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# Algorithmic Influence and Consumer Psychology in Buy-Now-Pay-Later (BNPL) Adoption: Evidence from Generation Z and Millennials in Southeast Asia

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**ABSTRACT:** The rapid diffusion of Buy-Now-Pay-Later (BNPL) services across Southeast Asia has coincided with the unprecedented expansion of social media ecosystems underpinned by data-driven algorithms. While BNPL has been framed as a tool to democratize credit access and stimulate consumption, the influence of algorithmic curation on its adoption remains underexplored in scholarly literature. This study addresses how social media algorithms influence BNPL adoption among Generation Z and Millennial in Malaysia, Singapore and Indonesia by integrating psychological mechanisms such as Fear Of Missing Out (FOMO) and impulsive buying with platform level algorithmic influence. Anchored in the Technology Acceptance Model (TAM), digital nudging theory, and the Stimulus–Organism–Response (S-O-R) framework, the study conceptualizes algorithms personalization as stimulus that indirectly shapes financial decision-making through cognitive and emotional pathways. A quantitative research design was employed, drawing survey data from 300 BNPL-exposed respondents across the three countries. Regression was used to test direct, mediating, and moderating relationships, supplemented by multiple regression analysis for robustness. Findings reveal that buying behaviors, FOMO and behavioral targeting exert strong direct effects on BNPL adoption, while algorithmic personalization operates These insights extend existing digital finance adoption frameworks by incorporating algorithmic influence as a key antecedent and highlight the dual impact of social media facilitating financial inclusion while simultaneously amplifying overspending risks. The study advances theoretical understanding of technology-mediated financial behaviors and provides actionable implications for regulators and digital lenders in Southeast Asia. It calls for enhanced algorithmic transparency, risk-based consumer education, and adaptive credit scoring models to promote responsible BNPL usage without stifling fintech innovation.

**Keywords:** Buy-Now-Pay-Later (BNPL), Social Media Algorithms, Digital Nudging, Technology Acceptance Model (TAM), Generation Z, Southeast Asia, Consumer Finance Adoption.

## I. INTRODUCTION

The fast growth of Buy-Now-Pay-Later (BNPL) products in Southeast Asia has occurred alongside the massive proliferation of social commerce applications such as TikTok and Shopee. BNPL has developed into more than a payment tool among digitally immersed consumer groups, especially Generation Z and younger Millennials. It has become a lifestyle-enabling financial instrument that shapes consumption habits, social identities, and spending

behavior. Positioned at the intersection of fintech innovation and algorithm-based marketing, Artificial Intelligence (AI)-driven systems now play an increasingly important role in influencing not only what consumers see, but also how and when they make financial decisions [1].

This innovation is particularly noticeable in Malaysia, Singapore, and Indonesia, where the use of BNPL is most tightly connected with the processes of algorithmic personalization, behavioral targeting, impulsive purchases, and the omnipresence of the Fear of Missing Out (FOMO). These dynamics should be examined in greater detail, especially since it is estimated that BNPL transactions in Southeast Asia will grow to USD 14.7 billion in 2023 to USD 53.2 billion in 2027, with a growth rate of 22.5/year [2]. The high-speed spread of BNPL in the environment of algorithm-mediated interactions poses significant inquiries of vulnerability, consumer choice, and financial sustainability.

Comparative analysis of Malaysia, Singapore and Indonesia shows that there are common trends and structural variations in the adoption of BNPL. The BNPL transaction volumes amounted to USD 1.86 billion in Malaysia, USD 1.3 billion in Singapore and USD 4.28 billion in Indonesia in 2023 as a result of the differences in markets maturity and the consumer behavior. In comparison, Singapore had the highest rate of adult adoption (31.3) compared to 24.4 in Malaysia and about 20 in Indonesia despite the smaller absolute volume [3]. This comparison indicates that Singapore has a comparatively established digital payment system and better-developed consumer protection, despite the fact that the neighboring markets are having faster volume growth. These regional differences are further enhanced by the social commerce activity. The proportion of global sales through the Tik Tok Shop is about 15.7 percent of that of Malaysia, and Indonesia has about 13.75 percent, which highlights the role of algorithm-based business in the two countries. Singapore, in its turn, has a somewhat neutral role in TikTok business, which is partially explained by the existence of more stringent regulations and a more consumer-focused policy. In line with this, the behavioral patterns differ in different countries. Generation Z and younger Millennials in Malaysia and Indonesia are the most impulse-buying generations, which is driven by personalized feeds, influencer marketing, and live-stream shopping facilities. These trends are relatively tamed in Singapore by regulating them and providing digital financial literacy [4, 5].

The regulatory environment in the three countries also influences the way in which the algorithmic influence can be translated into BNPL adoption. Malaysia is at a transitional stage in terms of regulation and Bank Negara Malaysia is in the process of formulating systems to deal with the risk of deferred payment products. Singapore enjoys wide supervision of the Monetary Authority of Singapore (MAS) that actively removes predatory lending, and encourages responsible consumer finance [6]. Indonesia, on the other hand, is not that heavily regulated, and BNPLs services and algorithm-based marketing strategies have not been regulated much, so they can spread freely. Both this regulatory loophole and relatively lower digital financial literacy increase the vulnerability of consumers to algorithmic nudges and hasty credit consumption [7]. Such different institutional settings reveal the necessity of considering implementation of BNPL in the framework of its more general regulatory and socio-economic context.

Algorithms influence is at the center of this change. Social commerce applications use advanced personalization algorithms, including the For You Page of Tik Tok and recommendation engines of Shopee, to filter content according to the behavioral data and browsing history of their users, as well as their engagement patterns. Such systems are continuous, how they are perceived as relevant by being exposed to the ambient conditioning of attention. Parallel to this, behavioral targeting systems, including retargeted ads, influencer promotions, and BNPL offers with time constraints, are overt persuasive interventions that are intended to stimulate a purchase decision. These algorithmic processes in combination with psychological biases, such as impulsiveness and FOMO, reduce the ability to resist the option of deferred payments and increase the incentive to consume in the short term [8–10].

Although BNPL adoption is rapidly increasing in Southeast Asia, most existing studies focus mainly on financial attitudes, perceived usefulness, or access-related factors. Limited attention has been given to how algorithmic curation and behavioral targeting shape financial decision-making through emotional and impulse-driven pathways. This gap is particularly important within social commerce environments, where urgency cues, social comparison, and influencer endorsement are systematically embedded into platform design. Existing models therefore do not fully explain BNPL adoption risk and consumer vulnerability among digitally immersed younger generations in Malaysia, Singapore, and Indonesia.

To address this gap, the present study investigates the effects of algorithmic personalization and behavioral targeting on BNPL adoption intention among Generation Z and younger Millennials. The study also examines fear of missing out and impulsive buying behavior as key psychological mechanisms, while digital financial literacy is tested as a moderating variable. This study contributes to the literature in three important ways. First, it integrates algorithmic influence variables with psychological processes in explaining BNPL adoption intention. Second, it extends the Theory of Planned Behavior by incorporating perspectives from digital nudging and the Stimulus–Organism–Response framework. Third, it provides a comparative perspective across Malaysia, Singapore, and Indonesia, offering insights into how regulatory and socio-economic differences shape technology-mediated financial behavior in Southeast Asia. Accordingly, the study addresses the following research objectives:

- RO1: To examine the direct effects of algorithmic personalization, behavioral targeting, impulsive buying behavior, and fear of missing out on BNPL adoption intention.
- RO2: To test whether fear of missing out mediates the relationship between algorithmic personalization and BNPL adoption intention.
- RO3: To examine whether digital financial literacy moderates the relationship between behavioral targeting and BNPL adoption intention.
- RO4: To explore whether key relationships differ across Malaysia, Singapore, and Indonesia.

## II. LITERATURE REVIEW

### *1. BNPL TRENDS IN SOUTHEAST ASIA AND GEN Z AND MILLENNIALS ADOPTION*

The BNPL is a financial solution that has been gaining momentum in Southeast Asia, especially among the younger generations, especially Gen Z and Millennials, which prioritizes convenience and fast gratification of a purchase [11, 12]. In Singapore, BNPL systems fall in the industry of more heavily regulated fintech systems that might be assembled on super apps such as Grab, whereas in Indonesia, the unregulated BNPL market is augmented by the widespread digital impulse [6, 13]. Malaysia is a hybrid setting, and BNPL providers such as Atome and SPayLater rely on algorithm-based tools, yet they are working within the boundaries of changing regulations [14].

The current research develops the initial steps that Bian [15] and Cervellati [16] presented about BNPL, as one of the revolutionary financial instruments affecting unbanked and digitally connected young people. Yet, they did not consider the algorithmic and psychological provision to such consumption in their analyses.

### *2. SOCIAL MEDIA ALGORITHMS AND CONSUMER BEHAVIOR*

As the commercial use of AI in Southeast Asian marketing increases, social media platforms such as TikTok and Shopee can micro-target visitors with the help of sophisticated recommendation engines that are provided by behavioral information [10, 17]. The algorithm of TikTok can predict emotional states based on viewing patterns and match the contents to them, encouraging the user to remain constantly engaged in the loop, which results in often impulsive actions [4, 5]. Also, when BNPL interest rates are promoted, the Shopee algorithm will choose time-sensitive offers to be shown to high-risk customers [18].

These algorithms are not as neutral as they may seem at first since, according to the arguments presented by Poleac & Ghergut-Babii [19] they also seek to capitalize on user behavior. Alam [20] also underline how this relocation of power in favor of the consumer agency to the system of suggestions supervised by the platform can take place.

### *3. ALGORITHMIC NUDGING AND IMPULSIVITY*

Algorithmic nudging is the term used to describe these slight notifications prompted by AI meant to bring users to action [10]. As Leal & Oliveira [21] argue, the financial services field can cause unethical judgment in decision-making that would affect cognitively vulnerable individuals, such as adolescents and young adults, due to algorithmic interventions. When these nudges are integrated with other persuasive information, like sales on flash or through influencer marketing, they could create a series of impulse buys, especially when the customer is attracted by the BNPL incentives. Research in Indonesia by Pakpahan [7] and Yuwono [22] has shown how the use of fintech apps can lead to compulsive buying among students with low financial literacy, which is one of the primary concerns of the BNPL companies willing to address the student segments.

### 4. FOMO, COGNITIVE BIAS, AND BNPL

Fear of Missing Out- FOMO is an emotional rocket fuel of electronic consumption. Hussain [23] determine that FOMO and compulsive BNPL consumption are interconnected with each other, particularly during influencer media and flash sales. Bekman [24] underlines the practice of FOMO in the context of urgency created by PR and advertising agencies and causing irrational judgment. These results are similar to those of Tansuchat & Thaicharo [25] who concluded that cognitive biases like anchoring and information overloads are prominent bias skills that highly distort digital spending choices by Gen Z and Millennial [20] extends this argument by conceptualizing digital overload as an indicator of heuristic decision-making, particularly the reliance on algorithmic recommendations, which ultimately replaces systematic financial evaluation.

### 5. BEHAVIOR AL TARGETING AND PERSONALIZATION

The consumer behavior of Gen Z and Millennials is particularly sensitive to behavioral targeting. According to Salam [26] marketing campaigns can no longer be successful unless they reflect the lifestyle choices and moods of digital natives. Similarly, Israfilzade & Guliyeva [27] reaffirm that the purchasing patterns of the Gen Z and Millennials group are much more prone to dynamic remarketing than Gen Y. The individual advertising (but especially combined with the availability of BNPL services) can alter the buying thresholds by lowering the psychological barrier to purchasing [28, 29].

### 6. FINANCIAL LITERACY AND REGIONAL DIFFERENCES

Financial literacy acts like a moderating factor when it comes to Gen Z and Millennial's use of BNPL schemes. Malaysian youth have an alarming gap in the knowledge about digital credit, which is highlighted by Wee & Goy [30] and Shafee [31]. Contrarily, Windasari [32] point out that users of fintech capabilities among Indonesian Gen Z and Millennials do not realize the implications of the use of fintech tools concerning the long-term effects on their credit profile. It has also been discovered in cross-cultural research that financial behaviors vary as a result of the exposure of the economy, education systems and financial socialization within families [14, 33]. This shows that regionally specific contexts are important in examining the adoption of BNPL.

### 7. RESEARCH GAP

Despite the burgeoning interest in BNPL and fintech adoption in Southeast Asia, current research predominantly focuses on financial attitudes, debt behavior, and digital infrastructure. A critical void exists in understanding how AI-powered social media algorithms catalyze BNPL usage through mechanisms like impulsive buying and FOMO. Particularly lacking is a comparative, cross-regional study that integrates cognitive bias, personalization, and behavioral targeting within Gen Z and Millennials populations in Malaysia, Singapore, and Indonesia. Moreover, algorithmic nudging and its ethical implications are under-explored in the ASEAN context despite mounting concerns over data manipulation and emotional targeting [10] This study fills this interdisciplinary gap by integrating AI marketing, consumer psychology, and fintech behavior into a unified framework, offering empirical insights with regional specificity.

### 8. THEORETICAL FRAMEWORK

The Theory of Planned Behavior (TPB) [34], serves as the main foundation of this research since it assumes that behavioral intention defines the behavior of a person, and that intention depends on three fundamental elements, namely attitude, subjective norms, and perceived behavioral control. TPB is especially suitable in the study of BNPL adoption; it characterizes the intentional financial behavior that entails cognitive assessment along with social influence. TPB is opera ionized within the framework of this study as follows:

- Attitude indicates how Generation Z and Millennials consider using the BNPL, its perceived convenience, affordability, and risks involved in it.
- Subjective norms embrace perceived social pressure that occurs due to peers, influencers, and wider social commerce contexts that legitimize the use of BNPL.

Perceived behavioral control an indicator of the perceived behavioral control demonstrates the perceived ability of individuals to control spending behavior and resist algorithmically-based purchase cues, such as impulsivity and marketing-induced urgency. To consider the realities of algorithmic mediated digital commerce, the TPB framework

is further developed by adding algorithmic personalization, behavioral targeting, FOMO impulsive buying behavior and digital financial literacy as context-specific antecedents that mediate between attitudes, norms, and perceived control. These constructs exist alongside TPB and contextualize it through the impact of social media-mediated consumption contexts to enable the theoretical framework to become more successful in explaining the interplay between algorithmic and psychological factors to affect BNPL adoption intention among Generation Z and Millennials.

## *9. CONCEPTUAL FRAMEWORK*

The theoretical framework of the proposed research is constructed on the basis of the Theory of Planned Behavior and modified to the requirements of the algorithm-based social commerce. The framework suggests that both algorithmic and psychological processes taking place in the digital platforms affect the adoption intention of BNPL among Generation Z and Millennials.

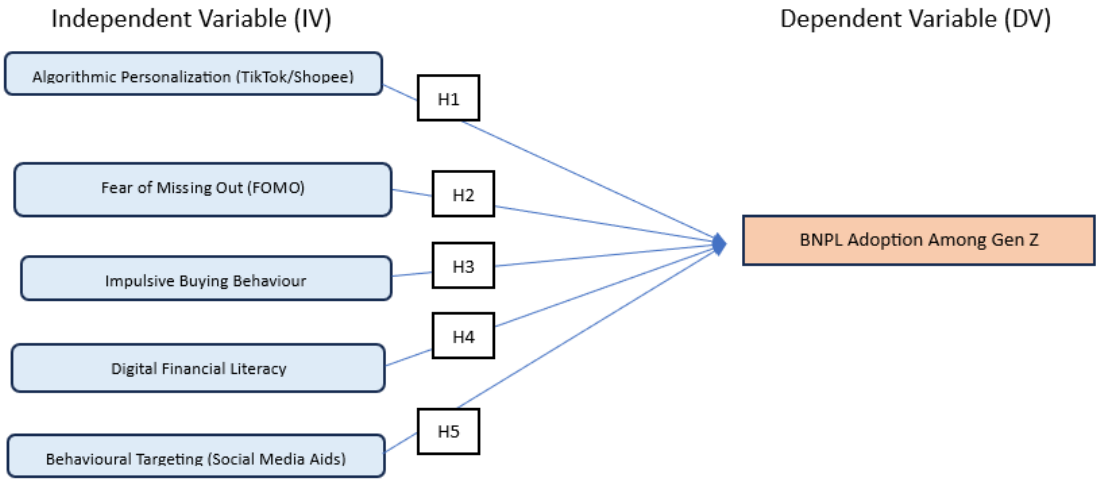


FIGURE 1. Diagram source - self-created.

### *9.1 Independent Variables*

- Algorithmic Personalization (for example, TikTok for You Page, Shopee personalized recommendations)
- Behavioral Targeting (for example, targeted advertisements, influencer promotions, BNPL-linked campaigns)
- Fear of Missing Out (FOMO)
- Impulsive Buying Behavior
- Digital Financial Literacy

### *9.2 Dependent Variable*

- BNPL Adoption Intention among Generation Z and Millennials

In this context, the algorithmic personalization and behavioral targeting can be considered as different types of algorithmic influence. Personalization (algorithms) is an ambient exposure process, which via its influence on attention and perceived relevance, that influences behavioral targeting (explicit persuasion process) that aims at leading to a purchase decision. Affective and behavioral reactions to these influences are manifested in psychological processes like FOMO and impulsive buying behavior, though digital financial literacy is an individual ability that could mediate or enhance these effects, and susceptibility to targeted marketing could be mediated by digital financial literacy.

The hypotheses that will be developed and tested on the proposed framework will be based on five hypotheses that investigate the existence of direct, mediating and moderating relationships among the variables of study.

## 10. HYPOTHESES DEVELOPMENT

- H1: Algorithmic personalization is positively associated with BNPL adoption among Gen Z and Millennials.
- H2: FOMO mediates the relationship between algorithmic personalization and BNPL adoption.
- H3: Impulsive buying behavior significantly predicts BNPL adoption.
- H4: Digital financial literacy moderates the relationship between behavioral targeting and BNPL adoption.
- H5: Behavioral targeting on social media platforms is positively associated with BNPL usage intent.

## 11. RESEARCH METHODOLOGY

The research design of this question focuses on the algorithmic personalization, impulsive behavior and BNPL adoption among the Generation Z in Southeast Asia in a manner that does not overlook the hierarchical nature of the relationship. A quantitative approach is embraced as it offers the chance to systematize measurement of the behavior al constructs and test causal relationships in statistical modelling. The method is especially suitable when the financial technology space is the research topic as behavior al factors, including impulsivity, fear-of-missing out, and algorithm exposure, can be translated into measurable constructs [16, 35]. The style used in the study is the deductive design within the explanatory research, since the hypothesis is based on the Theory of Planned Behavior [34] and is personalized to involve digital phenomena i.e. algorithmic nudging and behavior al targeting. The combination of these constructs results in a methodology that does not only have a theoretical soundness but also empirical richness of investigating the effects of the AI-mediated environments on the credit adoption choices made by Gen Z and Millennials. behavior

The sample of the study is an older Generation Z (born between 1995 and 2000) target audience in Malaysia, Singapore, and Indonesia and used BNPL at least once. This generational cohort has been chosen due to its high level of digital immersion, the usage of platforms like TikTok and Shopee, and the effect of algorithm-driven impulsivity on this generation cohort [4, 36]. Stratified sampling is done to ensure a representation across the genders, regional, and primary platform user. 300 respondents are aimed (100 in every country). Such cross-national design not only offers country-specific insights but also offers comparative perspectives of markets that vary in the degree of regulation, levels of digital literacy, and consumer protections. For instance, while Singapore enforces stronger oversight under the Monetary Authority of Singapore [6], Indonesia's minimal regulation coupled with lower financial literacy creates a fertile ground for FOMO-driven BNPL adoption [7]. Malaysia, occupying a hybrid space with emerging policies, provides an intermediary perspective [14]. Thus, the methodology is structured to capture these regional divergences as highlighted in Table 1, where transaction volumes, adoption rates, impulse buying behavior s, and regulatory strengths reveal stark contrasts [2, 3].

Data collection is conducted via structured online questionnaires distributed across university networks, social media groups, and fintech forums. This approach is strategically chosen to reach digitally active respondents who engage with BNPL and algorithmic platforms. The instrument uses a five-point Likert scale ranging from strongly disagree to strongly agree to measure perceptions of algorithmic exposure, FOMO, impulsive buying, and digital financial literacy. Questions are adapted from validated scales used in prior studies on fintech adoption, compulsive buying, and consumer psychology to ensure content validity [23, 37]. For example, items measuring algorithmic personalization will ask respondents to evaluate whether TikTok or Shopee recommendations match their preferences and influence purchase timing, while FOMO will be assessed through statements about missing out on promotions or influencer-led flash sales [29]. Impulsivity is expressed in the number of BNPL transactions paid by a person without planning [5] and financial literacy is determined by measuring the extent to which individuals know the risks of using credits and subsequent repayment [30]. The reliability and external comparability of the survey are provided by anchoring the instrument based on the established literature.

The analysis of data will be in several steps. First, a screening, and cleaning procedure will be conducted with the assistance of SPSS to determine missing values, inconsistencies, or outliers. Statistical testing will include reliability tests (like Cronbach alpha) that will measure the interior reliability of each picture, and factor analysis that will confirm validity and dimension [38]. Regression will then be performed, because it is an exploratory modelling method that finds application in complex construction involving moderating and mediating variables. This is also pertinent because the study examines the moderating role of financial literacy along with the mediating role of

FOMO, which demands a type of analytical framework that can encompass those relationships [21]. A multi-group analysis will also be carried out to determine the existence of significant differences across the three national samples, hence, regulatory and cultural variations in algorithmic impact on BNPL. The analytic approach adopted will make sure that universal trends, as well as national differences, are identified, which is aligned with cross-national nature of the study.

Ethical considerations also are placed at the forefront of the research process Participation is voluntary and the respondent should give informed consent enjoining the respondents with the confidence of anonymity and confidentiality. No personally identifiable data are obtained, and all the data will be used only with academic purposes according to the ethical norms adopted by the institution. The experiment also pays attention to cognitive weaknesses of the youthful consumers, just as mentioned in the existing literature on algorithmic nudging [10]. Maintaining transparency, guaranteeing the right to withdraw and safeguarding the respondent data leads to the context of ethical integrity of the methods that would be conducted to study sensitive financial behavior.

Finally, the synthesis technique of the study is designed in such a way that the theoretical aspiration is combined with the empirical rigor. It uses stratified sampling with validated and reliable measurement tools and advanced statistical modelling to ensure a method through which it can test the hypothesized framework between algorithmic personalization, FOMO, impulsivity, and financial literacy within the Theory of Planned Behavior. It is also sensitive to cross-contextual variation among Malaysia, Singapore and Indonesia to firmly locate its findings within situated regulatory and cultural environments. In such a way, the study will address the need for interdisciplinary investigation into how the technological consumption of Gen Z and Millennials in Southeast Asia is being disrupted by AI-based algorithms [8, 39]. The methodology would therefore create a firm basis of revealing the mechanisms through which algorithmic targeting meets with the psychology of consumer and the output would be academically new in a region-specific context.

## III. DATA ANALYSIS AND DISCUSSION

### *1. DEMOGRAPHIC*

This paper examines Gen Z and Millennials and their use of BNPL in Southeast Asia in terms of algorithm persuasion, impulse purchasing, FOMO, and financial literacy.

**Table 1.** Demographic.

| Demographic Characters | Frequency | Percentage (%) |
|---|---|---|
| Gender | | |
| Male | 156 | 52.0 |
| Female | 144 | 48.0 |
| Age Group | | |
| 18-24 years old | 91 | 30.3 |
| 25-29 years old | 60 | 20.0 |
| 30-34 years old | 52 | 17.3 |
| 35-40 years old | 97 | 32.3 |
| Marital Status? | | |
| Single | 181 | 60.3 |
| Married | 89 | 29.7 |
| Divorced | 23 | 7.7 |
| Widowed | 7 | 2.3 |
| Country Respondent | | |
| Malaysia | 170 | 56.7 |
| Singapore | 63 | 21.0 |
| Indonesia | 67 | 22.3 |

| | | |
|---|---|---|
| Monthly Personal Income | | |
| < RM1,000 / SGD300 / IDR2,000,000 | 100 | 33.3 |
| RM1,000–3,000 / SGD300–1,000 / IDR2–5 million | 103 | 34.3 |
| > RM3,000 / > SGD1,000 / > IDR5 million | 97 | 32.3 |
| Current Student Status | | |
| Yes | 59 | 15.4 |
| No | 99 | 25.8 |
| Have you used BNPL before | | |
| Yes | 156 | 52.0 |
| No | 144 | 48.0 |

Demographic profile of the respondents indicates that it is gender balanced with male participants representing 52.0 percent and the female participants, 48.0 percent. This distribution shows that the use of BNPL and the exposure to algorithm-driven digital commerce among the population studied is not a highly gender-biased one. The sample is focused on younger and early mid-career adults in terms of age. It is represented by respondents aged 1824 (30.3%), and 3540 (32.3%), which implies the inclusion of both digitally native and slightly older consumers who are actively involved in online shopping and fintech solutions. This age range is suitable in investigating the adoption of BNPL in the modern social commerce settings.

Regarding the regional breakdown, there is the highest percentage of respondents in Malaysia (56.7 percent), Indonesia (22.3 percent) and Singapore (21 percent). This spread is reminiscent of the regional BNPL market landscape with Malaysia being in rapid growth of its fintech implementation and Singapore being a small sample but in a mature market of digital payments. The income levels of the participants are evenly distributed as well with 33.3 per cent falling below RM1,000/SGD300/IDR2,000,000, 34.3 per cent at middle-income level, and 32.3 per cent at above RM3,000/SGD1,000/IDR5 million. This balance shows that BNPL is the choice not only of low-income citizens.

Lifestyle and educational background are reflected in the respondents' student status, where 15.4% are university students and the remainder are working adults. Regarding BNPL usage, 52% of respondents reported having used BNPL before, compared to 48% who had not, indicating that more than half of the sample has direct experience with BNPL services. This provides a suitable basis for analyzing behavioral patterns between active and non-active BNPL users.

### *2. CRONBACH'S ALPHA*

Reliability testing is also an essential part of quantitative research because it determines how consistently the constructs associated with a study measure the concepts of interest. To evaluate this, Cronbach alpha was applied since it is the most common determinant of internal consistency. Cronbach Alpha gives a coefficient value of 0 to 1 with higher values indicating greater reliability. The minimum acceptable value of any reliability coefficient in social science research is a value of 0.70 and above, but a value between 0.60 and 0.70 may be deemed acceptable in exploratory research related to new constructs or cross-culture contexts [38] This is one reason why Cronbach's Alpha is a useful measurement of whether the items subsumed by each variable makes sense and can be analyzed with some level of certainty.

**Table 2.** Result Cronbach's alpha.

| Variables | Cronbach's Alpha |
|---|---|
| Algorithmic Personalization (IV) | 0.729 |
| Fear of Missing Out (IV) | 0.707 |
| Impulsive Buying Behavior (IV) | 0.680 |
| Digital Financial Literacy (IV) | 0.702 |

| | |
|---|---|
| Behavioral Targeting (IV) | 0.702 |
| BNPL Adoption Intention (DV) | 0.662 |

The results of the reliability analysis for this study are presented in Table 2. All six constructs achieved Cronbach's Alpha values above 0.65, demonstrating satisfactory levels of internal consistency. Among the independent variables, Algorithmic Personalization achieved the highest reliability score of 0.729, suggesting that the items used to measure personalized algorithmic influence were highly consistent. Fear of Missing Out (0.707), Digital Financial Literacy (0.702), and Behavior al Targeting (0.702) also showed solid reliability, indicating that the instruments effectively captured the dimensions of consumer psychology and marketing influence. Impulsive Buying Behavior, with an alpha value of 0.680, was slightly below the conventional 0.70 benchmark, but still acceptable in the context of exploratory research. The dependent variable, BNPL Adoption Intention, recorded a Cronbach's Alpha of 0.662, which, although modest, is considered suitable for exploratory studies in behavior al and fintech research. On balance, the results provide evidence that the constructs applied in this research are reliable enough that they support further statistical analyses, such as hypothesis testing and structural equation modelling.

### *3. DESCRIPTIVE STATISTICS*

Descriptive statistics were done to profile the central tendency and dispersion of each construct and to give preliminary view of the perceptions of respondents before inferential analysis.

**Table 3.** Descriptive analysis.

| Variables | Mean | Std Deviation |
|---|---|---|
| Algorithmic Personalization (IV) | 20.86 | 5.89 |
| Fear of Missing Out (IV) | 1.22 | 5.12 |
| Impulsive Buying Behavior (IV) | 17.44 | 4.92 |
| Digital Financial Literacy (IV) | 17.42 | 5.05 |
| Behavioral Targeting (IV) | 17.53 | 4.98 |
| BNPL Adoption Intention (DV) | 13.91 | 4.23 |

The mean values and standard deviations of algorithmic personalization, FOMO, impulsive buying behavior, digital financial literacy, behavior al targeting, and BNPL adoption intention report are presented in Table 3. The highest mean score (M = 20.86, SD = 5.89) belongs to algorithmic personalization, which may be regarded as a high perceived availability of personalized content and product suggestions in such applications as Tik Tok and Shopee. The medium dispersion indicates that the majority of the respondents undergo algorithmic curation, but the exposure levels are different in different individuals. FOMO exhibits relatively smaller mean value, and it has a large variance (M = 1.22, SD = 5.12). This trend suggests that the level of heterogeneity in the emotional reactions of respondents to urgency-related and scarcity-related signals is quite high. Instead of having a uniformly low FOMO, the large dispersion implies that FOMO is salient towards a particular group of users, which is again consistent with subsequent results that found FOMO to be an important mediator in BNPL adoption. This variation emphasizes the need to study FOMO as a psychological process, which does not work the same way on different people but is a characteristic whose essence varies.

Similar levels of dispersion and similar means can be observed in impulsive buying behavior (M = 17.44, SD = 4.92), digital financial literacy (M = 17.42, SD = 5.05) and behavior al targeting (M = 17.53, SD = 4.98). This implies comparatively equal perceptions of the respondents as regards impulse tendencies, knowledge of digital financial ideas and exposure to targeted marketing. The consistency of these constructs has implications that they are generally experienced in the sample and therefore, they are valid predictors of further multivariate analysis. The adoption intention of BNPL also has a moderate mean score (M = 13.91) and the smallest standard deviation of the constructs (SD = 4.23). It indicates a comparatively steady degree of BNPL usage intention among respondents, which can be seen as evidence of the further normalization of the BNPL services in the Southeast Asian digital commerce settings.

In the general, the descriptive findings suggest that the algorithmic personalization is the most salient perceived digital influence, whereas the psychological reactions to it, including FOMO and impulsiveness, differ more significantly across people. The patterns give a significant basis to follow the correlation, regression, and structural modelling analysis that would examine the interplay between technological exposure and psychological factors and their effects on shaping BNPL adoption behavior.

## *4. PEARSON CORRELATION*

Pearson correlation analysis is a statistical tool that can play an important role to analyze the strength and direction of linear relation between the variables to help the researchers to explain how the independent variables affect the dependent variables.

**Table 4.** Pearson correlation.

| Variables | BNPL Adoption Intention (DV) (r) | Significance (p-value) |
|---|---|---|
| Algorithmic Personalization (IV) | 0.670 | 0.000 |
| Fear of Missing Out (IV) | 0.666 | 0.000 |
| Impulsive Buying Behavior (IV) | 0.722 | 0.000 |
| Digital Financial Literacy (IV) | 0.632 | 0.000 |
| Behavioral Targeting (IV) | 0.663 | 0.000 |

Table 4 shows Pearson correlation coefficients of the independent variables and BNPL Adoption Intention along with their significance values. All correlations are significant with p = 0.000, which means all the constructs are well correlated. These point to the fact that algorithmic personalization, FOMO, impulsive buying behavior, digital financial literacy, and behavior al targeting are relevant factors of influence in the intention of Gen Z and Millennials in using BNPL services. Out of the variables, the Impulsive Buying Behavior has the highest correlation with the variable BNPL Adoption Intention (r = 0.722). The fact that Gen Z and Millennials consumers are more impulsive when they are revealed to be more inclined to use BNPL services implies that impulsivity is the behavioral aspect behind adopting BNPL services. The result stands true with previous articles reminding of emotional decision-making and immediate gratification in determining financial behaviors.

The presence of Algorithm Personalization also has a good positive relationship (r = 0.670) with the factor showing the level of BNPL adoption increases with recommendation of the AI-powered platforms like TikTok and Shopee. That is why algorithmic nudges are so effective at reducing the purchase resistance. In line with it, both Fear of Missing Out and their coefficient of correlation (r = 0.666) signified a high correlation, signifying that both urgency cues and profiles encouraging customers to utilize their deferred payments solutions were promoted through scarcity. Personalization (r = 0.663) also shows quite high correlation, meaning that personalized adverts and targeted campaigns make Gen Z and Millennials more engaged in BNPL. Digital Financial Literacy, although slightly less (r = 0.632), has the significant effect that the knowledge of the mechanisms of digital finance does not inhibit the adoption but rather informs better decisions.

All of these findings support the idea that psychosocial (for example, impulsivity and FOMO) and technological (personalization algorithms and behavior al targeting) push factors influence BNPL adoption to a large extent. The overall relevance of these correlations displays the cross-faceted involvement of Gen Z and Millennials in the use of BNPL, with behavior and digital environment interacting to influence activities on financial choices. These insights offer a good background upon which to proceed to regression and structural modelling in order to test the causal pathways.

## *5. MULTIPLE REGRESSION*

Multiple regression analysis is a type of statistical analysis which is utilized to establish how a number of independent variables all work together and to consider the relative power, and importance of the predictors. Table

5 shows the regression model findings of BNPL adoption intention, consisting of five variables, including the algorithmic personalization, FOMO, impulsive buying behavior, digital financial literacy, and behavior al targeting. The model summary has an excellent correlation (R = 0.775) between the predictors and the adoption intention towards BNPL. The $R^2$ value of 0.600 indicates that 60% of the variance in BNPL adoption intention can be explained by the model, which is substantial in behavior al research. The adjusted $R^2$ (0.593) further confirms the robustness of the model, while the F-statistic of 88.186 with a significance level of p = 0.000 demonstrates the overall model's validity.

**Table 5.** Multi regression.

| | | | |
|---|---|---|---|
| **R** | 0.775 | | |
| **$R^2$** | 0.6 | | |
| **Adjusted $R^2$** | 0.593 | | |
| **F** | 88.186 | | |
| **p** | 0.000 | | |
| **Variables** | **Standardized Coefficient (Beta)** | **t-value** | **Significance (p-value)** |
| Algorithmic Personalization (IV) | 0.116 | 1.747 | 0.082 |
| Fear of Missing Out (IV) | 0.195 | 3.276 | 0.001 |
| Impulsive Buying Behavior (IV) | 0.339 | 5.339 | 0.000 |
| Digital Financial Literacy (IV) | 0.058 | 0.951 | 0.342 |
| Behavioral Targeting (IV) | 0.168 | 2.82 | 0.005 |

Examining the individual predictors, impulsive buying behavior emerges as the strongest predictor (β = 0.339, t = 5.339, p = 0.000). This finding highlights that impulsivity significantly drives BNPL adoption, reflecting Gen Z and Millennial's tendency towards immediate gratification and unplanned purchases. Fear of missing out (β = 0.195, t = 3.276, p = 0.001) also plays a significant role, reinforcing the idea that urgency cues and social influence strongly shape financial decision-making. Behavior al targeting (β = 0.168, t = 2.82, p = 0.005) is another significant factor, showing that tailored advertisements and algorithm-driven promotions directly encourage BNPL usage.

By contrast, algorithmic personalization (β = 0.116, t = 1.747, p = 0.082) does not reach statistical significance, suggesting that while personalized recommendations affect consumer perceptions, their direct influence on BNPL adoption is limited when other variables are considered. Similarly, digital financial literacy (β = 0.058, t = 0.951, p = 0.342) is not significant, implying that awareness of financial risks does not directly translate into reduced adoption, possibly because convenience and social pressures outweigh rational assessment. Overall, the regression results demonstrate that psychological and marketing-related factors impulsivity, FOMO, and behavior al targeting are the most significant drivers of BNPL adoption, while financial knowledge and algorithmic personalization exert weaker or indirect effects.

### *6. HYPOTHESIS FINDINGS*

Hypothesis testing is a critical step in quantitative research, enabling researchers to assess relationships between variables and determine whether theoretical assumptions hold true through statistical significance levels.

**Table 6.** Hypothesis.

| **Hypothesis** | **Significance (p-value)** | **Decision** |
|---|---|---|
| H1: Algorithmic personalization is positively associated with BNPL adoption among Gen Z and Millennials. | 0.082 | Not Supported |
| H2: FOMO mediates the relationship between algorithmic personalization and BNPL adoption. | 0.001 | Supported |
| H3: Impulsive buying behavior significantly predicts BNPL adoption. | 0.000 | Supported |

| | | |
|---|---|---|
| H4: Digital financial literacy moderates the relationship between behavior al targeting and BNPL adoption. | 0.342 | Not Supported |
| H5: Behavior al targeting on social media platforms is positively associated with BNPL usage intent. | 0.005 | Supported |

Table 6 presents the hypothesis testing outcomes for this study, focusing on the relationship between algorithmic personalization, FOMO, impulsive buying behavior, digital financial literacy, behavior al targeting, and BNPL adoption. The results provide meaningful insights into the drivers of BNPL usage among Gen Z and Millennials in Malaysia, Singapore, and Indonesia.

H1, that is, that algorithmic personalization is positively related to BNPL adoption is not supported ($p = 0.082$). This indicates that, although personalization can help boost population interaction with a product or service, its role in facilitating the adoption of BNPL is not as significant when other influencing factors, such as FOMO and impulsivity, are taken into account. This observation suggests that an algorithm-mediated recommendation possibly serves more as an incidental factor than a source. H2 is supported ($p = 0.001$) as it confirms that FOMO mediates the assumed effect of algorithmic personalization on the front of using BNPL. This underlines the behavior al process by which personalization influences consumer behavior with urgency and social comparison being the key factors that have encouraged BNPL usage. The impulsive buying behavior is also a strong predictor of BNPL adoption as postulated by H3 ($p = 0.000$). This supports the opinion that it was the propensity towards instant gratification and impulsive spending money that led Gen Z and Millennials consumers to rely on BNPL. H4, according to which the hypothesis is that digital financial literacy would moderate the relationship between behavior al targeting and BNPL adoption, remained unconfirmed ($p = 0.342$). It means that a greater financial awareness level does not necessarily decrease the effects of the behavior al targeting so rational financial knowledge can be overridden by persuasive marketing. Lastly, H5 held ($p = 0.005$) indicating that the use of behavior al targeting on social media networks has a positive influence on the BNPL use intentions. Gen Z and Millennials are nevertheless susceptible to period-based advertisements and algorithm-fueled promotions, which is why it is effective to rely on these when promoting BNPL services.

Since, to some degree, psychological factors are the most influential factors in BNPL adoption, it can be concluded that they were also the most influential in framing the adoption of BNPL with the help of marketing. The direct coefficients of algorithmic applied personalization and financial literacy are also too low.

## IV. DISCUSSION OF FINDINGS

The results of this study can be used to inform the most important considerations related to the use of the BNPL services among the younger generation Z in Southeast Asia, in particular, Malaysia, Singapore, and Indonesia. The paper uses the Theory of Planned Behavior [34] and extends it to FOMO, impulsive buying behavior, behavior al targeting, digital financial literacy, and implement algorithmic personalization to explain psychological and technological forces that influence financial decisions in the world of digitally mediated environments.

The findings demonstrate that the hypothesized relationships do not contribute equally to BNPL adoption intention. Psychological factors, particularly FOMO and impulsive buying behavior, together with behavior al targeting, emerged as the strongest predictors of BNPL adoption. This suggests that BNPL adoption among younger consumers is influenced more strongly by emotional and social pressures than by purely rational financial evaluation. In contrast, algorithmic personalization and digital financial literacy showed weaker direct effects. These findings indicate that financial behavior in social commerce environments is shaped through the interaction between psychological vulnerability and persuasive technological systems rather than technology exposure alone.

### *1. ALGORITHMIC PERSONALIZATION AND BNPL ADOPTION*

Interestingly, one of the best results was that algorithmic personalization was not contained in-depth as a direct predictor of the use of BNPL ($p = 0.082$). This finding contradicts most existing works that indicate personalized advice directly influences consumer behavior [8]. Rather, the research paper suggests that personalization itself may not directly influence financial decision-making unless it activates stronger psychological motives, including FOMO

and impulsivity. This is explicable using the mechanism of indirect influence. Personalization through algorithms may also act as a contextual enabler in that consumers get access to the right content. However, exposure to personalized content alone may not necessarily result in BNPL adoption. The decision to use BNPL will rely on the propensity of the consumer toward psychological nudges. An example of this would be a customized TikTok ad of a product which may hold attention, although unless a consumer is also at the stage of FOMO or is an impulsive purchaser, BNPL should not automatically be adopted.

This is in line with the issue of algorithmic nudging [10] which postulates that algorithms are not independent but can be explained within a continuum of cognitive biases. Here, personalization can only work when it engages in an interaction with psychological triggers. Thus, algorithmic systems may be more effective when combined with urgency-based or emotionally persuasive marketing cues. The message to marketers in this is that using algorithmic tools, in combination with scarcity-driven or time-limited appeals, will yield the best results to influence BNPL utilization.

### *2. FEAR OF MISSING OUT (FOMO) AS A MEDIATOR*

Out of all identified strong mental routes, the role of FOMO was shown to be a significant mediator that correlated with the relationship between algorithmic personalization and adoption of BNPL ($p = 0.001$). This finding highlights the importance of emotional urgency in digital commerce environments. As stressed by [23] FOMO does not entail only a temporary response but rather the state of permanent cognitive bias that leads consumers to priorities short-term opportunities over financial rationale.

In the Southeast Asian market, where live streaming commerce has become immensely popular with TikTok, FOMO becomes positively reinforced by social proof, influence and time-based bonuses [5]. The result can draw the conclusion that Gen Z and Millennials consumers tend to use BNPL not just in case the content is tailored to their needs but due to the fear of being forgotten in a publicly seen in trend. This does not contradict Bekman [24] who argues that PR and marketing efforts based on urgency cause an irrational decision, especially on the part of young consumers. To the policymakers, this poses a threat to financial well-being. The higher the BNPL adoption is motivated by the emotional bias than by reasoned reflection, the more consumers are at risk of becoming over-indebted. Thus, the regulators in Malaysia, Singapore, and Indonesia should think of measures that restrict manipulative urgency in e-commerce.

### *3. IMPULSIVE BUYING BEHAVIOR AND BNPL*

Perhaps the most robust finding is that impulsive buying behavior significantly predicts BNPL adoption ($\beta = 0.339$, $p = 0.000$). This aligns with prior research by El Sayed [37] and Gebeyehu & Mavridis [40] who found that impulsivity is closely tied to BNPL because the service reduces psychological barriers to purchasing. By deferring payment, BNPL enables consumers to indulge impulsive urges without immediate financial consequences. The descriptive analysis also reinforces this point, as impulsive buying recorded a relatively high mean (17.44) with moderate variability, suggesting that impulsivity is a common trait among respondents. In Indonesia, where algorithmic exposure intersects with lower levels of financial literacy, impulsive purchases are particularly pronounced [7].

This finding highlights the paradox of fintech convenience. As much as BNPL is flexible and crowds in purchasing power, it also lends itself to heightened impulsiveness and short-termism in financial decision-making. The fact that there is a high level of statistical dependence ($r = 0.722$) between impulsivity and BNPL adoption indicates that intervention toward improving financial discipline is highly needed. This suggests that behavior al self-control may be as important as financial knowledge in responsible fintech usage. It not only confirms the necessity of financial literacy education programs for educators and regulators, but also indicates that such programs would be more effective if they focused on both knowledge and behavior al self-control mechanisms.

### *4. BEHAVIOR AL TARGETING AND BNPL ADOPTION*

A form of behavior al targeting was also a relevant indicator of the adoption of BNPL (beta 0.168, $p = 0.005$). It reveals that the personalized advertisement options, such as dynamic remarketing ads or an influencer-detected advertising campaign, can effectively overcome the barrier of psychological resistance in BNPL usage that consumers

experience. Salam [26] argue that Gen Z and Millennials is particularly sensitive to lifestyle-aligned marketing, and the present results confirm this.

Unlike algorithmic personalization, which failed to show direct significance, behavior al targeting proved to have a more tangible effect. This may indicate that consumers respond more strongly to persuasive advertising appeals linked to lifestyle aspirations and peer influence. Israfilzade & Guliyeva [27] note that Gen Z and Millennials' purchasing patterns are more susceptible to dynamic remarketing compared to Gen Y, which may explain why behavior al targeting emerges as statistically significant. From a managerial standpoint, this underscores the strategic value of carefully crafted targeted campaigns. However, from an ethical perspective, it raises questions about consumer autonomy, as behavior al targeting increasingly manipulates subconscious biases. Schmauder [10] caution that algorithmic nudges can compromise informed decision-making, an issue particularly concerning when combined with BNPL services that inherently encourage deferred responsibility.

### *5. DIGITAL FINANCIAL LITERACY AND BNPL*

Contrary to expectations, digital financial literacy did not emerge as a significant moderator ($\beta = 0.058$, $p = 0.342$). This finding suggests that knowledge of financial tools and risks does not substantially alter the effect of behavior al targeting on BNPL adoption. The finding challenges the traditional assumption that financial literacy alone can protect consumers from persuasive digital environments. This result challenges traditional assumptions that financial literacy acts as a protective factor in consumer finance. Wee & Goy [30] previously highlighted the gaps in financial literacy among Malaysian Gen Z and Millennials, while Windasari [32] noted that Indonesian youth often fail to consider the long-term implications of fintech usage. However, the present study reveals that even when financial literacy is present, it may not be sufficient to counteract the persuasive power of targeted marketing and emotional triggers.

This finding aligns with Ali [41], who argued that cognitive overload and heuristic shortcuts often override rational financial knowledge in digital contexts. In other words, even literate consumers may ignore what they know when confronted with compelling marketing appeals. For policymakers, this finding implies that financial education alone is not enough; behavior al safeguards and regulatory oversight are equally essential.

### *6. COMPARATIVE INSIGHTS ACROSS MALAYSIA, SINGAPORE, AND INDONESIA*

The transnational perspective of this research makes it richer. Malaysia, an emerging regulatory setting, is a transitional location where the adoption of BNPL is growing very fast [14]. Institutional controls are effective as shown by moderated impulsivity and FOMO in Singapore, under the strict control of the Monetary Authority of Singapore [6]. On the other hand, with limited regulation and lower levels of financial literacy, Indonesia LC has the highest impulsive levels as well as FOMO-driven adoption rates [7]. These distinctions explain why the regulatory ecosystems are crucial in determining consumer outcomes. Although algorithmic personalization and behavior al targeting are universal, they have different outcomes, depending on the amount of institutionalized control over those practices.

### *7. RECOMMENDATION*

This research points to the multifaceted nature of the BNPL usage of the new generation in Southeast Asia since it is not only the technological advancements that impact its acceptance as well as the psychological and economical nature of the contexts concerned. Whereas impulsivity, FOMO, behavior al targeting was found to have strong influence on BNPL uptake, the effects of algorithmic personalization and financial literacy were rather weak or time-neutral. These realities also have implications among policymakers, marketing, education, and institutions financing. Based on this, this section presents the main recommendations on how the BNPL can be developed further as a convenient financial instrument and yet avoid presenting its threats to young participants in the consumer market.

#### *7.1 Strengthening Regulatory Oversight*

The findings indicated that FOMO and impulsive purchase behavior are relevant to the use of BNPL, unequivocally raising issues regarding consumer security. Regulators particularly in Malaysia and Indonesia where regulations remain a work in progress should make their frameworks tighter to check the marketing practice of BNPL. Singapore, in and of itself under the MAS, has already a commendable benchmark of regulatory safety.

Adopting these principles of one of the ASEAN countries can be relevant to the remaining ASEAN countries and require BNPL alternatives to disclose a clear total amount of money to be paid back, control excessive late penalties schemes, and notify about risks of credit dependency as clearly as possible. Moreover, regulations need to particularly target manipulative urgency strategies on social media commerce (e. g. flash sales and countdown timers), which explicitly play on consumer psychology.

### *7.2 Embedding Ethical Standards in Digital Marketing*

Since the behavior al targeting was established as a key predictor of BNPL uptake, the marketers are to practice persuasive advertising that can be ethically acceptable. Social media platforms and e-commerce companies should adopt codes of practice that limit over-personalized advertising, particularly those that exploit FOMO or emotional vulnerability. Algorithmic transparency is crucial: consumers should be informed when targeted advertisements are designed to push them toward deferred payment options. Industry self-regulation, supported by government policy, can create a balance between commercial success and consumer well-being.

### *7.3 Enhancing Financial Literacy with Behavior al Training*

Even though the financial literacy was not a significant moderator in this research, it does not lessen its significance. Instead, it outlines the necessity to reconsider the need to redesign the approaches to delivering financial education. Conventional education that focuses on knowledge, which is knowing interest rates, learning about a budget or having a credit score is not suitable when people are consumers who are motivated by impulsivity and cognitive disposition. The focus of educational programs ought to be placed in behavior al financial literacy, which would help students understand how to identify emotional stimuli, avoid impulse purchasing, and critically analyses online advertisement. A gamified mobile-based app or workshop with a simulation or scenario analysis would be effective to train Gen Z and Millennials under the real-life stress factor of the digital world when looking into making financial decisions.

### *7.4 Leveraging BNPL Responsibly by Providers*

NPL providers themselves are to blame in influencing the consumer behavior. The results indicate that impulse buyers are especially susceptible to BNPL since they are strongly attracted to buy on credit. Lenders must bring in pre-installed protections, e.g. expenditure limits, repayment warning/reminder, affordability test prior to acceptance. Besides, professional cooperation with educational institutions and fintech associations should develop a joint campaign promoting the development of responsible lending. A robust Corporate Social Responsibility (CSR) structure will safeguard the consumers and it will also help build consumer trust in BNPL environment in the long run.

### *7.5 Regional Collaboration for Consumer Protection*

Since the study involved the comparison of Malaysia, Singapore, and Indonesia, it became obvious that the regulatory and cultural settings lead to various consequences. A regional system of governance of BNPL in ASEAN would introduce a form of consistency across national borders. As is the case with European countries, Southeast Asian nations could build a system whereby they could agree on specific disclosure requirements, fair marketing, and credit safeguard. The regional solution would become especially useful when it comes to targeting the cross-border ecosystems such as those represented by TikTok and Shopee, the effects of which bypass national borders.

## V. CONCLUSIONS

The phenomenon of BNPL services in Southeast Asia has completely reshaped the consumer finance sector and, in particular, is the cohort of Generation Z that has been particularly susceptible to the combination of digital environments and psychological imbalances. This research attempted to untangle the relationship between the tendency of algorithmic personalization, maintenance of FOMO, impulsive consumer behavior, behavior al targeting, and the digital financial literacy skills of shaping BNPL uptake in Malaysia, Singapore, and Indonesia. The conclusions made here merely solidify the findings and at the same time place them within the larger repertoire of the consumer behavior, technology and financial sustainability.

The findings indicate that adoption of BNPL is not necessarily due to the convenience and financial reasonableness of technology alone. Rather, it is the result of a complex of algorithmic forces plus psychological weaknesses. Algorithms were not found to exert a significant effect in this context on their own, but its mediated effect through FOMO emphasizes how algorithms affect our financial choices not because of explicit manipulation, but through capturing an emotional response. The mediation of FOMO confirms the fact that, in many cases, young consumers do not use BNPL because they have thought about all of its advantages but because they feel pressured by the feeling of urgency, scarcity, or social comparison. The strongest predictor of BNPL adoption was the impulsive buying behavior, reflecting the fact that BNPL does well in the settings where instant satisfaction is deemed higher in importance than the future budgets. This finding fits well with the established literature in behavior al economics that emphasizes the fact that consumers are not always entirely rational; instead, they follow biases, heuristics, and emotions.

NPL services are paradoxical as they make financial flexibility available even to low socio-economically status consumers but open them up to the greater risk of being over-indebted. On the one hand, young Gen Z and Millennials representatives can be actively engaged in e-commerce due to the lowered prices of the given purchases in the short-term period and pursuing their aspirations regarding their lifestyles. On the one hand, the level of influence of impulsivity and FOMO is high, which also indicates that adoption is not always a rational decision that is planned. Unless checked with proper measures, this may keep the young user's vicious circles of repayment stress. The findings that digital financial literacy has no significance as a moderator emphasize another important finding, i.e. that no matter how much people know, it is not going to help them change their behavior. Cognitive overload, persuasive advertising and algorithmic nudging can even outsmart the rational decisions made by individuals, despite being aware of fiscal risks. This demonstrates that there is an urgent need to implement the interventions which incorporate education with behavior regulation.

The scope of the comparative value of the study also adds to the findings. More controlled impulsivity and adoption is observed in Singapore with greater regulatory control over them, a reminder that institutions can moderate the consumer. Malaysia is in between phases and marks not only the high rate of BNPL use but consumer protection issues. In its turn, Indonesia has lax regulation and a relatively low level of literacy, which influences impulses and FOMO-related BNPL consumption. Such variations prove that although the psychological motives are universal, their expression greatly depends on the socio-economic and regulatory environments. Therefore, to say that BNPL is a homogeneous phenomenon would be incorrect; it is too specific to include all the national peculiarities and, at the same time, universal enough to accommodate the cross-border aspect of online platforms. This study offers an extension of the TPB since it shows that attitudes, subjective norms, and perceived behavior al control are no longer sufficient as they fail to account satisfactorily for adoption rates of BNPL. Rather, behavior s like FOMO and impulsivity, algorithmic and marketing pressures need to be factored into modern models of behavior. In doing this, the study will contribute to a developing literature that suggests hybrid frameworks involving psychology, technology and finance.

To sum up, BNPL usage among Gen Z and Millennials in Southeast Asia should not be viewed as a purely economic decision, but as a socio-psychological phenomenon shaped by the digital age. This generation is simultaneously empowered by the accessibility, convenience, and flexibility of digital financial services, while also being vulnerable to emotional impulses and targeted marketing strategies.

The future of BNPL depends on a balance between innovation and protection. Regulators must safeguard consumers from predatory practices, educators should enhance financial literacy by addressing behavioral biases, and marketers must adopt ethical responsibility. Such multi-stakeholder cooperation is essential for ensuring that BNPL evolves into a supportive financial tool rather than a potential debt trap. Overall, the study suggests that the future of BNPL in Southeast Asia will depend not only on technological advancement but also on the integration of ethical governance, consumer awareness, and responsible usage.

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## Author Contributions

Conceptualization, A.H.A.C. and P.B.; methodology, P.B. and K.M.; software, P.B.; validation, K.M. and P.B.; formal analysis, K.M.; investigation, K.M. and P.B.; resources, A.H.A.C.; data curation, P.B.; writing—original draft preparation, A.H.A.C. and P.B.; writing—review and editing, K.M.; project administration, A.H.A.C. All authors have read and agreed to the published version of the manuscript. All authors have read and agreed to the published version of this manuscript.

## Conflicts of Interest

The authors declare that there is no conflict of interest.

## Data Availability Statement

The data presented in this study are available on request from the corresponding author.

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