 0.858 | Valid | | |
| | IND1 | I have debts that exceed my monthly income. | 0.848 | Valid | | |
| | IND2 | I borrow money to repay previous debts. | 0.864 | Valid | | |
| | IND3 | I continue to purchase goods in installments even though the total cost is higher than paying in cash. | 0.846 | Valid | | |
| | IND4 | I spend more money than my income to meet consumption needs. | 0.855 | Valid | | |
| | IND5 | I prefer to use money for current needs rather than saving. | 0.851 | Valid | | |
| IND6 | Most of my spending is for current needs, so I cannot set aside money for savings. | 0.851 | Valid | | | |

Source: processed data

Validity testing was conducted to ensure data reliability by analyzing factor loadings as indicators of questionnaire validity. With 315 respondents, Table 3 summarizes the results of the validity and reliability tests for four variables: financial literacy (X1), risk perception (X2), materialism (Z), and indebtedness (Y). Each variable was measured using multiple indicators. The results indicated acceptable levels of convergent validity and reliability, with values exceeding the recommended threshold coefficients. All factor loadings met the recommended criteria, confirming that the measurement instruments demonstrated adequate reliability and validity for further analysis (Hair et al., 2017).

Table 4. Results of Hypothesis Testing

| Hypothesis | Path Coefficient | Std. Dev. | T-Statistic | P-Value |
|------------------------------------------------------|------------------|-----------|-------------|---------|
| Direct Influence | | | | |
| Financial Literacy => Indebtedness | -0,317 | 0.084 | 3.729 | 0.000 |
| Risk Perception => Indebtedness | -0.272 | 0.082 | 3.322 | 0.000 |
| Financial Literacy => Materialism | -0.405 | 0.087 | 4.682 | 0.000 |
| Risk Perception => Materialism | -0.372 | 0.089 | 4.163 | 0.000 |
| Materialism => Indebtedness | 0.220 | 0.075 | 2.948 | 0.002 |
| Indirect Influence | | | | |
| Financial Literacy => Materialism => Indebtedness | -0.089 | 0.039 | 2.302 | 0.011 |
| Risk Perception => Materialism => Indebtedness | -0.082 | 0.036 | 2.247 | 0.013 |

Source: processed data

Table 4 indicates that the hypothesis testing results show financial literacy has a significant effect on indebtedness, with a path coefficient of -0.317 , a T-statistic of 3.729 , and a p-value of 0.000 (< 0.05); therefore, H_1 is accepted. Risk perception also significantly affects indebtedness, with a coefficient of -0.272 , a T-statistic of 3.322 , and a p-value of 0.000 (< 0.05), supporting H_2 . Regarding the relationship between financial literacy and materialism, the path coefficient is -0.405 with a T-statistic of 4.682 and a p-value of 0.000 (< 0.05), indicating that H_3 is accepted. Similarly, risk perception has a significant influence on materialism, as indicated by a coefficient of -0.372 , a T-statistic of 4.163 , and a p-value of 0.000 (< 0.05), thus supporting H_4 . Materialism itself significantly influences indebtedness, with a coefficient of 0.220 , a T-statistic of 2.948 , and a p-value of 0.002 (< 0.05), leading to the acceptance of H_5 .

With respect to indirect effects, financial literacy demonstrates a significant mediating effect through materialism on indebtedness, with a coefficient of -0.089 , a T-statistic of 2.302 , and a p-value of 0.011 (< 0.05), thereby confirming H_6 . Likewise, risk perception, through materialism, shows a significant mediating effect on indebtedness, with a coefficient of -0.082 , a T-statistic of 2.247 , and a p-value of 0.021 (< 0.05), supporting H_7 .

Among Generation Z BNPL users, financial literacy exerts a significant influence on indebtedness. Rather than abstract concepts such as inflation or credit comparison, practical indicators—such as maintaining emergency funds and recording expenses—appear to have a stronger impact (Flores & Vieira, 2014). These practices function as safeguards against excessive debt by improving cash flow management, restraining impulsive spending, and stabilizing financial capacity. This finding aligns with prior studies by Rahman et al. (2020), Maghfira et al. (2020), Herispon et al. (2020), and Guadagnina et al. (2021), all of which emphasize financial literacy as a key determinant of responsible borrowing behavior. Within the Stimulus–Organism–Response framework, financial literacy operates as a stimulus that encourages more responsible borrowing responses.

Risk perception also exerts a significant and protective effect on indebtedness, with awareness of financial and psychological risks emerging as dominant factors. The ability to evaluate financial consequences before making impulsive purchases appears to be the strongest indicator, demonstrating that users actively anticipate potential losses (Flores & Vieira, 2014). This prudent approach ensures that debt remains aligned with repayment capacity and discourages reckless borrowing behavior. These findings are consistent with those of Rahman et al. (2020), Widjaja and Pertiwi (2020), and Waqas and Siddiqui (2020), who emphasize that higher levels of risk perception reduce the likelihood of unmanageable debt. Within the Stimulus–Organism–

Response perspective, risk perception functions as the stimulus that encourages cautious borrowing responses.

Materialism is also significantly influenced by financial literacy. Individuals are better able to distinguish between needs and wants and to restrain status-driven consumption through dominant indicators such as maintaining emergency funds equivalent to three months of expenses and systematically recording expenditures (Azma et al., 2020). These practices operate as cognitive filters that regulate materialistic desires and promote prudent consumption patterns. Prior studies by Lebdaoui and Chetioui (2020) and Guadagnina et al. (2024) similarly indicate that strong financial literacy mitigates the adverse effects of materialism on excessive credit use. From the S–O–R framework, financial literacy serves as the stimulus that shapes healthier consumption responses by influencing materialism as the organism.

Furthermore, materialism is significantly attenuated by risk perception, with financial risk emerging as the primary driver. The most influential indicator—considering financial consequences before making impulsive purchases—illustrates how rational risk awareness enables individuals to limit symbolic consumption (De Oliveira, 2020). Anticipating financial, psychological, and social risks helps align consumption with financial capacity and reduces impulsive tendencies. This finding aligns with research by Rahman et al. (2020), Widjaja and Pertiwi (2020), and Waqas and Siddiqui (2020), which demonstrates that heightened risk awareness lowers excessive consumption and dependence on debt. Viewed through the S–O–R lens, risk perception acts as the stimulus that alters materialism as the organism, thereby shaping more restrained consumption responses.

Materialism exerts a strong positive effect on indebtedness. Emotional fulfillment and social recognition emerge as key drivers of credit use, as reflected in indicators such as feeling happier when making larger purchases and feeling more valued when acquiring luxury goods. This orientation increases repayment burdens and financial vulnerability by encouraging greater reliance on Buy Now, Pay Later services for social validation and self-actualization (De Oliveira, 2020). These findings are consistent with those of Rahman et al. (2020), Maghfira et al. (2020), and Guadagnina et al. (2024), who emphasize the close association between materialism, impulsive consumption, and indebtedness. Within the Stimulus–Organism–Response framework, materialism functions as the organism that transforms consumption-oriented values into borrowing responses.

Materialism partially mediates the relationship between financial literacy and indebtedness. Although financial literacy directly reduces debt, its protective effect is diminished in the presence of strong materialistic tendencies. In this context, materialism acts as a dominant psychological mechanism that redirects financial competence toward status-driven consumption. This finding aligns with Guadagnina et al. (2024), who noted that financial literacy is most effective in reducing indebtedness when materialistic values remain low. From the Stimulus–Organism–Response perspective, financial literacy operates as the stimulus that influences indebtedness responses indirectly through materialism as the organism.

Materialism also partially mediates the relationship between risk perception and indebtedness. While higher risk perception directly promotes cautious financial behavior, its protective role is weakened when materialistic values prevail, channeling risk awareness into consumer-oriented desires. This result is consistent with findings by Rahman et al. (2020), Widjaja and Pertiwi (2020), and Waqas and Siddiqui (2020), who reported that materialism attenuates the protective effect of risk perception. Viewed through the Stimulus–Organism–Response framework, risk perception functions as the stimulus that indirectly shapes borrowing responses

through materialism as the organism, underscoring the decisive role of value orientation in influencing indebtedness.

4. Conclusions

This study examines the factors influencing indebtedness among Generation Z users of Buy Now, Pay Later (BNPL) services, focusing on financial literacy, risk perception, and materialism. The findings indicate that financial literacy and risk perception play important protective roles by improving individuals' ability to manage finances, evaluate borrowing risks, and adopt more responsible borrowing behavior, consistent with the Stimulus–Organism–Response (S–O–R) framework in which both variables function as stimuli shaping debt-related responses. Conversely, materialism significantly increases indebtedness by encouraging consumption for emotional gratification and social recognition while weakening the protective effects of financial literacy and risk perception through its mediating role as the organism linking cognitive stimuli to indebtedness. Overall, the study suggests that reducing indebtedness requires not only strengthening financial competence and risk awareness but also addressing materialistic values through education, policy, and BNPL provider initiatives. Nevertheless, the cross-sectional design and the focus on Generation Z in Jabodetabek limit causal inference and generalizability, highlighting the need for future longitudinal studies with broader demographic coverage and additional behavioral variables, such as self-control and peer influence, to provide more comprehensive insights.

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