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Bridging the intention-behaviour gaps in life insurance purchasing behaviour

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ABSTRACT

Life insurance acts as a necessary protective instrument for household financial resilience; however, many consumers continue to make suboptimal purchasing decisions, such as underinsurance, overinsurance, or reliance on inappropriate policies. This study integrates the Theory of Planned Behaviour (TPB) with insights from behavioural finance to examine the determinants of optimal decisions in life insurance purchasing behaviour. Specifically, financial literacy and perceived risk are incorporated as additions to TPB, while hyperbolic discounting is introduced as a moderator for the intention-behaviour gap. An online survey was employed to collect data from 304 respondents, and partial least squares structural equation modelling (PLS-SEM) was applied for analysis via SmartPLS 4. The results indicate that optimal purchase decisions are significantly influenced by subjective norm, perceived behavioural control, financial literacy, and perceived risk, whereas attitude is not. Purchase intention partially mediates several of these relationships. Hyperbolic discounting acts as a significant moderator for the intention-behaviour link. The findings contribute to the existing literature by integrating TPB with behavioural finance in decision-making and addressing the importance of financial literacy, perceived risk, and social influence in insurance selection. Policy implications include building consumer confidence through targeted literacy initiatives, strengthening disclosure standards, and developing community-based interventions to promote optimal insurance coverage.

Contribution/ Originality: This study contributes to the literature by integrating the Theory of Planned Behaviour (TPB) with behavioural finance perspectives in explaining life insurance decision-making. It examines the role of hyperbolic discounting in the intention-behaviour gap, emphasising the importance of financial literacy, perceived risk, and social influence in making optimal insurance decisions.

1. INTRODUCTION

Life insurance serves a dual function in modern economies by mobilising long-term savings to support capital market development and by protecting household financial stability against unforeseen events. However, the life insurance sector in Malaysia has not yet reached a mature stage of development. In 2023, life insurance penetration (measured as the premiums-to-GDP ratio) was approximately 3.3 percent, considerably lower than regional benchmarks such as Japan (8.6 percent) and Taiwan (15 percent). Life Insurance Association of Malaysia (2022) reported that nearly 40 percent of Malaysian adults lack insurance protection and that many policyholders purchase duplicative or inadequate coverage. These patterns indicate inefficiencies in decision-making and persistent

underinsurance within the insurance market. Industry initiatives, such as the voluntary micro-insurance scheme (i-MULA) and the Insurance and Takaful Benefits Protection Scheme (i-Lindung), have been introduced to expand access (Life Insurance Association of Malaysia, 2024). Additionally, the i-Lindung programme, launched by the Malaysian government in July 2022, enables Employees Provident Fund contributors to purchase critical illness policies and affordable life insurance. Nevertheless, consumer behaviour continues to exhibit significant biases, including reliance on informal advice, difficulty in evaluating product disclosures, and a tendency to postpone or over-purchase coverage. These behavioural anomalies are not unique to Malaysia; global studies suggest that individuals often deviate from rational economic choices in insurance markets by relying on heuristics under uncertainty. However, empirical evidence remains fragmented, and the specific psychological and financial drivers of optimal insurance purchasing decisions in emerging markets remain inadequately understood.

Life Insurance Association of Malaysia (2022) further noted that the tendency of policyholders to purchase multiple insurance policies reflects suboptimal decision-making driven by cognitive biases, duplication of coverage, and inadequate financial planning. Similarly, Sun Life (2025) revealed that 28 percent of Generation Z respondents did not seek professional advice when making financial decisions. This finding indicates a tendency to rely on self-guided choices or peer advice, which may result in suboptimal outcomes. Furthermore, Goh (2022) reported that approximately one-third of Malaysians exhibit limited financial literacy, with up to 92 percent of this group preferring deposit products. This suggests a lower propensity to incorporate higher-risk investment products into their portfolios.

Suboptimal decisions may be interpreted through an integration of the Theory of Planned Behaviour (TPB) and behavioural finance. TPB posits that attitude, subjective norm, and perceived behavioural control shape behavioural intention; however, it does not fully explain why strong intentions often fail to translate into optimal life insurance purchasing behaviour. Behavioural finance addresses this limitation by introducing hyperbolic discounting as a psychological explanation for why individuals intend to make optimal decisions but subsequently fail to follow through (Baddeley, 2018; Umapathy, 2024). Consumers with stronger present bias are therefore more likely to make suboptimal life insurance decisions, leading to higher long-term costs in the form of additional fees, increased premiums, or insufficient coverage when protection is most needed.

The field of optimal decisions has been broadly discussed over the past decade (Adeli, Behroozeh, & Haji, 2025; Pal, Sarkar, & Sarkar, 2023). Past studies have mainly focused on perceived behavioural control, subjective norm, and attitude as the principal contributing factors to behavioural intention and actual behaviour within the framework of TPB (Fan et al., 2021). However, this study departs from the previous studies by addressing three research gaps.

First, a contextual gap exists because limited attention has been given to incorporating perceived risk and financial literacy into TPB, particularly regarding optimal life insurance purchasing behaviour. Second, a theoretical gap arises from insufficient examination of the mediating role of behavioural intention (Ifedayo, Ziden, & Ismail, 2021; Mamun, Rahman, Munikrishnan, & Permarupan, 2021).

To address this gap, this study introduces intention to make optimal life insurance purchasing decisions as a mediator linking the independent variables to actual optimal decision-making. Third, another theoretical gap concerns the limited literature on the moderating role of hyperbolic discounting (Adnan, Nordin, & Rahman, 2017). Accordingly, this study incorporates hyperbolic discounting as a moderator to better explain the relationship between the intention to make optimal decisions and optimal life insurance purchasing behaviour.

This study addresses these gaps by applying the Theory of Planned Behaviour (TPB) to the Malaysian insurance context with extensions from behavioural finance. While TPB emphasises rational, intention-driven behaviour, behavioural finance, particularly hyperbolic discounting, explains why strong intentions may not always translate into action.

By integrating financial literacy and perceived risk as additional predictors and testing hyperbolic discounting as a moderator, this study provides a more comprehensive account of the factors influencing optimal life insurance

purchasing behaviour in Malaysia. The remainder of this paper is structured as follows: Section 2 reviews relevant literature, followed by the research methodology in Section 3. Section 4 presents the results, Section 5 discusses the findings, and Section 6 concludes the study.

2. LITERATURE REVIEW

According to the Theory of Planned Behaviour (TPB), intention is determined by attitude, subjective norm, and perceived behavioural control.

Stronger intention, which increases the likelihood of actual behaviour, is shaped by attitudes derived from behavioural beliefs and outcome evaluations, together with social pressure (subjective norms) and perceived ease or difficulty of performing the behaviour (perceived behavioural control). Within the TPB framework, behavioural intention serves as a mediator between independent variables and actual behaviour (Cai & Shannon, 2012; Yu, Han, Ding, & He, 2021).

To extend TPB in the context of financial decision-making, this study incorporates two additional constructs: financial literacy and perceived risk.

Financial literacy enables individuals to recognise product features and evaluate their suitability, thereby enhancing consumer confidence and decision-making quality. In contrast, perceived risk may hinder optimal decision-making due to product complexity or the potential for monetary loss.

Behavioural finance challenges traditional finance by assuming that individuals frequently rely on heuristics, resulting in suboptimal or impulsive decision-making (Baddeley, 2023). This study extends the Theory of Planned Behaviour (TPB) by incorporating behavioural finance concepts, particularly hyperbolic discounting. Classical theory suggests that individuals with a stronger present bias disproportionately value immediate rewards, leading to underinvestment in long-term financial products such as life insurance. Consequently, hyperbolic discounting is expected to weaken the intention-behaviour relationship.

However, recent studies indicate that life insurance may provide immediate psychological utility through perceived security. In such cases, present-biased individuals might be more inclined to act promptly on their intentions, thereby strengthening the intention-behaviour link. This study empirically examines this competing prediction, offering a novel contribution to both TPB and behavioural finance literature.

This study adopts the Theory of Planned Behaviour (TPB) and integrates it with the hyperbolic discounting model to enhance understanding of optimal life insurance purchasing decisions among households in Malaysia. TPB posits that consumers' intention is the immediate determinant of actual behaviour and is influenced by attitude, subjective norm, and perceived behavioural control (Ajzen, 1991).

In addition, this study incorporates financial literacy and perceived risk as supplementary antecedents, as these factors also influence optimal decision-making through behavioural intention (Chatterjee & Bhattacharjee, 2020; Peiris, 2021). Accordingly, the intention to make optimal life insurance purchasing decisions (INT) is specified as a mediating variable in the relationships between attitude towards life insurance (ATT), perceived behavioural control (PBC), subjective norm (SN), financial literacy (FL), perceived risk (PR), and optimal life insurance purchasing decisions (OD).

Finally, hyperbolic discounting (HD) is modelled as a moderating variable, reflecting the tendency of individuals with present bias and time-inconsistent preferences to prioritise immediate rewards over future benefits, which may lead to delays in purchasing life insurance whose benefits accrue in the long term (Zielonka & Szymanek, 2023). Figure 1 displays the proposed research framework in this study.

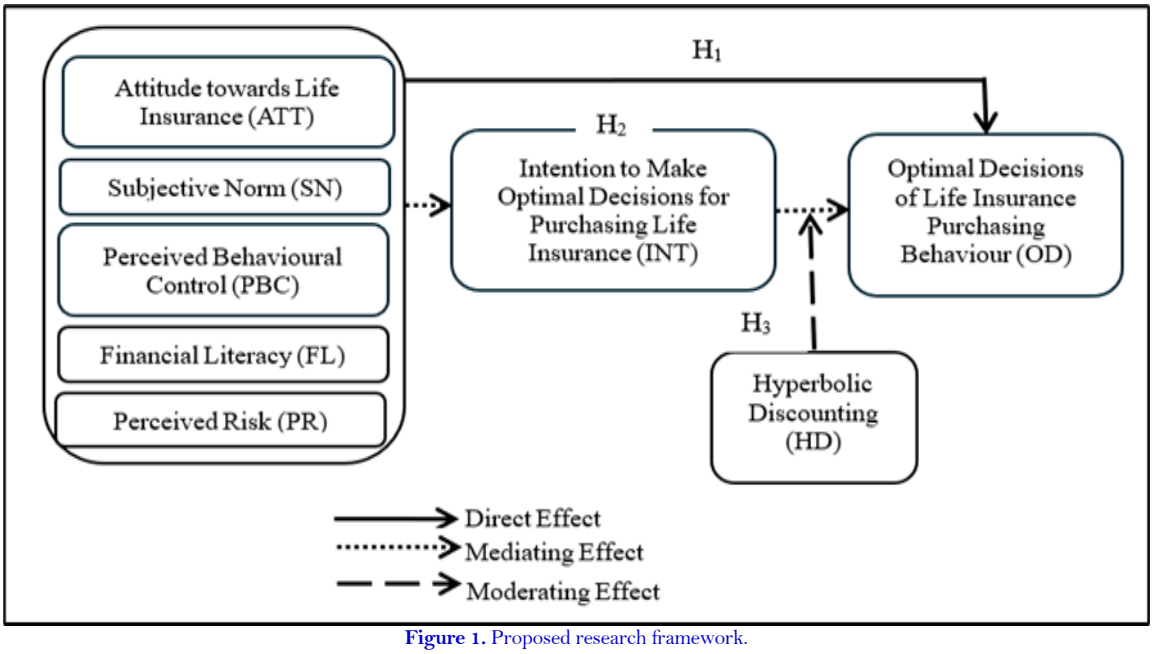

Figure 1. Proposed research framework.

Three main hypotheses explain the causal relationships outlined in the proposed research framework. The following subsection presents the hypotheses development for this study.

H_1: Attitude towards life insurance, subjective norm, perceived behavioural control, financial literacy, and perceived risk significantly affect optimal decisions regarding life insurance purchasing behaviour.

Prior research has examined a range of behavioural factors influencing optimal life insurance purchasing decisions. Attitude has traditionally been conceptualised as a learned predisposition to respond favourably or unfavourably toward life insurance (Kotler & Gertner, 2007; Schiffman & Kanuk, 2000). Empirical studies have linked attitudes to sociodemographic characteristics such as marital status and employment (Gakhar, 2019; Sarsharbeidokhti, Bagherzadeh, & Bagheri, 2024) and have highlighted their importance in shaping consumer behaviour (Deo & Prasad, 2024; Mbada et al., 2013). However, evidence on the attitude-behaviour relationship remains mixed. While some studies report positive effects (Kant, Dejene, & Garuma, 2023), others suggest that attitudes do not always translate into actual decisions, as mediating factors such as knowledge, situational context, and personality traits often intervene (Vermeir & Verbeke, 2008; Zhuo, Ren, & Zhu, 2022).

Subjective norms (SN), defined as perceived social pressure from peers, family members, and significant others, play a crucial role in shaping financial behaviour (Raza, Ahmed, Ali, & Qureshi, 2020; Yeo, Lim, & Yii, 2024). Social networks can behave as learning environments where individuals adapt strategies based on others' actions (Lee, Lin, & Lee, 2021; Wirawan, Mildawati, & Suryono, 2022). Norvilitis and MacLean (2010) found that younger individuals frequently seek financial advice from parents, including guidance on decisions such as purchasing life insurance. Similarly, Aisjah (2024) reported that parental guidance significantly influences university students' financial behaviour. However, such influence may be insufficient when parental financial knowledge is limited, potentially leaving young adults ill-prepared to evaluate complex insurance products (Khalisharani, Sabri, Johan, Burhan, & Yusof, 2022). Perceived behavioural control (PBC), which is described as individuals' perception of ease or difficulty in making decisions, strongly predicts financial behaviours (Brahmana, Brahmana, & Memarista, 2018; Ismail, Kamarudin, Noh, Bakar, & Ibrahim, 2023). Individuals with higher self-efficacy tend to exhibit greater confidence in managing complex products and are less likely to delay decisions (Maulana, Razak, & Adeyemi, 2018; Yeow, Tay, Lye, & Fauzi, 2021). Although prior studies have demonstrated the importance of PBC in emotionally sensitive contexts such as reproductive and health-related choices (Hanson, Nothwehr, Yang, & Romitti, 2015; Totura, Labouliere, Gryglewicz, & Karver, 2019), financial decisions such as life insurance are further complicated by market

uncertainty and abstract risk assessments, rendering perceived control particularly salient.

Financial literacy (FL) is consistently found to facilitate optimal financial decision-making. Customers need specific skills and knowledge to assess policy options, manage risk, and formulate strategies for long-term security (Lin, Hsiao, & Yeh, 2017; Setyorini, Indiworo, & Sutrisno, 2021). Higher FL correlates with improved financial behaviour, including insurance and investment decisions (Bustani, 2024; Fong, Koh, Mitchell, & Rohwedder, 2021). However, the gaps still exist as even financially literate individuals may struggle when facing complicated markets and limited information (Dunn, 2023). Finally, perceived risk (PR) refers to the unfavourable perception consumers have regarding a product or service, often arising from uncertainty or fear of negative outcomes during the purchasing process (Raza et al., 2020; Wai, Dastane, Johari, & Ismail, 2019). The individual with lower confidence strengthens PR and impedes optimal decision-making (Jain et al., 2023; Peters, 2022). Moreover, perceived risk is often influenced by past experiences and cognitive biases such as associative activation, where negative experiences with unrelated insurance policies are generalised to life insurance (Sum & Nordin, 2018).

H_2: Intention to make optimal decisions for purchasing life insurance mediates the relationship between attitude towards life insurance, subjective norm, perceived behavioural control, financial literacy, perceived risk, and optimal decisions in life insurance purchasing behaviour.

Based on the assumptions of TPB, behavioural intention is the most immediate antecedent of actual decision and thus functions as a key mediator linking antecedents to final decisions (Alfiero, Battisti, & Hadjielias, 2022). Empirical studies provide broad support for this role across different contexts. Attitudes typically influence actual decisions indirectly through intention, as shown in consumer and online shopping behaviour (Cai & Shannon, 2012; Yu et al., 2021). Similarly, subjective norms (SN) are often mediated by behavioural intention before translating into actual decisions, with the evidence of existing literature from household insurance purchases (Masud, Ahsan, Ismail, & Rana, 2021) and zakat compliance (Ilmi, Ridlwan, Fahrullah, Timur, & Alam, 2024). However, some scholars indicate that SN influences actual behaviour directly without passing through behavioural intention (Rahayu, Purwidianti, Tubastuvi, & Aryoko, 2023), suggesting variability in its predictive pathway.

For perceived behavioural control (PBC), behavioural intention frequently mediates its relationship with decisions, enabling individuals to act when they feel capable (Cheng et al., 2022; Sultan, Tarafder, Pearson, & Henryks, 2020). However, not all literature supports this view, as some report that PBC can directly shape optimal decisions independently of intention (Alfiero et al., 2022). Evidence for financial literacy (FL) shows a similar mixed pattern. While many studies confirm that intention partially mediates the FL-decision link (Peiris, 2021; Widjaja, Arifin, & Setini, 2020), others reveal that FL can influence financial behaviour directly without mediation (Wahyuni, Radiman, Hafiz, & Jufrizen, 2023). Finally, perceived risk (PR) is consistently shown to affect decisions through behavioural intention, where higher risk perceptions reduce intention and subsequently lower the likelihood of optimal decision-making (Alfiero et al., 2022; Bhatti & Rehman, 2019; Masud et al., 2021; Qi, Yang, Ge, Yu, & Li, 2021).

H_3: Hyperbolic discounting moderates the relationship between the intention to make optimal decisions for purchasing life insurance and the optimal decisions of life insurance purchasing behaviour.

In this study, hyperbolic discounting (HD) is examined as a moderator for the intention-behaviour gap. Although TPB assumes that intention is the immediate antecedent of actual behaviour (Ajzen, 1991), it does not fully explain the well-documented intention-behaviour gap in the financial field. Behavioural finance addresses this limitation by recognising cognitive biases such as HD, where individuals disproportionately prioritise short-term gratification over long-term benefits (Bawalle, Lal, Nguyen, Khan, & Kadoya, 2024; Oliveira & Green, 2012). HD introduces temporal inconsistency, meaning that the perceived value of long-term outcomes such as financial protection from life insurance declines as the benefits become more distant (Enke & Graeber, 2021; O'Donoghue & Rabin, 2000). As a result, even individuals with strong intentions may fail to act when immediate costs or temptations outweigh future security. By incorporating HD into the TPB framework, this study proposes that present bias helps explain why intentions do not always translate into optimal insurance decisions. Specifically, HD moderates the intention-behaviour link by

weakening consumers' follow-through on previously formed intentions. However, some recent evidence suggests that present-biased individuals may be more motivated to act on intentions promptly, thereby strengthening the intention-behaviour link. It is supported by Lal, Nguyen, Bawalle, Khan, and Kadoya (2024), who revealed that customers with greater hyperbolic discounting were more inclined to participate in financial behaviour due to fear of potential financial loss or the need for immediate financial security.

3. METHODOLOGY

The survey was self-administered using Google Forms and distributed entirely online to target respondents in Malaysia. The online format enabled responses to be easily exported into a spreadsheet for data screening and filtering, thereby eliminating the need for manual data processing. A cross-sectional design was adopted, with data collected at a single point in time due to time constraints in completing the study. The questionnaire comprised two sections, namely Section A and Section B, as presented in Table 1. Section A collects demographic information, including age group, ethnicity, gender, and highest educational attainment, whereas Section B is designed to measure the independent variables (ATT, SN, PBC, FL, and PR), the mediating variable (INT), the moderating variable (HD), and the dependent variable (OD). All measurement items were assessed using a five-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree").

Table 1. Questionnaire section.

Section	Descriptions	Number of items	Sources
A	**Demographic information**		
	Gender	1	
	Race	1	
	Age group	1	
	Highest education level	1	
B	**Independent variables**		
	Attitude towards life insurance	6	Adapted from Md, Shahedul, and Md (2017); Nomi and Sabbir (2020); Alfiero et al. (2022), and Baggio and Kumar (2023)
	Subjective norm	6	Adapted from Karash (2008); Giri (2018); Horne, Gilliland, Vohl, and Madill (2020), and Phuong, Huong, Dat, and Truong (2024)
	Perceived behavioural control	6	Adapted from Tsai (2010), Mamun et al. (2021), and Botha and Wiese (2024)
	Financial literacy	6	Adapted from Danes and Haberman (2007); Lin et al. (2017); Weerasekara, Heenkenda, and Hapugoda (2018); Vieira, Júnior, and Potrich (2020), and Lontchi, Yang, and Su (2022).
	Perceived risk	6	Adapted from Im, Kim, and Han (2008); Wu and Chen (2014); Sánchez-Alzate and Sánchez-Torres (2017); Sin (2018), and Kim and Jeong (2024)
	Mediating variable		
	Intention to make optimal decisions for purchasing life insurance	6	Adapted from Pinquart, Eberhardt, Silbereisen, and Miltner (2004); Hong and Rhee (2016); Nomi and Sabbir (2020), and Chung (2021)
	Moderating variable		
	Hyperbolic discounting	6	Adapted from Sopher and Sheth (2006); Da Silva, De Faveri, and Matsushita (2017); Ericson and Laibson (2019), and Zhang, Purcal, and Wei (2021)
	Dependent variable		
	Optimal decisions of life insurance purchasing behaviour	6	Adapted from Pinquart et al. (2004); Hong and Rhee (2016); Nomi and Sabbir (2020), and Chung (2021)

In this study, convenience sampling was employed due to restrictions on accessing customer information from life insurance companies and the absence of a publicly available database of life insurance consumers. The

questionnaire was distributed via social media platforms, including WhatsApp, Facebook, and Instagram, to reach the target population of households in Malaysia. A total of 304 valid responses were obtained, exceeding the minimum recommended sample size of 200 for structural equation modelling (Dash & Paul, 2021).

To address issues of common method variance (CMV), particularly single-source bias, a full collinearity test was performed using WarpPLS 8.0 software. If all variance inflation factors (VIFs) from the test are 3.3 or lower, as recommended by Kock (2015), the constructs can be considered free from CMV. The VIFs for all constructs range between 1.958 and 3.061, indicating that CMV is not a concern.

3.1. Measurement Model

The assessment of the measurement model, including discriminant validity (HTMT ratio), convergent validity (average variance extracted), indicator reliability (outer loadings), and internal consistency reliability (composite reliability and Cronbach's alpha), was conducted in this study to ensure the reliability and validity of the constructs.

Composite reliability and Cronbach's alpha were conducted in this study to determine internal consistency reliability. Based on Table 2, the values of Cronbach's alpha in this study range from 0.846 to 0.922, meeting the acceptable threshold of 0.7 (Barbera, Naibert, Komperda, & Pentecost, 2021). Table 2 also reveals that the values of composite reliability for all constructs are within the range of 0.891 to 0.940, which are more than 0.7 as recommended by Hair, Hult, Ringle, and Sarstedt (2017). Although those constructs' composite reliability values exceed 0.9, they remain acceptable as they are below the 0.95 threshold (Hair, Risher, Sarstedt, & Ringle, 2019; Mohd Dzin & Lay, 2021). The results of composite reliability and Cronbach's alpha show that the measurement model establishes satisfactory reliability for all constructs.

Table 2. Internal consistency reliability.

Constructs	Cronbach's Alpha	Composite Reliability
Attitude towards life insurance	0.872	0.907
Subjective norm	0.875	0.905
Perceived behavioural control	0.894	0.919
Financial literacy	0.846	0.891
Perceived risk	0.922	0.940
Intention to make optimal decisions for purchasing life insurance	0.899	0.922
Hyperbolic discounting	0.882	0.911
Optimal decisions of life insurance purchasing behaviour	0.922	0.939

In this study, indicator reliability was assessed based on each indicator's loading within a construct, representing the proportion of variance explained by the latent variable. According to Hair et al. (2019), a loading value of ≥ 0.70 demonstrates that the construct supports more than 50 percent of the indicator's variance, confirming a satisfactory level of reliability. If the loading of an indicator is below this threshold, the researchers may consider removing it in order to improve model reliability. Based on Table 3, all loading values of the indicators are greater than 0.7, except for ATT1 (0.653) and FL1 (0.698). Thus, all items except for ATT1 and FL1 have adequate indicator reliability in this study.

Table 3. Indicator reliability.

Constructs	Indicators	Loadings
Attitude towards life insurance	ATT1	0.653
	ATT2	0.810
	ATT3	0.844
	ATT4	0.760
	ATT5	0.820
	ATT6	0.833
Subjective norm	SN1	0.728
	SN2	0.806

Constructs	Indicators	Loadings
	SN3	0.815
	SN4	0.823
	SN5	0.800
	SN6	0.728
Perceived behavioural control	PBC1	0.758
	PBC2	0.813
	PBC3	0.817
	PBC4	0.835
	PBC5	0.793
	PBC6	0.832
Financial literacy	FL1	0.698
	FL2	0.777
	FL3	0.761
	FL4	0.835
	FL5	0.803
	FL6	0.758
Perceived risk	PR1	0.840
	PR2	0.878
	PR3	0.864
	PR4	0.741
	PR5	0.910
	PR6	0.858
Intention to make optimal decisions for purchasing life insurance	INT1	0.769
	INT2	0.845
	INT3	0.826
	INT4	0.825
	INT5	0.794
	INT6	0.829
Hyperbolic discounting	HD1	0.743
	HD2	0.835
	HD3	0.728
	HD4	0.820
	HD5	0.846
	HD6	0.785
Optimal decisions of life insurance purchasing behaviour	OD1	0.829
	OD2	0.866
	OD3	0.835
	OD4	0.856
	OD5	0.874
	OD6	0.831

One of the common methods to assess convergent validity is average variance extracted (AVE), defined as the grand mean value of the squared loadings of the indicators related to the constructs (the sum of the squared loadings divided by the number of indicators). Each construct should support at least 50 percent of the assigned indicator's variance (AVE $\geq$ 0.50) to meet adequate convergent validity. According to Table 4, the values of AVE for all constructs are more than 0.5, ranging from 0.616 to 0.722. Thus, the measurement model displays evidence of convergent validity.

Table 4. Convergent validity.

Constructs	AVE
Attitude towards life insurance	0.662
Subjective norm	0.616
Perceived behavioural control	0.654
Financial literacy	0.620
Perceived risk	0.722
Intention to make optimal decisions for purchasing life insurance	0.664
Hyperbolic discounting	0.631
Optimal decisions of life insurance purchasing behaviour	0.720

One of the common techniques to detect discriminant validity was the Heterotrait-Monotrait ratio of correlation (HTMT). According to Table 5, the HTMT values are lower than the 0.85 threshold recommended by Kline (2023), indicating no issues with discriminant validity.

Table 5. Discriminant validity (HTMT).

Constructs	ATT	FL	HD	INT	OD	PBC	PR	SN
ATT								
FL	0.741							
HD	0.245	0.171						
INT	0.664	0.672	0.206					
OD	0.648	0.619	0.244	0.613				
PBC	0.825	0.757	0.264	0.687	0.725			
PR	0.280	0.108	0.790	0.176	0.309	0.344		
SN	0.796	0.626	0.312	0.537	0.629	0.719	0.305	

3.1.1. Assessment of Goodness of Fit Model

Standardised root mean square residual (SRMR) is introduced as a goodness-of-fit measure for PLS-SEM to prevent model misspecification. Since the SRMR value is 0.058, which is lower than 0.08 as recommended by Henseler et al. (2014), it indicates a good fit for the model.

4. RESULTS

Demographic information, including gender, race, age group, and highest education level, is presented in frequency and percentage. According to Table 6, the respondents' gender distribution is balanced, with 50.0 percent female and 50.0 percent male, indicating no gender bias in the sample. Based on Table 6, most respondents are Chinese, constituting 37.8 percent of the sample, followed by Malays at 34.9 percent. This is consistent with Lim and Tan (2019) findings that Chinese buyers are more prone to purchase life insurance when compared to other races. The sample's age distribution reveals that most of the participants are ranging from 18 to 27 years old, comprising 43.5 percent of the total sample. It aligns with Rom, Beh, Rani, Hassan, and Lokman (2025), who suggested that the younger working adults are more focused on financial planning, particularly life insurance. Regarding the highest education level, most respondents are postgraduate degree holders (32.2%), followed by bachelor's degree holders (28.3%), and pre-university certificate holders (22.0%), which is also consistent with Rom et al. (2025), who showed that the well-educated group has a better understanding of life insurance products.

Table 6. Demographic variables of households.

Demographic variables	Frequency (N = 304)	Per Cent %
Gender		
Male	152	50.0
Female	152	50.0
Race		
Malay	106	34.9
Chinese	115	37.8
Indian	51	16.8
Others	32	10.5
Age group		
18-27	132	43.5
28-37	90	29.6
38-47	33	10.8
>48	49	16.1
Highest Education Level		
Primary	13	4.3
Secondary	40	13.2
Pre-university	67	22.0
Bachelor's	86	28.3
Postgraduate degree	98	32.2

4.1. Structural Model

The structural model was utilised to test hypotheses for the relationships among constructs (Harikannan, Vinodh, & Antony, 2025). This study used a structural model to evaluate optimal decisions in life insurance purchasing behaviour, involving five independent variables (perceived risk, financial literacy, attitude towards life insurance, perceived behavioural control, and subjective norm), a mediating variable (intention to make optimal decisions for purchasing life insurance), a moderating variable (hyperbolic discounting), and a dependent variable (optimal decisions of life insurance purchasing behaviour). In SmartPLS 4, bootstrapping was performed at a significance level of 0.05 using a one-tailed test with 10,000 subsamples for direct effects, as shown in Table 7 and Figure 2.

Table 7. Results of structural model.

Relationship	β	p-values	t-value	Decisions	f^2	Effect Size	VIF
ATT -> OD	0.025	0.362	0.352	Not supported	0.00	No effect	2.902
SN -> OD	0.187	0.001	3.209	Supported	0.03	Small	2.160
PBC -> OD	0.279	0.000	3.348	Supported	0.06	Small	2.959
FL -> OD	0.128	0.034	1.831	Supported	0.02	Small	2.224
PR -> OD	-0.144	0.008	2.422	Supported	0.02	Small	2.312
ATT -> INT	0.207	0.004	2.637	Supported	0.03	Small	2.817
SN -> INT	0.013	0.416	0.211	Not supported	0.00	No effect	2.127
PBC -> INT	0.289	0.000	4.158	Supported	0.06	Small	2.726
FL -> INT	0.257	0.000	4.394	Supported	0.06	Small	2.077
PR -> INT	0.004	0.470	0.076	Not supported	0.00	No effect	1.177
INT -> OD	0.175	0.013	2.241	Supported	0.03	Small	1.873
HD -> OD	0.040	0.259	0.646	Not supported	0.00	No effect	2.158
HD*INT -> OD	0.079	0.039	1.763	Supported	0.02	Small	1.090
ATT -> INT -> OD	0.036	0.043	1.718	Supported			
SN -> INT -> OD	0.002	0.423	0.193	Not supported			
PBC -> INT -> OD	0.051	0.027	1.923	Supported			
FL -> INT -> OD	0.045	0.036	1.806	Supported			
PR -> INT -> OD	0.001	0.472	0.071	Not supported			

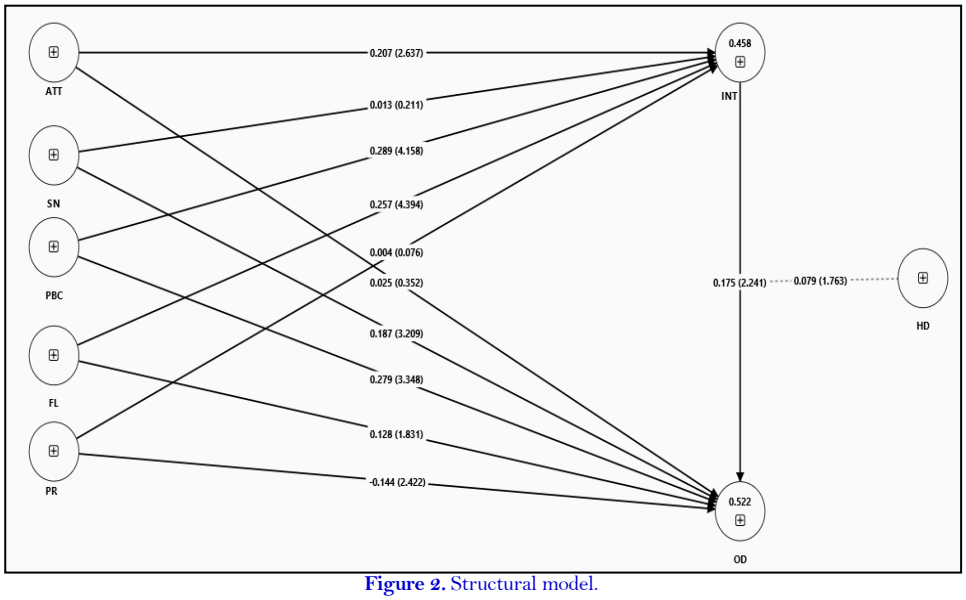

Figure 2. Structural model.

5. DISCUSSIONS

5.1. Hypothesis 1

Table 7 shows that the lateral collinearity, which can be accessed through VIFs, with the values of all VIF for the independent variables below 3.3, demonstrating that lateral collinearity is not an issue. Attitudes towards life

insurance ($\beta = 0.025$, $p = 0.362$, $t = 0.352$, $f^2 = 0.00$) have no effect on the optimal decisions of life insurance purchasing behaviour. On the other hand, subjective norm ($\beta = 0.187$, $p = 0.001$, $t = 3.209$, $f^2 = 0.03$), perceived behavioural control ($\beta = 0.279$, $p = 0.000$, $t = 3.348$, $f^2 = 0.06$), financial literacy ($\beta = 0.128$, $p = 0.034$, $t = 1.831$, $f^2 = 0.02$), and perceived risk ($\beta = -0.144$, $p = 0.008$, $t = 2.422$, $f^2 = 0.02$) yield small effects. These results confirm that perceived risk, financial literacy, perceived behavioural control, and subjective norm play a crucial role in strengthening or weakening the optimal decisions of life insurance buying behaviour.

The non-significant impact of attitudes towards life insurance implies that favourable or unfavourable evaluations alone are not sufficient to motivate consumers toward optimal decisions. This may be because life insurance decisions are typically driven less by personal feelings and more by objective financial considerations such as affordability (Gubwe, Mabvure, & Mbizi, 2025) and income constraints (Fang & Kung, 2021). In addition, in collectivist settings such as Malaysia, decisions related to financial products, which are often influenced by family members, peers, or societal expectations, will diminish the weight of individual attitudes in the process of decision-making (Sumari, Baharudin, Khalid, Ibrahim, & Ahmed Tharbe, 2020). This finding challenges the assumption of TPB that attitudes are universally central predictors of specific decisions, which aligns with Hartono, Hanan, and Hariadi Dwi Purwanto (2025).

The significant effects of subjective norm and perceived behavioural control are consistent with the assumptions within TPB. The positive effect of subjective norms implies that social pressure and expectations from significant others such as peers, family, or colleagues play an influential role in shaping optimal decisions, which aligns with Lee et al. (2021) and Shamsie (2024). Besides, the positive effect of perceived behavioural control suggests that customers with higher financial capability and confidence in managing policies are crucial in enhancing optimal decisions of life insurance purchasing behaviour, which is consistent with Masud et al. (2021) and Wang, Yang, and Delgado (2021).

The inclusion of perceived risk and financial literacy further integrates the TPB model by emphasising the importance of knowledge and cognitive factors. Individuals with greater knowledge of insurance products tend to build more positive attitudes towards life insurance and feel more capable of evaluating, purchasing, and managing policies, thereby enhancing optimal decisions regarding life insurance purchasing behaviour, which aligns with Iqbal, Saeed, and Rehman (2023) and Katauke, Fukuda, Khan, and Kadoya (2023). Conversely, consumers with greater uncertainty may develop negative attitudes toward insurance products and feel less confident in handling policies, resulting in lower quality of their decisions regarding life insurance. Additionally, perceived behavioural control has the most significant and largest effect on optimal decisions of life insurance purchasing behaviour, as shown in Figure 2. This implies that the insurance market should focus on enhancing perceived behavioural control by assisting consumers in building confidence through simplified policy information, financial literacy programs, and transparent communication (Cruz, Hovard, Chen, & Battersby, 2024; Nasir et al., 2021).

5.2. Hypothesis 2

Hypothesis 2 (H_2) examines the mediating effect of intention to make optimal decisions for purchasing life insurance. According to Table 7, the mediating effect of intention on optimal decisions of life insurance purchasing behaviour is significant for attitude towards life insurance ($\beta = 0.036$, $p = 0.043$, $t = 1.718$), perceived behavioural control ($\beta = 0.051$, $p = 0.027$, $t = 1.923$), and financial literacy ($\beta = 0.045$, $p = 0.036$, $t = 1.806$). In contrast, there is no mediating effect of intention for subjective norm and perceived risk, as their p-values > 0.05.

In this study, the significant mediating effect of intention for perceived behavioural control, financial literacy, and attitude is consistent with the assumption of TPB. According to TPB, intention represents the most immediate antecedent of actual optimal decisions, serving as the channel through which independent variables are converted into actual decisions. In this study, favourable attitudes toward life insurance, higher financial literacy, and greater perceived behavioural control are found to strengthen individuals' intentions, which in turn translate into their actual optimal decisions of life insurance purchasing behaviour, in line with Chen, Lin, and Te Ma (2020); Sultan et al. (2020)

and Widjaja et al. (2020).

TPB is not adequate to explain how intention mediates the relationship between perceived risk, subjective norm, and optimal decisions of life insurance purchasing behaviour. Consumers may comply with peer or family expectations directly without translating these pressures into behavioural intentions. From an economic perspective, life insurance purchasing decisions involve long-term financial commitments that are often evaluated under constraints of liquidity, affordability, and risk-return trade-offs. In such a context, normative pressure may trigger immediate compliance out of obligation or responsibility, but these decisions are less likely to be mediated by intention, which is typically formed by personal evaluations and perceived control (Andrighetto, Grieco, & Tummolini, 2015; Parsons et al., 2023).

In addition, uncertainty about potential outcomes weakens individuals' willingness to commit to future actions. When risk is perceived as high, consumers may prioritise present financial security and avoid making long-term commitments, such as life insurance, regardless of their stated intentions. This behaviour aligns with the principle of bounded rationality, where individuals simplify decisions by avoiding uncertain choices, leading perceived risk to exert a direct negative influence on the optimal decisions of life insurance purchasing behaviour rather than operating through intention (Do & Mai, 2023).

5.3. Hypothesis 3

Hypothesis 3 (H_3) investigates the moderating effect of hyperbolic discounting on the relationship between the intention to make optimal decisions for purchasing life insurance and the actual decisions regarding life insurance purchasing behaviour. Table 7 reveals that the moderating role of hyperbolic discounting ($\beta = 0.079$, $p = 0.039$, $t = 1.763$, $f^2 = 0.02$) has a small effect on the connection between intention and actual optimal decisions of life insurance purchasing behaviour. Therefore, H_3 is supported.

Life insurance not only generates future benefits but also provides immediate psychological utility, such as peace of mind, reduced anxiety, and fulfillment of social responsibility. For individuals with stronger present bias, this immediate sense of security may outweigh the disutility of paying premiums, thereby reinforcing rather than weakening the conversion of intention into actual optimal decisions of life insurance purchasing behaviour. It is supported by Lal et al. (2024), who revealed that customers with greater hyperbolic discounting were more prone to participate in financial behaviour due to fear of potential financial loss or the need for immediate financial security.

6. CONCLUSIONS

This study employed an online survey to examine the effects of perceived risk, financial literacy, perceived behavioural control, subjective norm, and attitude on optimal life insurance purchasing decisions among Malaysian households. It also investigated the mediating role of behavioural intention and the moderating effect of hyperbolic discounting. The results indicate that perceived behavioural control, subjective norm, perceived risk, and financial literacy exert significant direct effects on optimal life insurance purchasing behaviour. Behavioural intention also serves as a significant mediator in several of these relationships. In addition, hyperbolic discounting plays a moderating role in the proposed model.

From a theoretical perspective, this study advances the literature by integrating the Theory of Planned Behaviour with financial literacy, perceived risk, and hyperbolic discounting to explain the intention-behaviour gap. The findings provide a basis for future research to assess the generalisability of this extended framework across other insurance domains, such as health and motor insurance, and among rural populations, where behavioural patterns may differ from those in urban areas.

From a practical perspective, the findings suggest that regulators should adopt standardised policy disclosure formats to simplify contract terms and facilitate comparisons of insurance benefits and premiums. Insurance providers are also encouraged to develop multilingual awareness campaigns and invest in user-friendly digital tools, such as mobile applications for policy comparison and premium calculation, to enhance consumer confidence and improve the

quality of decision-making. However, there are various limitations that should be acknowledged in this study. Firstly, this study focuses on intention as the primary mediator and may overlook other influential variables, such as trust (Permana, Hasbin, Widayati, & Halim, 2025), convenience (Shaw & Eschenbrenner, 2025), and self-efficacy (Maheshwari & Kha, 2022), which may improve the overall model of the study in the future. Secondly, the cross-sectional design limits the capability to observe how hyperbolic discounting influences the intention-behaviour link over time. Thus, a longitudinal approach is recommended to identify the dynamic effects of present bias and to provide a better understanding of how intention translates into actual optimal life insurance decisions across different time horizons.

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