

Retirement Planning

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Unlocking Retirement Success: How Financial Literacy, Goal Clarity, and Risk Tolerance Drive Millennial Savings in Indonesia

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Abstract

Purpose: The millennial generation in Indonesia may struggle with retirement if they do not begin preparing their retirement funds early. This study aims to explore the impact of financial literacy, retirement goal clarity, and financial risk tolerance on the retirement saving behavior of millennials.

Design/methodology/approach: Data was collected through an online questionnaire using purposive sampling targeting employed Indonesian millennials, resulting in 212 respondents. Hypothesis testing was conducted using Partial Least Square-Structural Equation Modeling (PLS-SEM) with the Smart-PLS 4.0 software.

Findings: The results demonstrate that subjective financial literacy (SFL) significantly influences retirement saving behavior (RSB), both directly and through the partial mediation of retirement goal clarity (RGC). In contrast, objective financial literacy (OFL) and financial risk tolerance (FRT) do not have a significant influence on RSB.

Practical implications: The findings underscore the importance of boosting confidence in financial knowledge and the clarity of retirement goals to encourage better saving habits among millennials. Setting clear retirement goals is crucial for driving saving behavior, even when potential risks are factored in.

Originality/value: Millennials are approaching retirement age, making it essential to assess their readiness and preparedness for retirement. This study provides valuable insights into the factors that influence their saving behavior for retirement.

Keywords: *Financial Literacy; Retirement Saving Behavior; Millennial Retirement Planning; Retirement Goal Clarity; Financial Risk Tolerance.*

Paper type Research Paper

Introduction

Indonesia is currently experiencing a demographic bonus (2020-2030) due to a high proportion of the productive population. However, this advantage poses a future risk of a demographic disaster if adequate retirement preparations are not made (Graham-Harrison & McCurry, 2023; Ramadhan & Prabowo, 2023). Millennials, who constitute the majority of the productive-age population (Statistics Indonesia, 2021) recognize the importance of preparing for retirement, yet only 30% have started saving. This means that 70% of Indonesia's 69.38 million millennials are unprepared for retirement, putting them at risk of financial hardship and potentially jeopardizing the nation's economy (Statistics Indonesia, 2021; JAKPAT, 2020).

This threat is further exacerbated by Indonesia's inadequate pension system, despite its establishment in 1926. Participation in pension programs remains extremely low, with only 40% of

formal workers and less than 1% of informal workers enrolled (Yusuf et al., 2022). Many companies have either frozen employer pension funds (DPPK) or shifted from defined benefit plans (PMP) to defined contribution plans (PIP) due to financial difficulties and stagnant performance (Seran et al., 2023). The total managed assets of pension funds are also alarmingly low, amounting to just 6.7% of GDP, far below the standards of developed countries like Australia and Canada (Yusuf et al., 2022). Indonesia's pension system ranks 39th globally, significantly below average. This is in stark contrast to Iceland's top-ranked pension system, which excels with a three-pillar structure: a state-funded basic pension for all citizens, mandatory employer pension schemes, and voluntary personal retirement savings, ensuring optimal financial protection for all retirees (Mercer CFA Institute, 2022).

Without adequate retirement planning, millennials risk facing significant financial difficulties in their later years (Lusardi, 2003; Lusardi & Mitchell, 2011a). Conversely, starting retirement planning early can greatly increase the likelihood of financial security in retirement (García Mata, 2021; Ismail et al., 2020; She et al., 2023). It is therefore crucial for the government, financial service providers, and millennials themselves to understand the factors that drive retirement preparation behaviors to ensure future financial well-being (Lusardi & Mitchell, 2011b).

Retirement preparation behavior and its underlying factors have drawn significant academic attention (Bapat, 2020; Goyal et al., 2021), especially with increasing life expectancy and the rising number of individuals retiring with debt (Fred van Raaij, 2016; García Mata, 2021). However, most studies focus on individuals nearing retirement in developed countries (Tomar et al., 2021). Further research on younger generations is needed to encourage early retirement preparation, particularly in Indonesia, where millennials play a critical role in the current and future economy (Lusardi et al., 2020).

The low levels of retirement planning and preparation in Indonesia may be attributed to the population's low financial literacy (Harahap et al., 2022; Otoritas Jasa Keuangan, 2022b). Adequate financial knowledge is crucial for managing personal finances and making sound financial decisions (García Mata, 2021; Klapper & Lusardi, 2020; Van Rooij et al., 2011), such as selecting financial products or estimating future financial needs. Financial literacy also plays a key role in long-term financial planning, including retirement (García Mata, 2021; Harahap et al., 2022). However, financial literacy in Indonesia remains low, with a rate of 49.68% in 2022 (Otoritas Jasa Keuangan, 2022a, 2022b). Financial education is rarely included in formal curricula, as is the case in many other developing countries (García Mata, 2021; Klapper & Lusardi, 2020; Van Rooij et al., 2011). Tomar et al. (2021) suggest that in collectivist societies like Indonesia, financial attitudes and knowledge are often shaped by the social environment, particularly family. As a result, younger generations may inherit financial biases and misconceptions, such as the "sandwich generation" phenomenon and a lack of retirement planning (Türkmen & Kılıç, 2022).

While financial literacy is important, it does not fully explain retirement preparation behavior. The behavioral finance approach highlights that human financial decisions are not always rational and optimal (Fred van Raaij, 2016), as various psychological factors also influence key financial behaviors and decisions, such as retirement saving behavior (Bapat, 2020; Larisa et al., 2021). Subjective factors like biases or heuristics play a crucial role in individual decision-making (Fred van Raaij, 2016). In fact, an individual's subjective financial literacy (SFL) may exceed their objective financial literacy (OFL), leading to overconfidence (Chen & Chen, 2023; Pearson & Korankye, 2022). Although studies show that OFL is positively related to retirement preparation behavior (García Mata, 2021; & Wijaya, 2020; Lusardi & Mitchell, 2011a, 2011b; Van Rooij et al., 2011), SFL may have a negative relationship (Nguyen et al., 2022).

Behavioral finance also frequently draws on psychological concepts like the Theory of Planned Behavior (TPB) by Ajzen (1991). TPB explains various individual financial behaviors, such as home buying (Njo & Sugeng, 2022), investing (Raut, 2020), and retirement preparation (Larisa et al., 2021; Tomar et al., 2021). TPB posits that behavior is driven by intention, which is determined by three factors: individual attitudes, subjective norms, and perceived behavioral control (Ajzen, 1991; Anastasia et al., 2023). In retirement planning, various demographic and psychological factors can influence attitudes, norms, and perceived control (Goyal et al., 2021; Topa et al., 2018). Financial literacy can shape an individual's views on the benefits and capabilities of preparing for retirement (García Mata, 2021). Additionally, having clear retirement goals and a tolerance for financial risk can influence individual retirement saving behaviors.

Establishing clear retirement goals can help millennials achieve financial well-being in retirement (Jacobs-Lawson & Hershey, 2005; Stawski et al., 2007; Yue et al., 2018). Individuals with clear retirement goals can determine how much they need to save regularly (Van Rooij et al., 2011) and are motivated to work towards these goals (Stawski et al., 2007; Tomar et al., 2021). Setting goals and starting retirement planning early offers several benefits, including longer periods for fund accumulation, more diverse investment options, and easier financial management (Larisa et al., 2021).

Every individual has a different level of financial risk tolerance (FRT). Those with high FRT are more likely to choose high-risk, high-reward investments, while those with low FRT tend to avoid volatile investment options (Fred van Raaij, 2016). Financial understanding helps individuals make more informed decisions that are commensurate with the risks involved (Larson et al., 2016; Yue et al., 2018). Bapat (2020) indicates that FRT can moderate the relationship between financial understanding and locus of control on financial behavior, though other studies have not found a significant effect of FRT on retirement planning (Larisa et al., 2021).

Given the looming threat of a demographic disaster and the gaps in current research, further investigation into the factors driving retirement preparation among Indonesian millennials is essential. This research is needed to understand the TPB model related to retirement planning, with a focus on psychological dimensions within the context of millennials in developing countries (Goyal et al., 2021). Gaining insight into these significant factors can help the government, financial product providers, and individuals foster early retirement preparation behavior, thereby avoiding the risks of inadequate retirement preparation and its potential macroeconomic consequences (Fred van Raaij, 2016; Tomar et al., 2021).

Literature Review

Theory of Planned Behavior

The Theory of Planned Behavior (TPB) by Ajzen (1991) widely used by behavioral finance scholars to explain the subjective nature of human financial behavior through three key factors: attitudes, which refer to beliefs about the consequences of actions; subjective norms, which involve social pressure; and perceived behavioral control, which reflects an individual's belief in their ability to manage their actions (Ajzen, 2005, 2012; Goyal et al., 2021; Knoll, 2011). TPB posits that individual behavior is influenced by behavioral, normative, and control beliefs, which are shaped by personal, social, and informational factors (Ajzen, 2005). This study examines personal factors (Retirement Goal Clarity and Financial Risk Tolerance) and informational factors (Financial Literacy) in relation to retirement preparation behavior.

2

Retirement Saving Behavior

Retirement saving behavior (RSB) refers to the actions taken by individuals to save and accumulate funds in preparation for a secure and prosperous retirement (Alkhawaja & Albaity, 2022). These actions may include actively purchasing financial products or investing in property (García Mata, 2021).

Often, individuals acknowledge the importance of retirement preparation but delay taking action, considering it irrelevant at the moment (Alkhawaja & Albaity, 2022; Fred van Raaij, 2016). This delay is strongly associated with age, as older individuals are more likely to prioritize retirement preparation (Kumar, Shukla, et al., 2019; Topa et al., 2018). As a result, those who begin saving for retirement late may face financial difficulties in retirement, such as debt or reliance on family support (Lusardi et al., 2020; Lusardi & Mitchell, 2011a, 2011b; Van Rooij et al., 2011). In contrast, early retirement preparation offers advantages such as optimal fund growth and a lighter savings burden (Ismail et al., 2020).

Retirement preparation behavior typically begins with proper intention and planning (Bongini & Cucinelli, 2019; Stawski et al., 2007). Various factors drive individuals to prepare for retirement, including demographic factors (e.g., age, gender) and psychological factors, such as their views on retirement, future perspective, locus of control, and retirement goal clarity (Kumar, Tomar, et al., 2019; Tomar et al., 2021; Topa et al., 2018).

Financial Literacy and Retirement Saving Behavior

Financial literacy refers to an individual's ability to process financial information and make informed financial decisions (Lusardi & Mitchell, 2014). According to Van Raaij (2016), while most individuals understand basic financial concepts such as compound interest and inflation, they often lack advanced financial knowledge about stocks or risk diversification (Van Rooij et al., 2011). A strong level of financial literacy helps individuals engage in various financial behaviors, such as budgeting, retirement planning, or choosing investment products, which in turn improves their financial well-being and positively impacts the macroeconomic health of a country (Fred van Raaij, 2016; Klapper & Lusardi, 2020). Objective financial literacy (OFL) can be passed down from family, which may inherit misconceptions, or obtained through formal education, often underrepresented in early education (Anastasia et al., 2019; García Mata, 2021; Türkmen & Kılıç, 2022).

The level of an individual's financial understanding directly influences their financial management decisions, including retirement planning. High financial literacy enables individuals to recognize the importance of saving and investing for retirement (Van Rooij et al., 2011). Previous research has shown that OFL encourages Indonesian career women to be more proactive in retirement planning (Larisa et al., 2021) and helps young Mexican adults avoid passive retirement funding strategies (García Mata, 2021). Harahap (2022) suggests that financial literacy aids individuals in recognizing alternative investment instruments, managing budgets, and mitigating risks, empowering them to prepare for retirement. Based on these findings, the following hypothesis is proposed:

H1: Objective Financial Literacy has a positive effect on Retirement Saving Behavior.

On the other hand, an individual's self-assessment of their financial understanding—subjective financial literacy (SFL)—may differ from their actual financial abilities (Chen & Chen, 2023);

Lusardi & Mitchell, 2014). This discrepancy can manifest as overconfidence, where a person's SFL exceeds their OFL, often associated with high debt, poor investment performance, and a lack of financial risk understanding (Pearson & Korankye, 2022). Conversely, complex economic and financial concepts can cause individuals to doubt their abilities, leading to delayed financial decisions (Riitsalu & Murakas, 2019).

Bapat (2020) found that SFL influences financial management behavior through attitude mediation in young adults in India. A study by Harahap et al. (2022) on medium-scale entrepreneurs in Indonesia also demonstrated that SFL affects retirement planning behavior. SFL can be viewed as a form of self-efficacy or perceived control over financial decision-making. Based on these findings, the following hypothesis is proposed:

H2: Subjective Financial Literacy has a positive effect on Retirement Saving Behavior.

Retirement Goal Clarity as Mediating Variable

Goal-setting is a crucial aspect of human behavior, serving as a representation of an ideal future state that motivates individuals to devise plans and take steps to achieve it (Austin & Vancouver, 1996; Beach & Mitchell, 1987; Hershey et al., 2007; Neukam, 2002). Retirement goal clarity (RGC) refers to how clearly an individual envisions their ideal retirement life, including setting specific savings targets, lifestyle choices, and other financial goals they wish to accomplish (Sani et al., 2022; Tomar et al., 2021; Van Rooij et al., 2011).

Having a clear picture of retirement encourages individuals to engage in financial planning and save for retirement (Kumar, Tomar, et al., 2019; Sani et al., 2022; Stawski et al., 2007). RGC provides direction, guidance, and feedback for one's behavior, acting as motivation and self-regulation to remain disciplined in saving (Fred van Raaij, 2016; Tomar et al., 2021). Clear goals and plans enable individuals to determine the type of investment and the amount of savings needed, thus increasing the likelihood of accumulating higher retirement savings (Yue et al., 2018). Based on this explanation, the following hypothesis is proposed:

H3: Retirement Goal Clarity positively influences an individual's Retirement Saving Behavior.

Setting clear retirement goals begins with establishing expectations regarding the desired quality of life in retirement (Stawski et al., 2007). These qualitative expectations are then translated into quantitative estimates using financial concepts such as the time-value of money, interest rates, and inflation, to project savings and expenditures for retirement (Yue et al., 2018). A solid understanding of financial literacy allows individuals to better grasp financial potentials and risks (Murari et al., 2021) and their impact on financial goals (Stawski et al., 2007) helping them set and plan more precise targets. From these insights, the following research hypotheses are presented:

H5: Objective Financial Literacy positively influences an individual's Retirement Goal Clarity.

H6: Subjective Financial Literacy positively influences an individual's Retirement Goal Clarity.

Additionally, the following research hypotheses regarding the mediating role of RGC are proposed:

H9: Objective Financial Literacy indirectly influences Retirement Saving Behavior through Retirement Goal Clarity.

H10: Subjective Financial Literacy indirectly influences Retirement Saving Behavior through Retirement Goal Clarity.

Financial Risk Tolerance as Mediating Variable

Risk is a fundamental concept in behavioral finance, as individuals take on risk whenever they make financial decisions, such as taking out loans, investing, or purchasing financial products (Bapat, 2020; Fred van Raaij, 2016). Psychologically, risk is a subjective construct based on an individual's interpretation, resulting in varying perceptions of risk from person to person (Fred van Raaij, 2016).

Financial risk tolerance (FRT) refers to the level of uncertainty an individual is willing to accept from financial decisions (Alkhawaja & Albaity, 2022; Grable, 2000; Larisa et al., 2021). Various factors affect FRT, including age, education, income, and professional status (Bapat, 2020; Grable, 2000; Larisa et al., 2021). Cultural background and generational cohorts also shape risk preferences, with millennials, for instance, growing up in a period of financial uncertainty (Larson et al., 2016).

Individuals with a high FRT, or risk-seekers, tend to focus more on potential gains and are likely to opt for higher-risk investments, such as stocks (Fred van Raaij, 2016; Jacobs-Lawson & Hershey, 2005; Nguyen et al., 2022). In contrast, risk-averse typically avoid high-risk options and choose safer investments like bonds or savings accounts (Bapat, 2020; Jacobs-Lawson & Hershey, 2005).

An individual's perception and preference for financial risk have been shown to influence financial decisions, such as purchasing a home (Njo & Sugeng, 2022), stock investments (Kasoga, 2021), ataupun pengelolaan keuangan (Bapat, 2020). Those with high FRT are inclined to invest in risky instruments because they focus on long-term high returns (Fred van Raaij, 2016; Larisa et al., 2021). This tendency can encourage individuals to save for retirement, as they are motivated by the potential rewards when retirement arrives (Alkhawaja & Albaity, 2022). Based on this, the following research hypothesis is formulated:

H4: Financial Risk Tolerance positively influences an individual's Retirement Saving Behavior.

FRT reflects an individual's ability to handle financial risks and make investment decisions (Nguyen et al., 2022). Larson et al. (2016) argue that risk preferences and tolerance are related to one's knowledge, experience, and confidence in making decisions. Financial literacy enables individuals to understand risks and their mitigation strategies (Harahap et al., 2022; Kasoga, 2021; Van Rooij et al., 2011). Numerous studies have demonstrated the influence of financial literacy on an individual's level of FRT (Larisa et al., 2021; Nguyen et al., 2022). From this explanation, the following research hypotheses are proposed:

H7: Objective Financial Literacy positively influences an individual's Financial Risk Tolerance.

H8: Subjective Financial Literacy positively influences an individual's Financial Risk Tolerance.

Considering the hypotheses about the influence of both SFL and OFL on FRT, and the influence of FRT on RSB, there is potential for FRT to serve as a mediator. Therefore, the following research hypotheses are also formulated:

H11: Objective Financial Literacy indirectly influences Retirement Saving Behavior through Financial Risk Tolerance.

H12: Subjective Financial Literacy indirectly influences Retirement Saving Behavior through Financial Risk Tolerance.

Research Model

Based on the literature review and the formulated hypotheses, a conceptual framework or research model can be established, as illustrated in Figure 1 below:

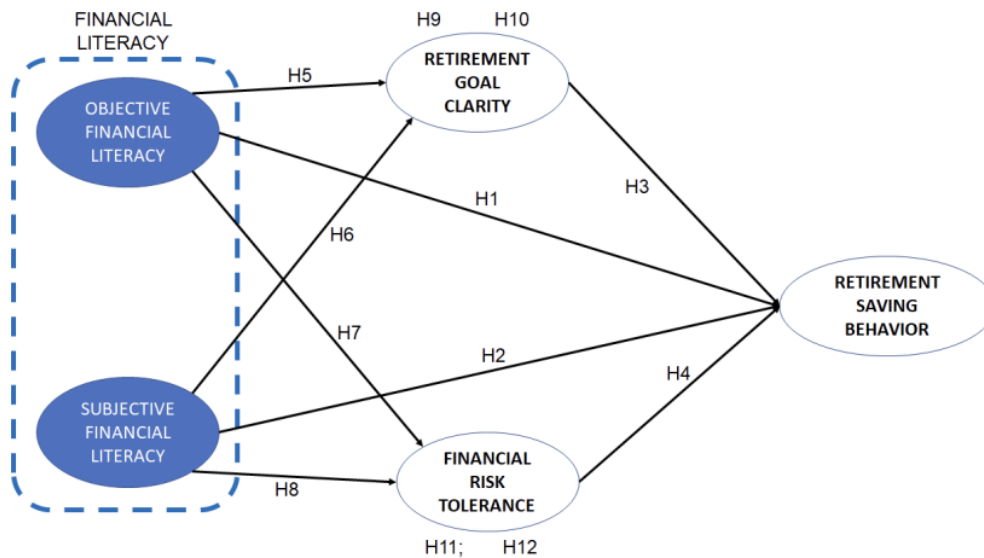


Figure 1. Research Model

Research Method

This study adopts a quantitative associative method to explore the cause-and-effect relationship between exogenous and endogenous variables, aiming to establish predictive capabilities (Cooper & Schindler, 2014). The target population comprises the millennial generation in Indonesia, born between 1981 and 1996 (Frey, 2021). This population is known for its technological proficiency, which supports financial literacy through easy access to information (Anastasia et al., 2019; Frey, 2018). The sample was selected through purposive sampling, targeting individuals who are employed and earning independent incomes. Data was collected via an online questionnaire using Microsoft Forms, with the survey period running from August 3, 2023, to January 24, 2024.

The data analysis was conducted in two stages: descriptive analysis and hypothesis testing using Partial Least Squares-Structural Equation Modeling (PLS-SEM), executed with SmartPLS 4. The PLS-SEM process involves two main models: the outer model, which evaluates the measurement model, and the inner model, which tests the structural model and research hypotheses (Hair et al., 2019). The testing stages include Indicator Loadings to assess item reliability by ensuring each item's loadings score exceeds 0.708. Construct reliability is assessed to evaluate the reliability and consistency of the constructs, requiring Cronbach's α and Composite Reliability scores for each construct to exceed 0.70. Convergent validity assesses how consistently each construct explains the variance of its items, ensuring an average variance extracted (AVE) score above 0.5 for each construct. Discriminant Validity ensures that each construct is empirically distinct from others, as indicated by the highest Fornell-Larcker value for each variable and a heterotrait-monotrait (HTMT) ratio below 0.85. After the measurement model has been validated, structural model analysis in PLS-SEM is conducted by examining the coefficient of determination (R^2), predictive power (Q^2), path coefficients, and hypothesis testing, where a hypothesis is accepted if the t-statistic > 1.96 and P-Values < 0.05 .

Table 1. Research Variable and Their Reference

Endogenous Variable Retirement Saving Behavior	(Alkhawaja & Albaity, 2022).	Likert Scale; 1 - "Strongly Disagree" and 5 - "Strongly Agree".
Exogenous Variable Financial Literacy: 1. Objective Financial Literacy	(Van Rooij et al., 2011)	6 multiple choice questions, correct answer is given 1-point, wrong answer is given 0 point
2. Subjective Financial Literacy	(Larson et al., 2016)	Likert Scale; 1 - "Strongly Disagree" and 5 - "Strongly Agree".
Mediating Variable Retirement Goal Clarity Financial Risk Tolerance	(Stawski et al., 2007) (Larisa et al., 2021)	Likert Scale; 1 - "Strongly Disagree" and 5 - "Strongly Agree".

Research Result

In this study, a total of 297 survey forms were collected, and after a thorough screening process, 212 respondents were found to meet the sample selection criteria. The descriptive characteristics of the respondents are summarized in Table 2. The majority of respondents were between the ages of 26-34 (68.3%), with the remaining respondents aged 35-43 (31.6%). The sample was predominantly female (57.0%), compared to male respondents (42.9%).

Regarding education, most respondents hold 3-year Diploma or Bachelor's degree (67.4%), followed by postgraduate degrees (Master's/Ph.D.) (28.7%). A majority of the respondents are employees/workers/laborers (60.8%), followed by entrepreneurs (22.1%) and professionals (16.9%).

In terms of income, most respondents earn between 5,000,001 to 20,000,000 rupiah (72.1%), while others earn between 20,000,001 to 40,000,000 rupiah (15.5%). Most respondents stated that they had prepared for retirement, either from their employer (26.8%), personally (33.9%), or from both sources (22.6%), although some admitted to having no retirement preparation at all (16.5%).

Table 2. Respondent Characteristics

Demographic Description	N (%)
Age (Years)	
26-34	145 (68,3%)
35-43	67 (31,6%)
Gender	
Female	121 (57,0%)
Male	91 (42,9%)
Education Level	
< High school/Vocational school	1 (0,4%)
High school/Vocational school	7 (3,3%)
3-year Diploma/Bachelor's degree	143 (67,4%)
Master's degree/PhD	61 (28,7%)
Occupation	
Professional: (e.g: Doctor, Lawyer, Chef, Freelance designer, etc.)	36 (16,9%)
Employee/ Worker / Laborer	129 (60,8%)

Entrepreneur (business owner & employer)	47 (22,1%)
Monthly Income	
≤ 5.000.000	15 (7,0%)
> 5.000.000 and ≤ 20.000.000	153 (72,1%)
> 20.000.001 and ≤ 40.000.000	33 (15,5%)
> 40.000.001 and ≤ 400.000.000	10 (4,7%)
> 400.000.000	1 (0,4%)
Retirement Plan	
None	35 (16,5%)
Provided by employer	57 (26,8%)
Self-provided	72 (33,9%)
Provided by employer and self-provided	48 (22,6%)

The respondents' OFL scores, as shown in Figure 2, reveal that the majority fall into the medium category, with scores ranging between 4 and 5 (48.11%). Respondents with low scores (≤ 3) and high scores (6) are evenly distributed, each comprising 25.94%. This suggests that nearly half of the respondents have a moderate level of financial literacy, while a quarter have a low level and the remaining quarter have a high level.

Table 3 provides a breakdown of the percentage of correct answers for each OFL indicator. The indicator with the highest percentage of correct responses is numeracy (90.09%), followed by risk diversification (76.42%) and inflation (75.47%). Questions on compound interest (67.92%) and time value of money (69.34%) also received relatively high correct response rates. However, the indicator related to stocks/mutual funds had the lowest percentage of correct answers, at 54.72%. These findings indicate that respondents have a stronger grasp of numeracy and risk diversification concepts but are less knowledgeable about investment products like stocks and mutual funds.

Table 3. Percentage of OFL Correct Answers

Item	Indicator	Correct Answer	%
OFL 1	Numeracy	191	90,09%
OFL 2	Interest compounding	144	67,92%
OFL 3	Inflation	160	75,47%
OFL 4	Time value of money	147	69,34%
OFL 5	Stocks /mutual funds	116	54,72%
OFL 6	Risk diversification	162	76,42%

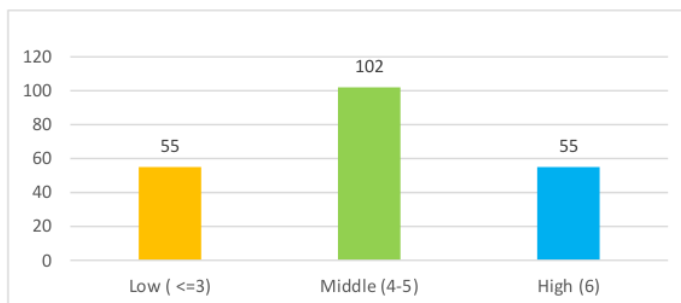


Figure 2. Financial Literacy Levels of Millennials

Table 4 presents the descriptive statistics and factor loading for the four latent variables in the study: Subjective Financial Literacy (SFL), Retirement Goal Clarity (RGC), Financial Risk Tolerance (FRT), and Retirement Saving Behavior (RSB). The respondents demonstrate a slight inclination towards confidence in their financial literacy, with an average SFL score of 3.211 and a standard deviation of 0.780. The highest loading value is found in the item SFL3, which states, "Among my peers, I can be considered a financial expert," with a loading of 0.877; this item also has the lowest mean score (2.646). The item with the highest mean score, at 3.340, is SFL2: "I do not feel I have enough knowledge about finance."

As for the RGC variable, the mean score is at a midpoint of 3.053, with a standard deviation of 0.885. The item RGC3, "I have a clear vision of what my life will be like in retirement," shows the highest loading at 0.892. The item with the highest mean score of 3.354 is RGC2: "I think a lot about the quality of life in retirement," while the lowest mean score is for RGC4, "I have set clear targets regarding the information I need to seek about retirement," which has a mean of 2.943.

The respondents' tolerance for financial risk shows a slightly low tendency, with an average score of 2.793 and a standard deviation of 0.814. The item FRT1, "I am willing to take financial loss risks," records the highest loading at 0.883. The item FRT3, "For me, the potential growth of retirement investments is more important than the level of risk," boasts the highest mean score of 3.066, whereas FRT5, "As a general rule, I would not choose the safest investment options for retirement planning," has the lowest mean score of 2.604.

The subsequent variable, RSB, has an average score of 3.030 with a standard deviation of 0.871. The item RSB4 shows the highest loading at 0.898 and the highest mean score of 3.401, reflecting the statement, "I consciously save for retirement." In contrast, the item with the lowest mean score is RSB1, "I set aside significant funds for my voluntary retirement savings plan," at 2.538.

According to Hair et al. (2019), the analysis of PLS-SEM results begins with evaluating the measurement instruments or outer model analysis. The construct validity of the measurement tool is deemed acceptable if the indicators possess loadings above 0.708, or can be retained if their scores exceed 0.5. In this study, the majority of items achieved loading scores above 0.7, with none falling below 0.5, thereby ensuring that all indicators are maintained to uphold the content validity of the measurement tool.

Table 4. Descriptive Analysis and Latent Variable Validity-Reliability

Code	Construct	Mean	Std. Dev	Loadings	CA (α)	CR (rho_a)	AVE
SFL1	Subjective Financial Literacy	3,211	0,780		0,820	0,949	0,557
	Well-informed about financial matters	3,255	0,917	0,847			
	SFL2 Not knowledgeable*	3,340	1,027	0,542			
	SFL3 Referred to as a financial "expert"	2,646	1,078	0,877			
	SFL4 Less knowledgeable compared to others*	3,297	1,069	0,741			
SFL5 Not well-informed about financial matters*	3,519	1,007	0,673				
RGC1	Retirement Goal Clarity	3,053	0,885		0,886	0,905	0,689
	Setting specific financial goals	2,958	1,061	0,867			
	RGC2 Considering the quality of life	3,354	1,065	0,741			
	RGC3 Having a clear perspective on retirement	2,986	1,071	0,892			

RGC4	Target for retirement information search	2,943	1,012	0,882			
RGC5	Discusses retirement plans	3,024	1,126	0,753			
	Financial Risk Tolerance	2,793	0,814		0,825	0,869	0,602
FRT1	Willing to take a risk of loss	2,821	1,058	0,883			
FRT2	Preferring high returns	2,693	1,030	0,859			
FRT3	Prioritizing growth potential	3,066	1,093	0,533			
FRT4	Prepared to take risks for financial stability	2,783	1,073	0,862			
FRT5	Not choosing the safest option	2,604	1,048	0,681			
	Retirement Saving Behavior	3,030	0,871		0,889	0,895	0,698
RSB1	Setting aside significant funds	2,538	0,903	0,680			
RSB2	Compared with same-age peers	2,726	0,981	0,815			
RSB3	Continuously accumulating savings	3,311	1,093	0,889			
RSB4	Aware of saving for retirement	3,401	1,092	0,898			
RSB5	Saving according to plan	3,175	1,117	0,877			

Note: (*) signifies reverse item

In Table 4, both the Cronbach's α and composite reliability (rho_a) values for all constructs are above 0.8, indicating strong internal consistency. Additionally, the AVE values exceeding 0.5 demonstrate that the variables within each construct are closely related, confirming adequate convergent validity. The fourth assessment involves evaluating discriminant validity across the variables. Table 5 shows that the Fornell-Larcker criterion scores for all constructs are higher than the inter-variable correlations. Moreover, the HTMT ratio values, which are all below 0.85, further confirm that discriminant validity requirements have been met. These results collectively suggest that discriminant validity has been established successfully.

Table 5. Discriminant Validity Analysis

Construct	Fornell-Larcker Criterion					Heterotrait-monotrait					
	FRT	OFL	RGC	RSB	SFL	Construct	FRT	OFL	RGC	RSB	SFL
FRT	0,776					FRT					
OFL	0,173	1,000				OFL	0,185				
RGC	0,491	0,162	0,830			RGC	0,551	0,170			
RSB	0,398	0,176	0,561	0,836		RSB	0,453	0,183	0,627		
SFL	0,438	0,370	0,461	0,444	0,746	SFL	0,414	0,409	0,448	0,435	

Following the outer model analysis, an inner model analysis was conducted to explore the research model and the relationships between the variables. As shown in Figure 3, the endogenous variable Retirement Saving Behavior (RSB) has an R-squared value of 0.366, indicating that the research model accounts for 36.6% of the variance in RSB. The remaining 63.4% is influenced by factors and variables external to this model. Predictive relevance (Q2) assesses the structural model's capability to predict observed data. The calculated Q2 value for this research model is 0.597, suggesting that the model demonstrates a strong predictive capacity. (Hair et al., 2019).

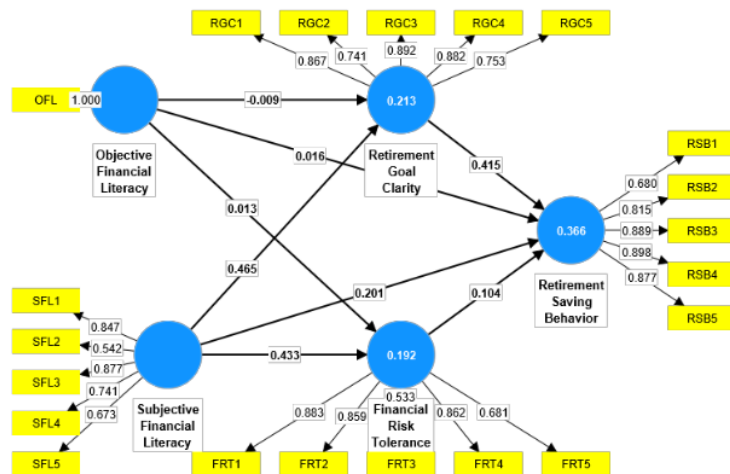


Figure 3. Flow Diagram and PLS-SEM Calculation Result

Table 6 details the path coefficients and t-statistics for each relationship among the variables. Specifically, Subjective Financial Literacy (SFL) has a significant direct effect on Retirement Saving Behavior (RSB) (path coefficient = 0.201, t-statistic = 2.595), Retirement Goal Clarity (RGC) (path coefficient = 0.465, t-statistic = 7.417), and Financial Risk Tolerance (FRT) (path coefficient = 0.433, t-statistic = 7.808). Additionally, RGC significantly influences RSB (path coefficient = 0.415, t-statistic = 5.426). Conversely, the direct effects of Objective Financial Literacy (OFL) on RSB, RGC, and FRT, as well as the effect of FRT on RSB, are not significant.

In terms of indirect effects, SFL demonstrates a significant impact on RSB through RGC (path coefficient = 0.192, t-statistic = 4.158), but not through FRT. Meanwhile, OFL does not show any significant indirect effects through either RGC or FRT. The analysis results indicate that hypotheses H2, H3, H6, H8, and H10 are supported, with t-statistics exceeding 1.96 and p-values less than 0.05.

Table 6. Path Coefficients of the Structural Equation Model

	Path Coefficient	t-statistic	p-values
Direct effect			
H1. OFL --> RSB	0,016	0,274	0,784
H2. SFL --> RSB	0,201	2,595	0,009**
H3. RGC --> RSB	0,415	5,426	0,000**
H4. FRT --> RSB	0,104	1,380	0,168
H5. OFL --> RGC	-0,009	0,149	0,882
H6. SFL --> RGC	0,465	7,417	0,000**
H7. OFL --> FRT	0,013	0,216	0,829
H8. SFL --> FRT	0,433	7,808	0,000**
Indirect effects			
H9. OFL --> RGC --> RSB	-0,003	0,146	0,884
H10. SFL --> RGC --> RSB	0,192	4,158	0,000**
H11. OFL --> FRT --> RSB	0,001	0,169	0,866
H12. SFL --> FRT --> RSB	0,044	1,282	0,200

Note: ** p values < 0,05 and t-stat > 1,96

Discussion

The research findings reveal that the Retirement Saving Behavior (RSB) scores among respondents are primarily centered around the midpoint. This indicates a lack of specific trends in retirement preparation behaviors among the millennial generation in Indonesia participating in this study. Additionally, the high mean value observed in RSB4 suggests that respondents recognize the importance of retirement preparation; however, this awareness does not translate into significant retirement savings, as evidenced by the low score in RSB1. This outcome confirms Fred van Raaij's (2016) observation of a paradox where individuals acknowledge the necessity of preparing for retirement yet fail to accumulate actual savings.

When assessing financial literacy, respondents exhibit a moderate tendency in objective measures, while subjective assessments range from moderate to high. Most respondents correctly answered basic concepts related to Objective Financial Literacy (OFL), particularly in numeracy calculations, but only about half could accurately respond to questions regarding mutual funds. This aligns with the findings of Fred van Raaij (2016) and Van Rooij et al. (2011), which suggest that basic financial concepts are widely understood, unlike more complex topics such as mutual funds and stocks, which remain less comprehensible. Regarding Subjective Financial Literacy (SFL), respondents generally shy away from self-identifying as "unknowledgeable," as indicated by the high scores on the reverse item SFL5. Simultaneously, they exhibit reluctance to label themselves as "experts," reflected in the low score of item SFL3.

The Retirement Goal Clarity (RGC) results indicate a similar midpoint trend, suggesting that some respondents possess both high and low levels of RGC. Many respondents actively consider their quality of life in retirement, which is a crucial initial step in defining clear retirement goals (Stawski et al., 2007), even though they lack clarity regarding the information necessary for retirement preparation. This uncertainty may stem from the perception that retirement is a distant prospect for the millennial generation, making it seem less relevant to seek out information on the topic (Fred van Raaij, 2016).

Findings on Financial Risk Tolerance (FRT) show low scores among respondents, indicating a tendency to avoid risk. This aversion may be attributed to the millennial generation's upbringing in an environment characterized by uncertainty, which dampens their inclination toward financial risk (Larson et al., 2016). The low score on FRT5 suggests a preference against the safest investment options, despite their potential for lower returns. Conversely, respondents acknowledge the importance of focusing on potential investment growth, as indicated by the score for FRT3, which is a fundamental characteristic of risk-seeking individuals (Fred van Raaij, 2016; Jacobs-Lawson & Hershey, 2005; Nguyen et al., 2022). Unfortunately, this emphasis on growth does not appear to be strong enough to foster a willingness to accept the risk of loss.

Driving Factors of Retirement Saving Behavior

This study aims to identify the factors driving retirement preparation behavior among Indonesia's millennial generation and reveals that psychological factors significantly influence this behavior. A unique aspect of this research is the comparison between Subjective Financial Literacy (SFL) and Objective Financial Literacy (OFL). The findings indicate that SFL has a significant impact on Retirement Saving Behavior (RSB) (H2 is supported), while OFL does not exhibit the same effect (H1 is rejected). Although these results contrast with the findings of Larisa et al. (2021), they are consistent with Mata (2021), who similarly found no significant influence of OFL on active retirement strategies

among young people in Mexico. This suggests that high levels of financial understanding do not necessarily guarantee proactive retirement preparation behavior among youth who may not yet perceive the urgency of such actions (Fred van Raaij, 2016).

The significant influence of SFL on RSB aligns with studies by Harahap (2022), Bapat (2020), dan Yue et al. (2018), which found that SFL positively affects financial management and retirement preparation behaviors among Indonesian entrepreneurs, young Indians, and Hong Kong workers, respectively. This supports the Theory of Planned Behavior (TPB) (Ajzen, 2005, 2012), wherein SFL functions as a form of perceived behavioral control that affects individual retirement preparation. When individuals consider themselves “experts” in finance, they are likely to feel more in control and responsible for their futures, increasing their awareness of the importance of retirement savings. A stronger perception of control correlates with a greater likelihood of preparing for retirement, while a weaker perception tends to lead to procrastination in making financial decisions, such as retirement planning (Riitsalu & Murakas, 2019). This finding further reinforces the concept of behavioral finance, which posits that humans are “homo psychologicus,” influenced more by psychological factors like biases and heuristics than by rational thought, thereby giving SFL a more dominant role in impacting RSB compared to OFL (Fred van Raaij, 2016).

Another psychological factor that significantly affects RSB identified in this study is Retirement Goal Clarity (RGC) (H3 is supported). Individuals with a clear vision of their retirement and who actively seek retirement-related information are more likely to understand the importance of saving for retirement to realize that vision. This finding is consistent with earlier research (Kumar, Tomar, et al., 2019; Sani et al., 2022; Stawski et al., 2007; Tomar et al., 2021). A clear picture of desired retirement life facilitates better planning and execution of retirement strategies (Kumar, Tomar, et al., 2019; Yue et al., 2018). Such clarity can inspire and cultivate a positive attitude toward retirement preparation, thereby enhancing the intention and likelihood of engaging in retirement planning, as suggested by the TPB (Ajzen, 2005; Fred van Raaij, 2016; Sani et al., 2022).

However, the other psychological factor, Financial Risk Tolerance (FRT), did not demonstrate a significant influence on RSB (H4 is rejected). An individual's level of financial risk tolerance does not predict their tendency to prepare for retirement. This finding aligns with previous studies exploring the relationship between financial risk tolerance and retirement preparation behavior (Alkhawaja & Albaity, 2022; Larisa et al., 2021; Tomar et al., 2021). An individual's willingness to accept risk and preference for high returns do not necessarily lead to engagement with or recognition of the importance of retirement investment products. This may be attributed to millennials not feeling the urgency of retirement preparation, resulting in a focus on short-term investment returns instead (Fred van Raaij, 2016).

4 Retirement Goal Clarity and Financial Risk Tolerance as Mediators

The findings of this study highlight notable differences in the effects of two types of financial literacy—Objective Financial Literacy (OFL) and Subjective Financial Literacy (SFL)—on Retirement Goal Clarity (RGC). Specifically, OFL does not show a significant effect on RGC (H5 is rejected), whereas SFL demonstrates a significant influence (H6 is accepted). This observation aligns with the Theory of Planned Behavior (TPB), which asserts that individual intention is more strongly influenced by perceptions of control than by actual control itself (Ajzen, 2012). As a result, an individual's confidence in their ability to understand and make financial decisions plays a critical role in motivating them to take essential financial actions, including establishing clear retirement goals and saving for retirement, as indicated by Yue et al. (2018).

The influence of RGC on Retirement Saving Behavior (RSB) suggests a mediating role for RGC. The research findings indicate that RGC partially mediates the effect of SFL on RSB (H10 is accepted), while this mediation does not occur for OFL (H9 is rejected). As noted earlier, although individuals with high OFL may possess the ability to calculate or plan for retirement, this skill does not necessarily compel them to engage in such planning (Yue et al., 2018). In contrast, SFL fosters an individual's belief in their capacity to process information and make sound financial decisions, subsequently motivating them to create a clear vision and plan for retirement preparation (Yue et al., 2018). This vision and plan then drive individuals to actualize their retirement preparation through proactive behavior (Stawski et al., 2007).

Moreover, the study finds that, regarding Financial Risk Tolerance (FRT), OFL does not exert a significant influence (H7 is rejected), while SFL shows a significant effect (H8 is accepted). Although this finding contradicts the results of Larisa et al. (2021), which identified an influence of OFL on FRT, it is consistent with the findings of Nguyen et al. (2022) and Harahap (2022) which established SFL as a significant predictor of FRT. The more an individual perceives themselves as a "financial expert," the less apprehensive they are about taking risks and the more they focus on achieving high returns, believing they can manage the associated risks. High SFL enhances an individual's sense of control, encouraging them to take on greater financial risks (Bapat, 2020). Conversely, an understanding of complex financial matters can lead individuals to either embrace significant financial risks or shy away from them, depending on their personal characteristics (Larson et al., 2016).

The study does not find a significant influence of FRT on RSB, indicating an absence of a mediating role for FRT in the relationship between financial literacy and RSB (H11 and H12 are rejected). This lack of mediation is consistent with several previous studies (Larisa et al., 2021; Tomar et al., 2021). An individual's aspiration for high returns does not mediate the impact of financial literacy on RSB, as it cannot be assumed that those with high FRT are willing to exercise patience in waiting for returns until retirement (future time perspective) (Nguyen et al., 2022).

From the hypothesis testing conducted, it is evident from this research that RSB, as a construct of behavioral finance, is influenced by various psychological variables (Fred van Raaij, 2016; Tomar et al., 2021). According to the TPB, individual intention and behavior can be predicted by an individual's positive outlook on the consequences of certain behaviors, their perceived control over performing those behaviors, and the subjective norms associated with those behaviors (Ajzen, 1991, 2012). RGC shapes an individual's positive perspective on an ideal retirement after engaging in retirement preparation (Stawski et al., 2007; Yue et al., 2018), while SFL enhances an individual's self-efficacy, reinforcing their belief in their ability to prepare effectively for retirement (Bapat, 2020; Yue et al., 2018).

Managerial Implication

The findings of this study offer valuable insights for Indonesia's millennial generation, policymakers, and providers of retirement savings products. The results reveal that Indonesian millennials function as homo psychologicus, influenced by various psychological factors such as individual self-confidence (SFL) and goal setting (RGC), which significantly enhance their retirement preparation behaviors. Stakeholders can capitalize on these factors to cultivate early retirement preparation habits, ultimately improving financial well-being and contributing to the country's macroeconomic stability (Fred van Raaij, 2016; Klapper & Lusardi, 2020).

To enhance their intentions toward retirement preparation, millennials can create a clear vision of their future retirement life. This involves defining their ideal quality of life in retirement, estimating living expenses while accounting for inflation, and calculating regular savings with consideration for compound interest. Furthermore, they can strengthen their financial self-efficacy by increasing their financial literacy, exploring high-potential investment opportunities, and learning from the success stories of individuals who have effectively prepared for retirement.

The government should promote early retirement preparation behaviors among millennials by addressing both subjective and psychological aspects. Awareness campaigns featuring inspirational narratives, as well as the establishment of communities and forums for retirement-related financial discussions, can help foster financial literacy and boost millennials' confidence in making informed decisions regarding their retirement planning. These initiatives should be integrated into the educational curriculum to ensure comprehensive financial literacy education. Financial product providers can also play a crucial role by assisting millennials in setting both qualitative and quantitative retirement goals. By providing essential information and establishing clear benchmarks for retirement preparation, they can help millennials develop concrete objectives, thereby promoting proactive retirement preparation behaviors among this demographic.

Limitation and Recommendation for Further Study

This study has several limitations. First, the use of purposive sampling, with a majority of respondents drawn from Java Island, limits the generalizability of the findings to the broader millennial generation across Indonesia. Future research is recommended to employ sampling methods that ensure a more proportional representation of respondents from various regions to yield results that can be generalized more effectively. Second, this research focuses specifically on the millennial generation, treating individuals as the unit of analysis. Future studies could incorporate other generations, such as Generation X and Generation Z, to examine differences in retirement preparation across generational lines. Additionally, as many millennials are now entering marriage, subsequent research could analyze families as units of analysis to explore variations in retirement preparation among different family sizes.

The third limitation concerns the restricted range of variables investigated, suggesting that there are additional psychological and demographic factors that could be examined to enhance predictive validity regarding retirement preparation. Future research could explore additional factors or variables, such as future-time perspective, locus of control, and risk perception among millennials in relation to retirement life. Moreover, subsequent studies could include indicators of more complex financial literacy to obtain a more comprehensive understanding of the distribution of Objective Financial Literacy (OFL) in the research context. Finally, the fourth limitation pertains to the low OFL scores among respondents related to the item concerning "stocks." Additionally, the questions in the Retirement Saving Behavior (RSB) measurement tool that refer to "retirement savings funds" may limit insights into other forms of retirement preparation that respondents may engage in. It is possible that respondents are not investing in stocks but rather in other assets, such as real estate, businesses, or other financial instruments that have not been addressed in this study's analysis.

Conclusion

This research represents the first effort, to the best of the researcher's knowledge, to investigate both subjective and objective financial literacy in relation to retirement saving behavior, with retirement goal clarity and financial risk tolerance serving as mediators, specifically among Indonesia's millennial generation. The findings reveal that psychological factors, including subjective financial literacy and retirement goal clarity, significantly influence retirement saving behavior (RSB). Moreover, the study demonstrates that subjective financial literacy has a significant effect on retirement goal clarity, resulting in a partial mediation effect of retirement goal clarity on the relationship between subjective financial literacy and retirement saving behavior. This study contributes to a deeper understanding of the factors that affect retirement preparation behavior, particularly within Indonesia's millennial demographic, which currently constitutes a significant portion of the workforce. Based on these findings, it is recommended that stakeholders focus on enhancing millennials' confidence in their financial knowledge and encourage them to set clear retirement goals. Such initiatives aim to increase the likelihood that millennials will proactively prepare for retirement early, thereby ensuring they enter this phase of life with financial security and reducing the potential burden on Indonesia's economic landscape.

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