



The factors of young adults' planning and purchase insurance in advance under the insufficient old-age annuity

Chia-Ming Wu¹ 
 Jia-Shan Li¹
 Hwai-Shuh Shieh^{2,3} 



(✉ Corresponding Author)

¹Department of Risk Management and Insurance, Shih Chien University, Taiwan.

¹Email: cmwu@g2.usc.edu.tw

¹Email: Sandy20160114@gmail.com

²Department of Business Management, Shih Chien University, Taiwan.

³Department of Business Management, National Taipei University, Taiwan.

²Email: marc1125@gmail.com

Abstract

With the extension of average life expectancy and the sharp increase in the proportion of the elderly population, the portion of labor insurance old-age pensions is expected to face insolvency in the coming years. Moreover, as age increases, the likelihood of health problems also rises. Therefore, in cases of insufficient old-age annuities, it is necessary to plan and purchase insurance in advance to raise public awareness of this impending crisis. This study primarily investigates the influence of young people on behavioral intentions across various dimensions, including behavioral attitude, subjective norms, perceived behavioral control, perceived performance risk, and perceived health risk. It also examines the willingness of individuals aged 20 to 40 to plan in advance and purchase insurance, particularly in the context of insufficient old-age annuities. The results indicate that behavioral intentions, behavioral attitudes, subjective norms, and perceived health risks significantly positively influence young people's intentions to purchase insurance. Conversely, perceived performance risk has a significant negative impact on their willingness to buy insurance. Additionally, perceived behavioral control does not have a significant effect on young people's behavioral intentions regarding insurance purchase.

Keywords: Behavioral attitude, Old-age annuity, Perceived risk, Theory of planned behavior.

JEL Classification: I13; G22; G52.

Citation | Wu, C.-M., Li, J.-S., & Shieh, H.-S. (2026). The factors of young adults' planning and purchase insurance in advance under the insufficient old-age annuity. *Asian Journal of Economics and Empirical Research*, 13(1), 11–19. 10.20448/ajeer.v13i1.8363

History:

Received: 4 August 2025

Revised: 27 February 2026

Accepted: 18 March 2026

Published: 26 March 2026

Licensed: This work is licensed under a [Creative Commons](https://creativecommons.org/licenses/by/4.0/)

[Attribution 4.0 License](https://creativecommons.org/licenses/by/4.0/) 

Publisher: Asian Online Journal Publishing Group

Funding: This study received no specific financial support.

Institutional Review Board Statement: The study involved minimal risk and adhered to ethical guidelines for social science fieldwork. Formal approval from an Institutional Review Board was not required under the policies of the Research Ethics Committees of the authors' affiliated universities. Informed verbal consent was obtained from all participants, and all data were anonymized to protect participant confidentiality.

Transparency: The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

Competing Interests: The authors declare that they have no competing interests.

Authors' Contributions: All authors contributed equally to the conception and design of the study. All authors have read and agreed to the published version of the manuscript.

Contents

1. Introduction	12
2. Literature Review	12
3. Methodology	14
4. Results	16
5. Conclusion	18
References	18

Contribution of this paper to the literature

This study explores the willingness of young people aged 20 to 40 to plan in advance and purchase insurance based on the behavioral intentions across various dimensions, including behavioral attitude, subjective norm, perceived behavioral control, perceived performance risk, and perceived health risk under the condition of insufficient old-age annuities.

1. Introduction

With the development of medical care management and the continuous emergence of new medical advances, the average life expectancy of Taiwanese people has increased. In 2023, the average life expectancy was 81.04 years, representing an increase of 5.13 years from 75.91 years in 2000, according to a statement from the Ministry of Interior (MOI) in Taiwan. Coupled with the ongoing decline in birth rates in recent years, the number and proportion of elderly individuals have significantly risen. When the elderly population (over 65 years old) exceeds 7% of the total population, the country is classified as an "aging society." If the proportion of the total population exceeds 14%, it is classified as an "aged society"; if it accounts for more than 20%, it is considered a "super-aged society" (World Health Organization, WHO). Since 1993, Taiwan's elderly population has exceeded 7%, marking the beginning of an aging society. In March 2017, Taiwan officially entered an aging society as the elderly population reached 14%. By 2025, it is projected that the proportion of elderly residents will surpass 20%, leading Taiwan into a super-aged society. Additionally, the consumer price index (CPI) is generally expected to continue increasing in the future due to ongoing inflation trends (Republic of China Statistical Information Network, 2021). It will lead to an increase in elder care spending.

Due to the decreasing birth rate and increasing aging population, the number of people paying premiums in the annuity system is declining in Taiwan; however, the number of people receiving benefits is increasing, which leads to the accelerated collapse of the government's old-age pension system. According to the 2018 labor insurance financial actuarial report of the Labor Insurance Bureau, it is estimated that the labor insurance pension will go bankrupt in 2026. Moreover, coupled with social and family structure changes, the proportion of households with fewer than four persons exceeded that of families with five or more persons in Taiwan in 1986. Currently, the proportion of households with two persons is the highest, illustrating that family sizes in Taiwan have condensed into second-generation core families. Therefore, with insufficient old-age annuities, planning insurance is bound to become necessary in the modern age, especially for young adults e.g. (Cantiello, Fottler, Oetjen, & Zhang, 2015; Hong, Hong, Hsu, Du, & Tsai, 2012; Nosi, D'Agostino, Pagliuca, & Pratesi, 2017; Nosi, D'Agostino, Pagliuca, & Pratesi, 2014; Xia, 2011; Yeow, Tay, Lye, & Fauzi, 2021).

Birth, senility, illness, and death are inevitable processes in our life cycle, and we face various risks. Among them, medical expenses caused by diseases can be substantial. Although Taiwan's health insurance system, known as national health insurance, provides sufficient primary medical security, it is often easy to overlook some items that are not covered or are only partially covered by the insurance. When suffering from a disease, medical expenses can become overwhelming. According to the statistical results of the Ministry of Health and Welfare's report on causes of death in 109, malignant tumors, heart disease, and pneumonia are the top three leading causes of death among the Chinese population. Therefore, for conditions such as cancer, the costs of surgery for catastrophic illnesses, and targeted cancer drug treatments, medical insurance can help compensate for gaps in health coverage. However, there are loopholes in certain coverage items that are underpaid or only partially reimbursed, which can lead to significant out-of-pocket expenses for patients (Ministry of Health and Welfare, 2021).

As people age, health problems become more prevalent. Waiting until later years to start planning for medical insurance often results in higher premiums compared to purchasing insurance at a younger age. Additionally, according to the 2018 Labor Insurance Financial and Actuarial Report, future projections indicate a decline in available old-age annuities, which may become severely insufficient. With inflation and other economic factors, proactive planning and early insurance purchase are increasingly important. The study aims to investigate the factors influencing early planning and purchasing of insurance under conditions of insufficient old-age annuities. Its goal is to raise awareness among the public about the risks associated with delayed planning and to develop insurance policies better aligned with the needs of target groups. However, discussions on early planning and purchasing of insurance for inadequate old-age annuities are limited, and existing reference materials are relatively outdated. This research aims to fill this gap by providing updated insights and recommendations.

Why does the Taiwan insurance market matter? According to statistics announced by Swiss Reinsurance Company Ltd in 2021, the global average for life insurance premium spending per capita is \$874, while in Taiwan, it is \$3,772, ranking eighth worldwide. Furthermore, when comparing insurance penetration, the ratio of premium income to GDP, Taiwan's rate is 14.8%, which places it third globally. This data indicates the significant importance of insurance in the lives of Taiwanese people. The development of Taiwan's insurance market can also serve as a reference for emerging markets in the future.

2. Literature Review

2.1. Theory of Planned Behavior

The prototype of the theory of reasoned action (TRA) was first proposed by Fishbein (1967) and was subsequently developed into a comprehensive framework. The theory of rational behavior originates from social psychology and utilizes four key factors: attitude towards behavior, subjective norm, behavioral intention, and actual behavior, to explain and predict individual actions. Action, which is used to analyze how humans systematically make decisions based on information and rational thinking, is defined as shown in Table 1. However, the rational behavior theory assumes that individuals can fully control their behavior voluntarily, neglecting the influence of external factors that can affect personal will. To address this limitation, Ajzen (1985) proposed the theory of planned behavior (TPB), which introduces perceived behavioral control to account for external influences. This addition forms the current model of planned behavior, as illustrated in Figure 1. In recent years, numerous studies related to insurance purchase intentions have employed the theory of planned behavior to better understand consumer decision-making

processes (Brahmana, Brahmana, & Memarista, 2018; Dzulkipli, Zainuddin, Maon, Jamal, & Omar, 2017; Raza, Ahmed, Ali, & Qureshi, 2020).

Table 1. Definitions.

Dimensions	Definition
Attitude towards behavior	An individual's evaluation and feelings about a specific behavior when they engage in it.
Subjective norm	When an individual engages in a specific behavior, the surrounding people perceive and evaluate this behavior.
Behavior intention	Individual's intention to engage in a particular behavior.

Schiffman and Kanuk (2004) believe that behavioral attitudes express consumers' values and opinions. The emergence of behavioral attitudes indicates that consumers begin to develop a driving force for specific products; that is, consumers' attitudes towards particular products will directly influence their behavioral intentions, which in turn affect consumer behavior. Reynolds and Wells (1977) found through their research that consumers' actual future purchase behavior is influenced by their behavioral intentions. The higher the behavioral intention, the greater the likelihood of the behavior occurring. Ajzen and Madden (1986) argued that perceived behavioral control refers to the extent to which individuals believe they can control the resources needed to perform a behavior, thereby increasing behavioral intention. Hartwick and Barki (1994) suggested that during the initial stage of introducing a new system, users' unfamiliarity and lack of operational experience mean that subjective norms significantly influence their willingness to adopt the new system. Previous research on insurance purchase behavior, based on the theory of planned behavior, indicates that consumers' demand for insurance is affected by their purchase attitudes, subjective norms, and perceived behavioral control (Brahmana et al., 2018; Raza et al., 2020). Consequently, this study aims to utilize the theory of planned behavior to explore the factors influencing insurance planning in advance, especially in cases of insufficient old-age annuities. Hypotheses 1, 2, and 3 in this research are derived from the theory of planned behavior.

Hypothesis 1: Under the condition of insufficient old-age annuity, young people's positive attitude towards planning to purchase insurance will increase their actual insurance purchase behavior in advance.

Hypothesis 2: In cases where old-age annuities are insufficient, positive perceptions of young people planning to purchase insurance in advance by others will increase their actual insurance purchasing behavior.

Hypothesis 3: In cases of insufficient old-age annuities, the higher the perceived behavioral control among young people, the more likely they are to purchase insurance in advance.

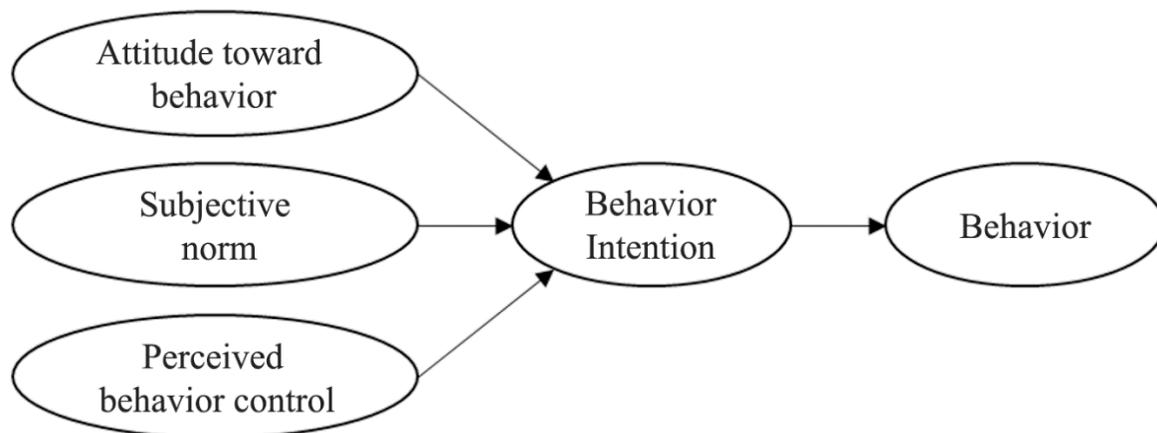


Figure 1. Theory of Planned Behavior.

2.2. Perceived Risk

Perceived risk is a concept developed by psychology, which suggests that when individuals cannot predict the outcome of a situation, they experience a sense of uncertainty that influences their behavior. According to Stone and Grønhaug (1993), there is a significant correlation among various aspects of perceived risk, and these perceptions are closely linked to psychological factors. Consequently, psychological risk is highly correlated with other types of risk, and each aspect of perceived risk impacts the overall perceived risk through psychological influences. Jacoby and Kaplan (1972) differentiate perceived risk into several categories, including financial, performance, health, psychological, and social risks. As defined by Masoud (2013), perceived financial risk refers to an individual's perception of uncertain events that could lead to monetary losses. Perceived performance risk involves the individual's belief that the product's performance may not meet expectations, potentially resulting in losses. Perceived social risk pertains to the concern that purchasing a product might lead to disapproval from family or friends. Lastly, perceived health risk relates to the individual's perception of potential health issues that could cause future harm. This study focuses on perceived performance and health risks to examine the behavior of young people in planning and purchasing insurance in advance.

Capon and Burke (1980) believed that customers rely on practical information to reduce their perceived risk when exposed to higher-risk situations. Dowling and Staelin (1994) pointed out that consumers' willingness to purchase products also influences their choice of manufacturers. From this, it is believed that the connection between a specific situation and consumer behavior creates perceived risk. Taylor (1974) noted that consumers are aware of potential risks that may arise after purchasing a product, such as performance risk. This means that consumers consider the possibility that the product's performance may not meet expectations before making a purchase, and this perceived risk can reduce impulsive buying. Therefore, perceived risk impacts consumers' purchasing behavior. Wood and Scheer (1996) also argued that consumers' perceived value of products is negatively related to perceived risk; that is, products with higher perceived risk tend to have lower perceived value, which diminishes consumers' willingness to buy and influences purchasing decisions. Previous literature has also indicated a negative relationship between

perceived risk and purchase intention. (Aghekyan-Simonian, Forsythe, Kwon, & Chattaraman, 2012; Gautam & Sharma, 2019; Jalil & Ali, 2021; Kimery & McCord, 2002). To summarize, this study suggests that young people's planning and purchasing of insurance products are also influenced by their perceived risk of these products. The fourth hypothesis is as follows:

Hypothesis 4: The higher the perceived risks of insurance products among young people, the lower their willingness to plan and purchase insurance in advance.

In addition, the roles of life insurance and health insurance are to mitigate financial losses through coverage when health risks occur. Therefore, it is essential to consider these insurances when facing various uncertainties related to health in life. The recent prevalence of the COVID-19 pandemic has further heightened consumers' awareness of insurance and increased their willingness to purchase such coverage. Lo (2013) argued that consumers with a better understanding of the risks they face are more likely to be willing to buy insurance. Similarly, Shanteau and Hall (1992) suggested that if individuals perceive the likelihood of loss due to risks as significant, their desire to purchase insurance increases. Furthermore, Courbage and Roudaut (2008) indicated that the perception of future financial and health risks is positively correlated with the behavior of purchasing long-term care insurance. From these observations, it can be inferred that when the uncertainty about the future rises, consumers tend to purchase relevant insurance to protect themselves and their families. Consequently, it can be concluded that Hypothesis 5 is as follows:

Hypothesis 5: The higher the perceived risk to young people's health, the greater their willingness to plan for and purchase insurance in advance.

3. Methodology

3.1. Framework

This study explores how young people's willingness to plan and purchase insurance in advance is influenced by concerns about the insufficient annuities available to the elderly. According to the theory of planned behavior, the influencing factors include behavioral attitudes, subjective norms, and perceived behavioral control. Additionally, this study incorporates perceived performance risks and perceived health risks. The research framework is illustrated in Figure 2.

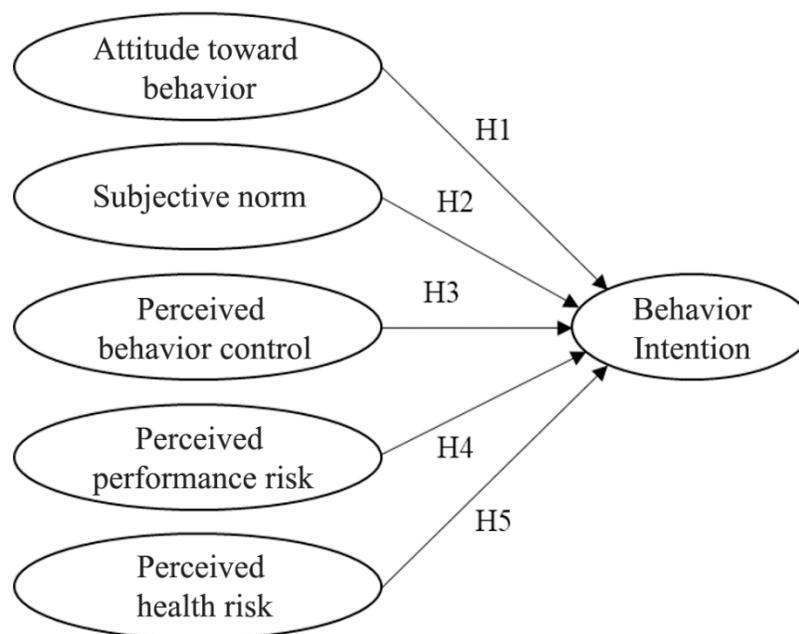


Figure 2. The framework of this study.

3.2. Samples

This study adopts a questionnaire survey method. A total of 395 questionnaires were distributed via the Internet. After deducting 43 invalid questionnaires, there were 352 valid questionnaires, resulting in an effective response rate of 89.1%. The sample group consists of young people aged 20 to 40, starting from the age when they can purchase insurance independently, to explore the factors influencing the planning and purchase of insurance in advance, especially considering the potential insufficiency of old-age annuities in the future. The results are presented in Table 2, which shows that in terms of gender, males account for 44.9% and females for 55.1%. Regarding age distribution, the 20-25 years age group is the largest, representing 29.0% of the sample. Overall, the sample distribution is relatively balanced and demonstrates a certain degree of representativeness.

Table 2. Descriptive statistics.

Terms	Categories	Observations	Percentage (%)
Gender	Male	158	44.9
	Female	194	55.1
Age	20 -25	102	29.0
	26 -30	75	21.3
	31-35	82	23.3
	36-39	93	26.4
Total		352	

This study evaluates the reliability and validity of the questionnaire. The reliability analysis is presented in Table 3. Cronbach's alpha was used to assess the internal consistency of each construct. According to the guidelines proposed by Nunnally (1978), Cronbach's alpha should exceed 0.7. In this study, the alpha values for all constructs were above this threshold, indicating satisfactory reliability. Regarding validity analysis, convergent validity was assessed through composite reliability (CR), average variance extracted (AVE), and factor loadings. Both CR and AVE values exceeded the recommended thresholds of 0.6 and 0.5, respectively, as suggested by Fornell and Larcker (1981).

This indicates that the data for each construct demonstrates convergent validity. Additionally, as per Fornell and Larcker (1981), the correlation coefficients among the constructs are lower than the square root of AVE and Cronbach's alpha, which supports the presence of discriminant validity. These findings are summarized in Table 4.

Table 3. Reliability and Validity Analysis

Items	FL	CR	AVE	α
<i>Attitude toward behavior</i>				
Planning and purchasing insurance in advance can help us share long-term care expenses in the future.	0.873	0.969	0.863	0.943
Planning and purchasing insurance in advance can lessen the burden on children in the future.	0.906			
Planning and purchasing insurance in advance can ensure the quality of healthcare in the future.	0.909			
Planning and buying insurance in advance can improve the quality of life in the future	0.840			
I think it is helpful to plan and buy insurance in advance	0.858			
<i>Subjective norm</i>				
The support of my family will affect my willingness to plan and buy insurance in advance	0.860	0.911	0.775	0.831
The support of my friend will affect my willingness to plan and buy insurance in advance	0.825			
The reports in the media will affect my willingness to plan and buy insurance in advance (i.e. Newspaper)	0.685			
<i>Perceived behavior control</i>				
I have enough information to decide whether to plan and buy insurance in advance	0.714	0.886	0.729	0.834
I am financially able to plan and purchase insurance in advance	0.928			
I can plan and purchase insurance in advance at my discretion	0.759			
<i>Perceived performance risk</i>				
I am worried that the insurance purchased will not be worthwhile if the claim amount is too low	0.787	0.910	0.771	0.817
I am concerned that the claim conditions are strict, and I am unable to protect my rights or reduce risks effectively.	0.908			
I am worried that the claims standards differ, and I cannot protect my rights or reduce risks	0.639			

Note: FL, CR, AVE, and α denote the factor loading, combination reliability, average variation extraction, and Cronbach's α , respectively.

Table 3. Reliability and Validity Analysis (Continued)

Items	FL	CR	AVE	α
<i>Perceived health risk</i>				
I have exercise habits	0.663	0.870	0.629	0.775
I sleep well	0.691			
My daily life schedule is regular	0.706			
My three meals a day are balanced	0.664			
<i>Behavior intention</i>				
I will take the initiative to request and plan insurance-related information	0.836	0.889	0.731	0.830
I am willing to plan and purchase insurance in advance	0.903			
I would advise friends and family to plan and buy insurance in advance	0.656			

Note: FL, CR, AVE, and α denote the factor loading, combination reliability, average variation extraction, and Cronbach's α , respectively.

Table 4. Correlation matrix.

Items	(1)	(2)	(3)	(4)	(5)	(6)
(1) Attitude toward behavior	(0.929)					
(2) Subjective norm	0.508	(0.880)				
(3) Perceived behavioral control	0.350	0.290	(0.854)			
(4) Perceived performance risk	0.077	-0.006	-0.152	(0.878)		
(5) Perceived health risk	0.205	0.077	-0.056	0.014	(0.793)	
(6) Behavior intention	0.664	0.530	0.339	-0.109	0.288	(0.855)

Note: The value in parentheses on the matrix's diagonal is AVE's square root.

3.3. Empirical Results

3.3.1. Model Fit of CFA

This study establishes a structural equation model to analyze the factors influencing the planning and purchasing of insurance in advance for insufficient old-age annuities. According to the standard suggested by Schumacker and Lomax (2004) (chi square/degrees of freedom <5), each aspect of this study is based on degrees of freedom. The value of chi-square/degree of freedom is 3.282, which meets this standard; the standard suggested by Doll, Xia, and Torkezadeh (1994) (GFI>0.80), and the fit index of this study is 0.866, which meets this standard; according to Hu and Bentler (1999) suggested standard (SRMR<0.08), the standardized root mean square residual value (SRMR) of this study was 0.069 in line with this standard; according to the standard suggested by Browne and Cudeck (1993) (RMSEA<0.10), the approximate mean The root square error (RMSEA) of 0.081 meets this standard; the standard suggested by Bentler (1992) (CFI>0.90), and the comparative fit index (CFI) of this study is 0.914 meets this standard; in addition, the measure proposed by Bentler and Bonett (1980) The suggested standard (NNFI>0.90), the

non-normalized fitness index (NNFI) of this study is 0.902 also meets this standard, the results are shown in Table 5. In summary, this structural equation model has a very high degree of fit, so we can continue to explore and analyze the following issues.

Table 5. Model fit of CFA.

Items	Value	Guideline	Literature
Chi-square/d.f.	3.282 (d.f.= 168)	<5	Schumacker and Lomax (2004)
GFI	0.866	>0.80	Doll et al. (1994)
SRMR	0.069	<0.08	Hu and Bentler (1999)
RMSEA	0.081	<0.10	Browne and Cudeck (1993)
CFI	0.914	>0.90	Bentler (1992)
NNFI	0.902	>0.90	Bentler and Bonett (1980)

4. Results

This study investigates the effects of attitudes toward behavior, subjective normative factors, perceived behavioral control, perceived performance risk, and perceived health risk on consumers' behavioral intentions regarding insurance planning and purchasing under conditions of insufficient old-age annuities. The analysis controls for variables such as gender and age. The impact on behavioral intentions is illustrated in Figure 3. Results indicate that behavioral attitude (0.492; $t=11.004$), subjective norms (0.192; $t=4.291$), perceived behavioral control (0.096; $t=1.992$), and perceived health risk (0.172; $t=4.615$) positively influence the intention to plan and purchase insurance in advance among young individuals. Under conditions of insufficient old-age annuities, positive attitudes and favorable perceptions from others increase the likelihood of proactive insurance planning. Additionally, greater resource control correlates with higher intentions to plan and purchase insurance. Concerns about health also motivate proactive behavior.

Empirical evidence supports Hypotheses 1, 2, 3, and 5. Conversely, perceived performance risk has a significant negative effect (-0.114; $t=-3.070$), indicating that higher perceived risks diminish the willingness to plan and purchase insurance in advance. Hypothesis 4 is also supported by the data.

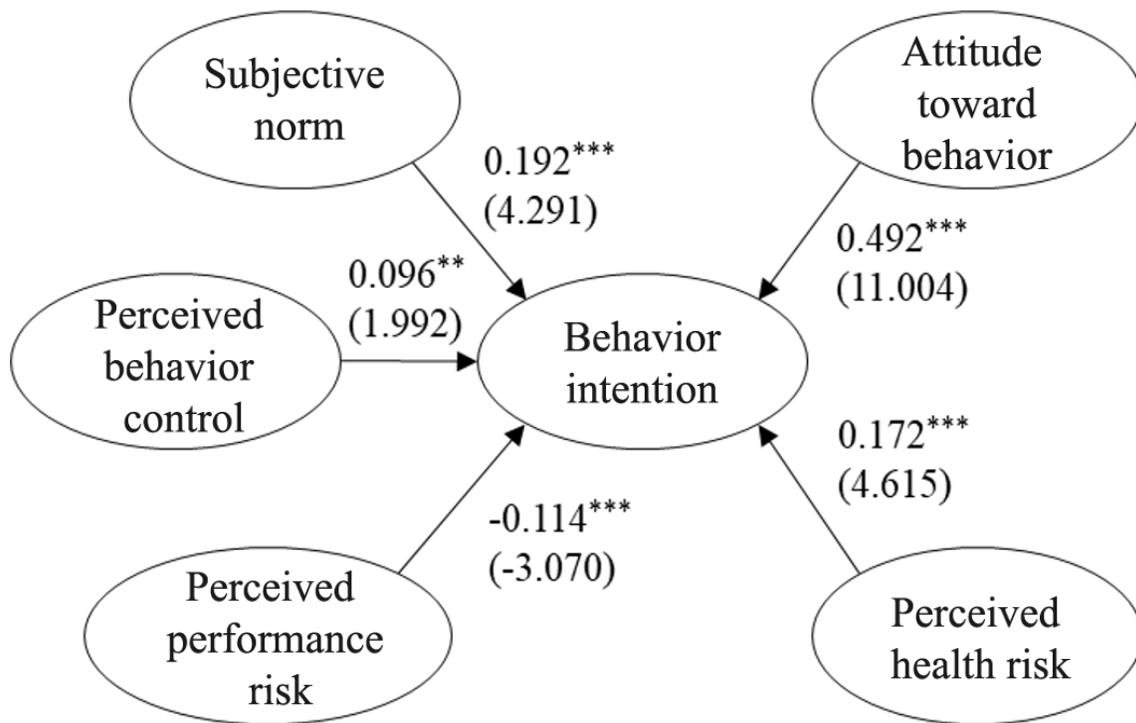


Figure 3. The effect of factors on purchasing insurance among young people.

Note: *** = $p < 0.001$.

Moreover, this study explores the moderating effect of demographic variables, and the results are shown in Table 6. The interaction between behavioral attitude and gender is significantly negative (-0.178; $t=-2.378$), indicating that gender significantly moderates the relation between behavioral attitude and behavioral intention. As shown in Figure 4, the influence of behavioral attitude on behavioral intention is lower for males and higher for females. The analysis indicates that, given the insufficient old-age pension, women tend to have a more proactive attitude toward planning and purchasing insurance in advance.

Their intention to plan and buy insurance ahead of time is higher than that of men. Additionally, there is a significant moderating effect of gender on the relationship between perceived performance risk and behavioral intention. The interaction between gender and perceived performance risk is notably negative (-0.133; $t=-1.758$), suggesting that gender negatively influences the relationship between perceived performance risk and behavioral intention.

As shown in Figure 5, the higher the perceived performance risk of men, the lower their intention to plan and purchase insurance in advance than women.

Table 6. The moderating effect of gender on young people's insurance purchasing behavior.

Items	Y=behavior intention				
Intercept	0.096 (1.327)	0.133* (1.780)	0.109 (1.478)	0.124* (1.693)	0.109 (1.485)
Attitude toward behavior	0.570*** (10.308)	0.503*** (11.094)	0.492*** (10.970)	0.498*** (11.139)	0.492*** (10.989)
Attitude toward behavior×gender	-0.178** (-2.378)				
Subjective norm	0.186*** (4.180)	0.126* (1.944)	0.193*** (4.244)	0.183*** (4.061)	0.193*** (4.287)
Subjective norm×gender		0.113 (1.414)			
Perceived behavior control	0.107** (2.223)	0.088* (1.798)	0.100* (1.712)	0.085* (1.748)	0.097** (1.990)
Perceived behavior control×gender			-0.009 (-0.113)		
Perceived performance risk	-0.117*** (-3.174)	-0.108*** (-2.904)	-0.115*** (-3.029)	-0.063 (-1.323)	-0.114*** (-3.058)
Perceived performance risk×gender				-0.133* (-1.758)	
Perceived health risk	0.164*** (4.405)	0.175*** (4.682)	0.172*** (4.532)	0.170*** (4.553)	0.167*** (3.578)
Perceived health risk×gender					0.014 (0.178)
Gender	-0.208*** (-2.667)	-0.200** (-2.553)	-0.198** (-2.519)	-0.200** (-2.561)	-0.198** (-2.519)
Age	-0.014 (-0.375)	-0.016 (-0.407)	-0.014 (-0.366)	-0.017 (-0.435)	-0.013 (-0.337)

Note. 1. (*) denotes t-statistic
 2. *p<0.1; **p<0.05; ***p<0.01

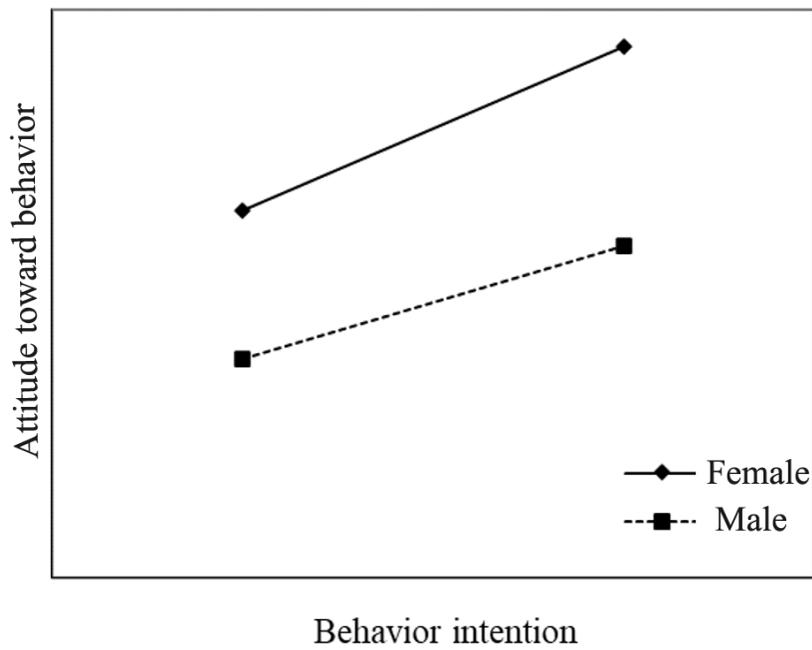


Figure 4. The moderating effect of gender on the relation between attitude toward behavior and behavior intention.

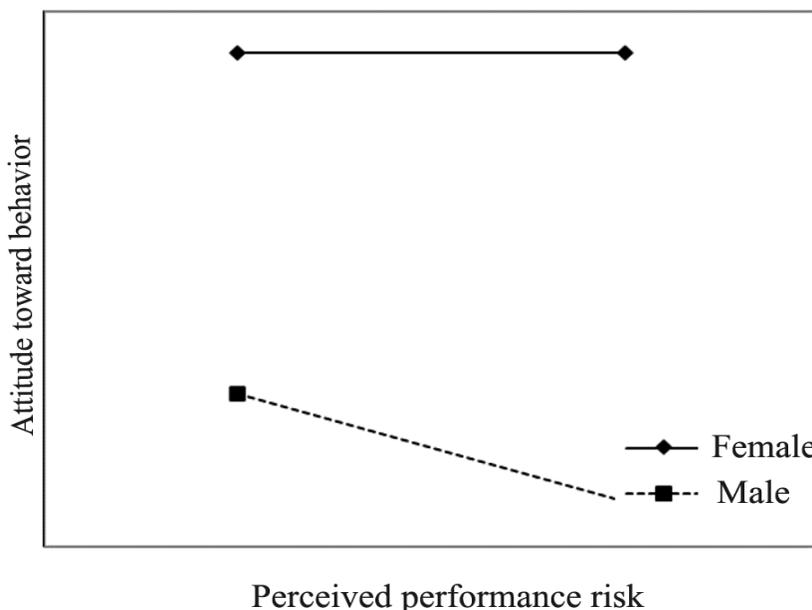


Figure 5. The moderating effect of gender on the relation between perceived performance risk and behavior intention.

Finally, in the age category of the demographic variables, the cross-product fish model analysis of age and all independent variables does not show a significant difference from zero. This indicates that age is not a determining factor under the premise of insufficient old-age pensions discussed in this study. Planning and insurance purchases in advance have a moderating effect among the influencing factors.

5. Conclusion

This study primarily examines the factors influencing young people's decisions to plan and purchase insurance in advance, especially when their old-age annuities are insufficient. In the context of the pandemic and subsequent inflation, along with pre-existing issues such as declining birth rates and changing family structures, proactive insurance planning and effective risk management are essential components of a comprehensive life plan. Incorporating insurance into one's financial strategy can help cover potential future expenses, including living costs, medical care, long-term care, and maintaining a good quality of life after retirement.

This study examines the influence of various psychological and perceptual factors on the behavioral intentions of young people regarding the planning and purchase of insurance in advance. The factors analyzed include behavioral attitude, subjective norm, perceived behavioral control, perceived health risk, and perceived performance risk. The findings indicate that behavioral attitude, subjective norm, and perceived health risk significantly and positively influence young people's intentions to plan and buy insurance proactively. Specifically, young individuals with positive attitudes towards insurance are more inclined to plan and purchase insurance in advance. Additionally, when their social environment views insurance planning favorably, their willingness to engage in such behavior increases. Perceived health risk also plays a crucial role; young people who perceive higher health risks tend to be more willing to purchase insurance. Conversely, perceived performance risk has a negative impact on insurance purchasing intentions. This suggests that doubts about the effectiveness or reliability of insurance products such as claim processes, claim conditions, and overall performance deter young individuals from purchasing insurance. The lower their confidence in product performance, the less likely they are to buy insurance. Interestingly, perceived behavioral control does not significantly affect the behavioral intentions of young people to plan and purchase insurance in advance. Given the future insufficiency of annuities for older populations and the importance of health risks, young individuals recognize the necessity of controlling their resources to mitigate risks. Planning is viewed as a strategy to reduce potential risks rather than a factor influenced by perceived behavioral control. Therefore, perceived behavioral control may only influence the quantity of insurance purchased, not the intention to purchase insurance proactively.

The concept of insurance is gradually becoming familiar to the general public. However, young people still question why they need to purchase insurance at this moment. Alongside concerns about insufficient old-age pensions in the future, insurance companies must put more effort into promoting the importance of "planning and purchasing insurance in advance." They utilize various marketing channels such as newspapers, magazines, television, and social media to disseminate information and encourage proactive planning. In this era of advanced knowledge, insurance companies can also leverage social networking platforms to provide relevant insurance information and collaborate with events related to healthcare, long-term care, and labor health insurance, enabling the public to inquire and learn more, especially targeting contemporary young audiences. When companies manage social media effectively and offer improved sales and after-sales services, they can enhance their sales performance and become more competitive. Particularly regarding perceived health risks, it is recommended that insurance companies partner with professional medical personnel or healthcare institutions to promote knowledge about health risks, which can further boost sales. Additionally, concerning perceived performance risks such as low claim amounts, strict claim conditions, or varying claim standards young people often view insurance as not cost-effective and doubt its ability to protect rights and mitigate risks. To address this, insurance companies should establish feedback mechanisms for the public. Properly planning and adjusting the claim amounts, conditions, and standards within insurance contracts can reduce perceived performance risks and improve sales performance. This approach also represents a future challenge for insurance companies to overcome.

References

- Aghekyan-Simonian, M., Forsythe, S., Kwon, W. S., & Chattaraman, V. (2012). The role of product brand image and online store image on perceived risks and online purchase intentions for apparel. *Journal of Retailing and Consumer Services*, 19(3), 325-331. <https://doi.org/10.1016/j.jretconser.2012.03.006>
- Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In J. Kuhl & J. Beckmann (Eds.), *Action control: From cognition to behavior* (pp. 11-39). Berlin, Heidelberg: Springer.
- Ajzen, I., & Madden, T. J. (1986). Prediction of goal-directed behavior: Attitudes, intentions, and perceived behavioral control. *Journal of Experimental Social Psychology*, 22(5), 453-474. [https://doi.org/10.1016/0022-1031\(86\)90045-4](https://doi.org/10.1016/0022-1031(86)90045-4)
- Bentler, P. M. (1992). On the fit of models to covariances and methodology to the Bulletin. *Psychological Bulletin*, 112(3), 400-404. <https://doi.org/10.1037/0033-2909.112.3.400>
- Bentler, P. M., & Bonett, D. G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin*, 88(3), 588-606. <https://doi.org/10.1037/0033-2909.88.3.588>
- Brahmana, R., Brahmana, R. K., & Memarista, G. (2018). Planned behaviour in purchasing health insurance. *The South East Asian Journal of Management*, 12(1), 43-64.
- Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models*. In (pp. 136-162). Newbury Park, CA: SAGE.
- Cantiello, J., Fottler, M. D., Oetjen, D., & Zhang, N. J. (2015). The impact of demographic and perceptual variables on a young adult's decision to be covered by private health insurance. *BMC Health Services Research*, 15(1), 195. <https://doi.org/10.1186/s12913-015-0848-6>
- Capon, N., & Burke, M. (1980). Individual, product class, and task-related factors in consumer information processing. *Journal of Consumer Research*, 7(3), 314-326. <https://doi.org/10.1086/208819>
- Courbage, C., & Roudaut, N. (2008). Empirical evidence on long-term care insurance purchase in France. *The Geneva Papers on Risk and Insurance-Issues and Practice*, 33(4), 645-658. <https://doi.org/10.1057/gpp.2008.30>
- Doll, W. J., Xia, W., & Torkzadeh, G. (1994). A confirmatory factor analysis of the end-user computing satisfaction instrument. *MIS Quarterly*, 18(4), 453-461. <https://doi.org/10.2307/249524>
- Dowling, G. R., & Staelin, R. (1994). A model of perceived risk and intended risk-handling activity. *Journal of Consumer Research*, 21(1), 119-134. <https://doi.org/10.1086/209386>
- Dzulkipli, M. R., Zainuddin, N. N. N., Maon, S. N., Jamal, A., & Omar, M. K. (2017). Intention to purchase medical and health insurance: Application of theory of planned behavior. *Advanced Science Letters*, 23(11), 10515-10518. <https://doi.org/10.1166/asl.2017.10092>

- Fishbein, M. (1967). Attitude and the prediction of behavior. In Martin Fishbein (Ed.), Readings in attitude theory and measurement. In (pp. 477-492). New York: Wiley.
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39-50.
- Gautam, V., & Sharma, V. (2019). Mediating role of company information in the relationships among perceived risks and purchase intentions in an online retailing context. *Journal of Relationship Marketing*, 18(1), 1-16. <https://doi.org/10.1080/15332667.2018.1534056>
- Hartwick, J., & Barki, H. (1994). Explaining the role of user participation in information system use. *Management Science*, 40(4), 440-465. <https://doi.org/10.1287/mnsc.40.4.440>
- Hong, C. N., Hong, H. M., Hsu, C. H., Du, C. C., & Tsai, Y. C. (2012). *Annuity insurance* (5th ed.). Taiwan: Taiwan Insurance Institute.
- Hu, L.-T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6(1), 1-55. <https://doi.org/10.1080/10705519909540118>
- Jacoby, J., & Kaplan, L. B. (1972). *The components of perceived risk*. Paper presented at the SV - Proceedings of the Third Annual Conference of the Association for Consumer Research, eds. M. Venkatesan, Chicago, IL : Association for Consumer Research.
- Jalil, M. F., & Ali, A. (2021). Perceived risks towards purchase intention among university students in Sarawak: The mediating effect of consumer trust. *International Journal of Business Forecasting and Marketing Intelligence*, 7(1), 90-111. <https://doi.org/10.1504/IJBFMI.2021.120149>
- Kimery, K. M., & McCord, M. (2002). Third party assurances: Mapping the road to trust in e-retailing. *Journal of Information Technology Theory and Application*, 4(2), 63-82.
- Lo, A. Y. (2013). The role of social norms in climate adaptation: Mediating risk perception and flood insurance purchase. *Global Environmental Change*, 23(5), 1249-1257. <https://doi.org/10.1016/j.gloenvcha.2013.07.019>
- Masoud, E. Y. (2013). The effect of perceived risk on online shopping in Jordan. *European Journal of Business and Management*, 5(6), 76-87.
- Ministry of Health and Welfare. (2021). *Statistical results of the causes of death in China in 2020*. China Ministry of Health and Welfare.
- Nosi, C., D'Agostino, A., Pagliuca, M., & Pratesi, C. A. (2017). Securing retirement at a young age. Exploring the intention to buy longevity annuities through an extended version of the theory of planned behavior. *Sustainability*, 9(6), 1069. <https://doi.org/10.3390/su9061069>
- Nosi, C., D'Agostino, A., Pagliuca, M. M., & Pratesi, C. A. (2014). Saving for old age: Longevity annuity buying intention of Italian young adults. *Journal of Behavioral and Experimental Economics*, 51, 85-98. <https://doi.org/10.1016/j.socec.2014.05.001>
- Nunnally, J. C. (1978). *Psychometric theory* (2nd ed.). USA: McGraw-Hill.
- Raza, S. A., Ahmed, R., Ali, M., & Qureshi, M. A. (2020). Influential factors of Islamic insurance adoption: An extension of theory of planned behavior. *Journal of Islamic Marketing*, 11(6), 1497-1515. <https://doi.org/10.1108/JIMA-03-2019-0047>
- Republic of China Statistical Information Network. (2021). *Consumer price index (CPI) and inflation trends*. China: Republic of China.
- Reynolds, F. D., & Wells, W. D. (1977). *Consumer behavior*. New York: McGraw-Hill.
- Schiffman, L. G., & Kanuk, L. L. (2004). *Consumer behavior* (8th ed.). United States: Pearson Prentice Hall.
- Schumacker, R. E., & Lomax, R. G. (2004). *A beginner's guide to structural equation modeling* (2nd ed.). Mahwah, NJ: Lawrence Erlbaum Associates.
- Shanteau, J., & Hall, B. (1992). Decision making under risk: Applications to insurance purchasing. *Advances in Consumer Research*, 19(1), 177-181.
- Stone, R. N., & Grønhaug, K. (1993). Perceived risk: Further considerations for the marketing discipline. *European Journal of Marketing*, 27(3), 39-50. <https://doi.org/10.1108/03090569310026637>
- Taylor, J. W. (1974). The role of risk in consumer behavior: A comprehensive and operational theory of risk taking in consumer behavior. *Journal of Marketing*, 38(2), 54-60. <https://doi.org/10.1177/002224297403800211>
- Wood, C. M., & Scheer, L. K. (1996). Incorporating perceived risk into models of consumer deal assessment and purchase intent. *Advances in Consumer Research*, 23, 399-404.
- Xia, T. (2011). *Factors influencing annuity demands: An empirical study based on the Netherlands*. Unpublished Master's Thesis. Tilburg University, Netherlands.
- Yeow, C.-N., Tay, L.-Y., Lye, C.-T., & Fauzi, E. P. (2021). Why do Malaysian young adults buy health insurance? *Journal of International Business, Economics and Entrepreneurship*, 6(2), 46-54. <https://doi.org/10.24191/jibe.v6i2.16678>