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## The Impact of Self-Determination and Attitudes toward Aging on Retirement Planning among Older Adults: A Moderated Mediation Model of Socioeconomic Factors

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| <b>Abstract</b> | As global societies age, retirement planning becomes a critical issue for older adults. This study investigates the interplay between self-determination, attitudes toward aging, and retirement planning. We test a moderated mediation model where attitudes toward aging mediate the relationship between self-determination and retirement planning, with this indirect effect being conditional on socioeconomic factors. A survey of 381 adults aged 55 and over was analyzed using SPSS and the PROCESS macro. Results confirm that attitudes toward aging mediate the impact of self-determination on retirement planning. This mediation is moderated by socioeconomic status; higher monthly income enhances the positive effect of self-determination on aging attitudes, suggesting financial resources foster a more autonomous approach to aging. Conversely, occupation type negatively moderates retirement planning, implying that factors like high workload or adverse pension systems can impede preparation. These findings underscore the need for policies that account for individual and socioeconomic diversity to improve older adults' retirement well-being. |
| <b>Keywords</b> | Self-Determination, Attitudes Toward Aging, Retirement Planning, Older Adults   |

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## 1. Introduction

The accelerating trends of global population aging and declining fertility have raised pressing concerns regarding the quality of life and social participation of older adults. Aging is not only associated with increased demands for healthcare and long-term care, but also profoundly impacts pension systems, labor markets, and intergenerational relationships. Retirement, as a major life transition marking the end of one's career and the reorganization of daily life, plays a pivotal role in shaping economic security, psychological well-being, and social integration. Consequently, comprehensive retirement planning has become essential in addressing the challenges of an aging society.

Taiwan is experiencing one of the fastest aging processes in the world. According to the [National Development Council \(2024\)](#), Taiwan will enter a super-aged society in 2025, with older adults aged 65 and above comprising over 20% of the total population. By 2070, this proportion is projected to reach 46.5%, with the share of the ultra-aged population (85 years and above) increasing substantially. Such demographic shifts highlight the urgent need to prepare for unprecedented demands in retirement planning and resource allocation.

Previous research has identified multiple determinants of retirement planning, including financial literacy ([Lusardi & Mitchell, 2014](#)), health status ([Smith, 2004](#)), and work-family conditions ([Wang & Shultz, 2010](#)). In recent years, however, psychological factors have emerged as critical drivers of retirement behavior. For example, individuals' attitudes toward aging and their sense of self-efficacy have been shown to influence the likelihood of engaging in proactive retirement planning ([Topa et al., 2009](#)). Self-determination theory offers a robust framework for understanding intrinsic motivation in this context, while attitudes toward aging may serve as a key mediating mechanism linking self-determination to retirement planning.

Against this backdrop, the present study focuses on older adults in Taiwan and develops a moderated mediation model to examine how self-determination influences retirement planning through attitudes toward aging, while also investigating the moderating role of socioeconomic factors in this psychological pathway. By situating the research within Taiwan's socio-demographic context, this study aims to provide localized, evidence-based insights that can inform retirement policies, financial education, and support services for older adults.

The contribution of this study lies in integrating perspectives from psychology and gerontology to construct a refined theoretical framework explaining retirement planning decisions. Furthermore, by incorporating socioeconomic factors as moderators, this study addresses potential contextual variations, offering implications for government agencies, non-profit organizations, and financial institutions seeking to design targeted interventions and promote active aging.

## 2. Literature Review

### 2.1 Retirement Planning

The extension of average life expectancy and the aging of population structures have significantly increased the proportion of the life course dedicated to retirement ([Adams & Rau, 2011](#)). This global and irreversible trend profoundly impacts both individual lives and societal systems. Effective retirement planning is not only crucial for enhancing quality of life in later years but also for alleviating the pressure on national social security systems. In response to this challenge, some nations have implemented policy measures such as delaying the statutory retirement age. However, retirement itself is a complex process involving the interplay of multiple variables, including health, finances, and social connections.

Retirement Planning refers to the systematic preparation an individual undertakes for post-employment life, encompassing multiple domains such as financial security, physical and mental health, social relationships, and life goals ([Hershey, Jacobs-Lawson, et al., 2007](#)). The concept is rooted in future-oriented behavior, emphasizing the need for individuals to formulate coping strategies based on their expectations for the future and an assessment of their current circumstances.

According to the integrated model proposed by ([Hershey et al. \(2007\)](#)), the drivers of retirement planning can be categorized into three types: (1) Motivational Factors, such as future time perspective and goal setting; (2) Ability Factors, including financial knowledge, health status, and resource accessibility; and (3) Opportunity Factors, such as social support, the institutional environment, and workplace conditions. This model also posits that an individual's

Retirement Self-Efficacy and long-term time perspective are critical psychological drivers for engaging in preparatory behaviors (Noone, Stephens, & Alpass, 2010).

Feldman and Beehr (2011) emphasize that retirement is not a singular event but a longitudinal transition process involving psychological adjustment, shifts in social roles, and the restructuring of one's lifestyle. Therefore, the focus of planning should not be confined to financial arrangements but must also address the individual's internal construction of their desired retirement life and the repositioning of personal values.

Recent research has integrated different fields and adopted multiple perspectives to explore the dynamic process and complex determinants of retirement planning (Noone et al., 2022; Wang & Huang, 2024). For instance, a review by Wang and Huang (2024) focuses retirement psychology on four main themes—planning, decision-making, bridge employment, and adjustment—highlighting the intricate impact of the organizational environment and uncertainty on decisions. Empirical research by Noone et al. (2022) found that health, income, and positive retirement attitudes are key predictors of planning behavior, with financial planning playing a mediating role that significantly and positively affects overall post-retirement well-being. Collectively, these studies underscore the complexity of retirement preparation and establish the central role of financial planning in promoting well-being in old age.

Furthermore, an individual's socioeconomic status, health, family support, and even living environment influence their choices regarding senior housing, a decision that is an integral part of overall retirement planning and quality of life (Adams & Rau, 2011). In summary, retirement planning provides a multidimensional analytical framework for understanding how middle-aged and older adults prepare for later life. It is not only essential for promoting "Successful Aging" but also offers theoretical and practical guidance for the retirement transition process. As Hamm et al. (2019) stated, while retirement may bring a sense of loss of professional value, it also opens up opportunities for individuals to reinvest in family and self-realization. Therefore, assisting older adults in rebuilding a sense of meaning in life and strengthening self-affirmation after retirement is key to enhancing their life satisfaction in later years.

## 2.2 Self-Determination and Retirement Planning

Self-Determination Theory (SDT), as proposed by Deci and Ryan (2000), posits that the *quality* of an individual's motivation is more critical than its *quantity*. The theory identifies three fundamental and universal psychological needs: autonomy, competence, and relatedness. When these needs are satisfied, individuals are better able to foster intrinsic motivation, thereby enhancing psychological well-being and promoting self-growth (Deci & Ryan, 2000). In its most profound sense, SDT reflects the essence of human flourishing and is predictive of numerous indicators of health and vitality (Ryan & Deci, 2017).

Autonomy refers to the experience of volition, willingness, and self-endorsement, conveying a sense of ownership over one's actions.

Competence involves feeling effective in one's interactions within the social environment and having opportunities to express and develop one's capabilities and skills.

Relatedness pertains to the experience of being connected to, and cared for by, others, and having a sense of belonging. SDT asserts that individuals are inherently active and develop naturally through integrative processes (Deci & Ryan, 2004). These needs are innate, evolve over time, play a central role in learning, and are influenced by the social context (Deci & Ryan, 2012). In essence, SDT emphasizes that people's actions are driven by their own pursuits rather than by external pressures or demands.

When these three needs are met, individuals are more likely to generate intrinsic motivation and exhibit sustained, high-quality behaviors. This theoretical framework offers significant insights for understanding and promoting retirement planning. Retirement planning is not merely a financial preparation but also encompasses psychological adaptation, lifestyle arrangement, and identity transformation. From an SDT perspective, when individuals feel a sense of autonomy in their planning process, possess the competence to effectively manage their future retirement, and maintain meaningful connections with significant others, they are more likely to demonstrate proactive planning behaviors (Deci & Ryan, 2000).

Research indicates that individuals with high autonomous motivation are more proactive in retirement planning, spontaneously setting goals and persistently engaging in preparatory actions (Noone, Stephens, & Alpass, 2010). Conversely, if planning behaviors are driven by external pressures (e.g., spousal or societal expectations), the resulting plans may be arbitrary and less sustainable. Furthermore, enhanced competence, for instance through financial literacy or career development courses, is positively correlated with proactive retirement planning behaviors

(Hershey, Jacobs-Lawson, et al., 2007). The need for relatedness suggests that family and social support can provide emotional and resource-based assistance, thereby strengthening the continuity and comprehensiveness of retirement planning (Wang & Shultz, 2010).

Blustein (2008) proposed that work can satisfy three basic needs: (a) survival, (b) relatedness, and (c) self-determination. Drawing on Alderfer's need theory and Erikson's life-cycle model of human development, Mor-Barak (1995) identified four needs that older adults can satisfy through work: (a) financial needs, (b) personal needs, (c) social needs, and (d) generative needs, with the latter referring to the need to transmit knowledge, ideas, and values to younger generations.

In recent years, SDT has been widely applied to workplace behavior (Gagné et al., 2022), but its application to retirement planning remains an emerging area of research. As a long-term, self-directed preparatory behavior, retirement planning aligns closely with the satisfaction of basic psychological needs emphasized by SDT. Therefore, incorporating SDT into retirement planning interventions can foster individuals' intrinsic motivation (Noone, Stephens, & Alpass, 2010), enhancing their capacity for proactive planning and continuous adjustment of their retirement life, ultimately leading to greater retirement satisfaction and psychological health. Based on the preceding review, the following hypothesis is proposed:

**H1: Self-determination has a significant positive influence on retirement planning.**

### 2.3 Attitudes Toward Aging, Self-Determination, and Retirement Planning

Population aging presents a formidable global challenge, profoundly impacting social structures, resource allocation, and the societal status and quality of life for older adults. Negative stereotypes, or ageism, often fuel societal prejudice and can lead to discrimination (Hsieh, 2006), such as perceiving older adults as frail, cognitively impaired, resistant to change, socially withdrawn, or economically dependent (Nelson, 2010; Levy, Ashman, & Dror, 2000). Consequently, there is an urgent need for social education to foster a more nuanced understanding—"gero-literacy"—to help the public comprehend the multifaceted nature of the aging process and dismantle biases against old age (Hsieh, 2006).

Morgan and Kunkel (2007) characterize aging as a multilevel phenomenon encompassing physiological, psychological, social, and cultural dimensions. While the physiological aspect pertains to functional decline, the psychological aspect involves emotional and cognitive adjustments. The social dimension is manifested in shifting roles and expectations, and the cultural dimension is evident in the differing interpretations of old age between Eastern and Western societies. Although older adults may no longer be the sole bearers of knowledge in modern society, their life experiences and roles retain irreplaceable value (Chu et al., 2020).

Lifshitz (2002) conceptualized attitudes toward aging as comprising cognitive, affective, and behavioral components, which correspond to the constructs of aging cognition, aging-related feelings, and adaptation to aging, respectively. This tripartite framework forms the theoretical basis for our measurement of attitudes toward aging in this study. Similarly, Chu (2015) categorized attitudes toward aging into three primary dimensions: cognitive (knowledge and specific views about aging), affective (feelings about aging), and behavioral (adaptation to old age).

In response to the ongoing demographic transition characterized by population aging and the growing tendency to postpone retirement, how individuals plan for their retirement has become a critical focus of interdisciplinary research. Among various theoretical frameworks, Self-Determination Theory (SDT) provides a vital lens for understanding the origins of individual motivation. SDT posits that when the three fundamental psychological needs—autonomy, competence, and relatedness—are satisfied, individuals are more likely to develop intrinsic motivation and integrated forms of extrinsic motivation, leading them to engage in persistent and self-directed behaviors (Deci & Ryan, 2000). In the context of retirement, individuals with a high degree of self-determination are more inclined to proactively plan for their future, including financial arrangements, health management, and social engagement.

However, the relationship between self-determination and actual retirement planning behavior is not a direct linear one; it is likely influenced by mediating and moderating factors. Among these, Attitudes toward Aging is considered a key mediating variable. If an individual holds a positive evaluation of later life—for instance, viewing aging as a period of growth, autonomy, and interpersonal fulfillment—they are more likely to translate their intrinsic motivation into proactive retirement preparation (Levy, 2003). Conversely, if they perceive old age as a stage fraught with decline and dependency, their propensity for action may be inhibited, even if they possess some degree of intrinsic motivation. Therefore, this study proposes the following hypothesis:

**H2: Self-determination has a significant positive influence on attitudes toward aging.**

Furthermore, attitudes toward aging are likely to influence an individual's retirement preparation behaviors directly. When individuals hold positive attitudes, viewing their later years as a time of autonomy, freedom, and rich life experiences, they are more inclined to actively prepare for retirement, including early financial savings and planning (Topa et al., 2009). In contrast, negative perceptions of aging, such as fears of health deterioration or social isolation, may lead to the delay or avoidance of retirement planning. Thus, attitudes toward aging play a crucial predictive role in retirement behavior. Accordingly, this study posits:

**H3: Attitudes toward aging have a significant positive influence on retirement planning**

Considering the mediating structure of psychological processes, attitudes toward aging may serve as a critical bridge between self-determination and retirement planning. That is, individuals with a higher degree of self-determination, driven by intrinsic motivation and goal orientation, are more likely to cultivate a positive outlook on aging, which in turn manifests in their actual retirement planning behaviors. This process aligns with the well-established "motivation-attitude-behavior" model in psychology (Ajzen, 1991) and is consistent with the "intention-to-action" mechanism in the retirement decision-making model proposed by Feldman and Beehr (2011). This leads to the following mediation hypothesis (see Figure 1):

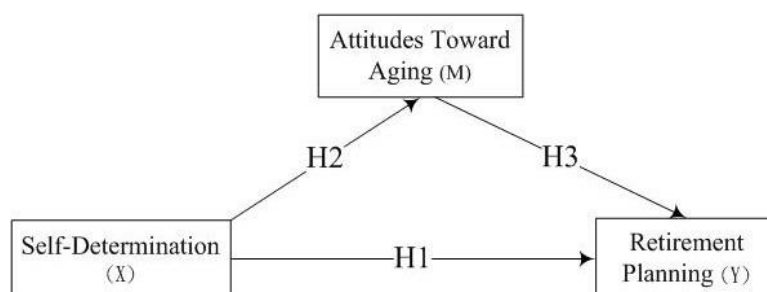
**H4: Attitudes toward aging mediate the relationship between self-determination and retirement planning.**

Figure 1. Mediation Model

In summary, this study integrates Self-Determination Theory, attitudes toward aging, and retirement planning to construct a motivation-cognition-action theoretical framework. Specifically, an individual's level of self-determination (motivational source) influences their attitudes toward aging (psychological cognition), which in turn predicts their retirement planning behaviors (actional outcome). Furthermore, socioeconomic factors (e.g., monthly income, occupation) may moderate these pathways, reflecting the facilitating or constraining effects of external resources on these psychological processes.

## 2.4 The Moderating Role of Socioeconomic Factors

When investigating the influence of independent variables on outcomes, failing to account for the moderating effects of socioeconomic factors can lead to a biased understanding of the phenomenon and diminish a study's external validity. In the study of psychological processes and behavioral outcomes, Socioeconomic Factors is often a critical contextual moderator, significantly shaping how individuals interpret and respond to life events.

Retirement is a pivotal life transition, and the quality of adjustment has profound implications for both individual well-being and societal development (Wang et al., 2011). This study focuses on two key socioeconomic factors—monthly income and occupation—to examine how they moderate the mechanisms through which self-determination and attitudes toward aging influence retirement planning.

The Resource-Based Dynamic Perspective (Wang et al., 2011) posits that retirement adjustment is a process that fluctuates with an individual's resources, including health, quality of life, and financial condition. Similarly, Noone et al. (2021) conceptualize retirement planning as a goal-oriented behavior aimed at promoting health, financial stability, and a fulfilling life, positioning it as a "transition variable" that helps individuals prepare and accumulate resources before retirement. Successful planning facilitates resource accumulation, whereas inadequate planning can lead to a resource deficit, thereby affecting adjustment outcomes.

This study first examines whether monthly income and occupation moderate the effect of self-determination on retirement planning. Self-determination reflects an individual's sense of autonomy and control. Research suggests that



high-income individuals, possessing greater economic autonomy, are better able to translate their self-determination into concrete planning actions. In contrast, even highly self-determined individuals with low income may be constrained by financial realities, impeding the implementation of their plans (Noone et al., 2021; Smith, 2004). Occupation type also holds moderating potential. White-collar professionals, often enjoying greater job flexibility and autonomy, are more likely to exhibit long-term planning and goal-oriented behaviors. Conversely, blue-collar workers, frequently constrained by work hours, physical demands, and health risks, may find their planning behaviors inhibited (Wang et al., 2011; Noone et al., 2010). This suggests that the impact of self-determination on retirement planning may differ across socioeconomic contexts. Accordingly, we propose the following hypotheses:

**H5-1: Monthly income moderates the relationship between self-determination and retirement planning.**

**H5-2: Occupation moderates the relationship between self-determination and retirement planning.**

Furthermore, attitudes toward aging are a crucial psychological factor influencing retirement planning. Generally, individuals with positive attitudes are more likely to engage in multifaceted retirement planning, covering financial, lifestyle, and psychosocial domains (Noone et al., 2021). However, this positive effect may also be moderated by monthly income. High-income individuals, with sufficient economic capacity, can more readily translate positive aging attitudes into diverse planning activities, such as travel arrangements or long-term care plans. Low-income individuals, despite positive attitudes, may find their planning efforts thwarted by limited resources (Smith, 2004). Occupation may also moderate the link between aging attitudes and planning. Professional work, often associated with stronger social connections and diverse life experiences, may better facilitate the translation of positive attitudes into comprehensive post-retirement preparation. In contrast, jobs that are monotonous or have weaker social ties may limit this translation effect (Noone et al., 2021). To clarify the moderating mechanisms of these contextual factors, we propose:

**H6-1: Monthly income moderates the relationship between attitudes toward aging and retirement planning.**

**H6-2: Occupation moderates the relationship between attitudes toward aging and retirement planning.**

In summary, retirement planning is influenced not only by psychological variables like self-determination and attitudes toward aging but is also profoundly shaped by an individual's socioeconomic environment. By investigating the moderating roles of monthly income and occupation, this study aims to elucidate the operational mechanisms under different socioeconomic conditions. This will provide an empirical basis for developing more precise and universally applicable retirement policies and intervention strategies tailored to older adults. The inclusion of these interaction effects will allow for a more nuanced understanding of the dynamic relationships among self-determination, attitudes toward aging, and retirement planning, thereby enhancing the theoretical precision and practical explanatory power of our model (as depicted in Figure 2).

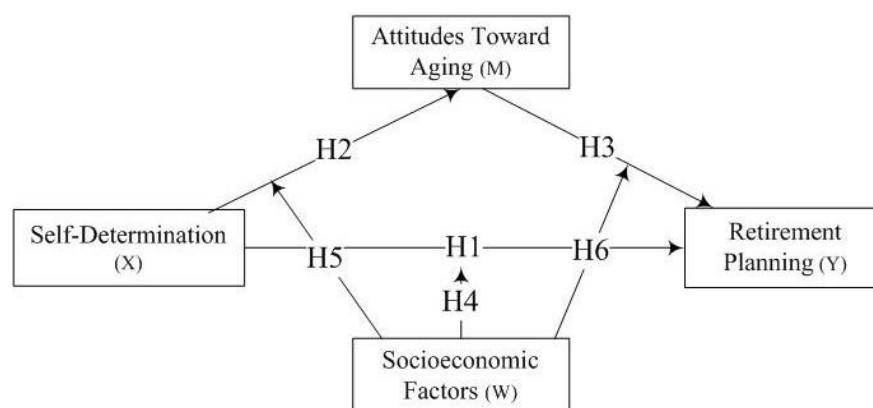


Figure 2 Moderated Mediation Model

### 3. Research Methodology

This study investigates the influence of self-determination, attitudes toward aging, and socioeconomic factors on retirement planning among adults aged 55 and older. Employing a quantitative survey methodology, the research was designed to empirically test a series of hypotheses derived from the theoretical framework established in the preceding

literature review. The study's architecture, informed by a comprehensive synthesis of established theories and prior research, provides a structured approach to examining the complex interplay of these variables.

### 3.1 Participants and Procedure

A convenience sampling strategy was employed for this study. An online questionnaire, created using Google Forms, was distributed through the messaging application LINE to target adults aged 55 and older. To ensure all participants met the age criteria, an initial screening question was included.

A two-stage data collection process was implemented. First, a pilot test was conducted between June 19 and June 20, 2024, yielding 60 responses. Based on an analysis of the pilot data, items with low discriminant validity were removed to refine the instrument. The formal data collection then took place from July 4 to July 21, 2024. A total of 425 questionnaires were returned. After screening for and removing 44 invalid or incomplete entries, a final sample of 381 valid responses was obtained, representing an effective response rate of 90%.

The final sample consisted predominantly of women (78.5%). The age distribution was as follows: 55–59 (14.4%), 60–64 (27.8%), 65–69 (20.5%), 70–74 (28.4%), and 75 or older (8.9%). A majority of participants were married or cohabiting (68.1%) and had attained a university degree or higher (85.3%). In terms of employment, 73.8% of the sample were retired. The most common occupational background was in civil service, military, or teaching (42.0%). A slight majority (50.9%) reported their health as good, with an additional 8.4% reporting it as very good.

### 3.2 Measures

All constructs were measured using items rated on a 7-point Likert-type scale, ranging from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*).

(a) Self-Determination. To assess the degree of self-determination in the context of retirement planning, this study adapted a 9-item scale from [Chu \(2020\)](#), which is grounded in Self-Determination Theory ([Deci & Ryan, 2000](#)). The scale comprises three subscales (three items each): Autonomy (e.g., "I feel I am free to make my own choices"), Competence (e.g., "I am confident in my ability to achieve the goals I set for myself"), and Relatedness (e.g., "I feel close to the people who are important to me"). Higher scores indicate a greater degree of self-determination.

(b) Attitudes toward Aging. To measure participants' attitudes toward aging, a 9-item scale adapted from [Chu \(2015\)](#) was used. The scale consists of three subscales (three items each): Aging Cognition (e.g., "I embrace the concept of lifelong learning"), Affective Response to Aging (e.g., "I feel that my life is meaningful"), and Adaptation to Aging (e.g., "I can maintain my health through physical exercise"). Higher scores reflect more positive attitudes toward aging.

(c) Retirement Planning. The extent of retirement planning was measured using a 9-item scale adapted from [Chu \(2014\)](#). This instrument includes three subscales (three items each): Financial Planning (e.g., "I believe retirement planning is important"), Activity Planning (e.g., "I have regular leisure activities"), and Pension Planning (e.g., "I have the financial capacity to support my post-retirement needs"). Higher scores indicate a greater degree of engagement in retirement planning activities.

### 3.3 Reliability and Validity Analysis

The psychometric properties of the scales were assessed to ensure their suitability for this study. First, the appropriateness of the data for factor analysis was confirmed. For the Self-Determination scale, the [Kaiser \(1974\)](#)-Meyer-Olkin (KMO) measure of sampling adequacy was .894, and Bartlett's test of sphericity was significant,  $\chi^2(36) = 2112.948, p < .001$ . For the Attitudes toward Aging scale, the KMO was .908, and Bartlett's test was significant,  $\chi^2(36) = 1983.626, p < .001$ . For the Retirement Planning scale, the KMO was .893, and Bartlett's test was significant,  $\chi^2(36) = 1459.580, p < .001$ . These results indicate that the data were well-suited for factor analysis.

Furthermore, the internal consistency of each scale was evaluated using Cronbach's alpha. All scales demonstrated excellent reliability: Self-Determination ( $\alpha = 0.901$ ), Attitudes toward Aging ( $\alpha = 0.903$ ), and Retirement Planning ( $\alpha = 0.864$ ). As all alpha coefficients exceeded the conventional .70 threshold, the measures were deemed to possess strong internal consistency for the current sample.

**Table 1: Summary of Reliability and Validity Analysis Results for the Formal Questionnaire**

| Variable               | KMO   | Bartlett's test of sphericity |    | Cronbach's $\alpha$ |
|------------------------|-------|-------------------------------|----|---------------------|
|                        |       | chi-square approximation      | df |                     |
| Self-Determination     | 0.894 | 2112.948***                   | 36 | 0.901               |
| Attitudes Toward Aging | 0.908 | 1983.626***                   | 36 | 0.903               |
| Retirement planning    | 0.893 | 1459.580***                   | 36 | 0.864               |

\*\*\* $P < 0.001$ 

### 3.4 Data Analysis Strategy: Mediation and Moderation Models

This study utilized SPSS for descriptive statistics and correlation analyses. The hypothesized mediation and moderated mediation models were tested using the PROCESS macro v4.2 for SPSS (Hayes, 2022). Specifically, Model 4 was used to test the simple mediation model, while Model 59 was employed to examine the moderated mediation model. A bootstrapping procedure with 5,000 resamples was used to estimate parameters and generate 95% confidence intervals (CIs) for all effects.

The analysis aimed to determine whether attitudes toward aging mediate the relationship between self-determination and retirement planning, and subsequently, whether this mediation process is moderated by socioeconomic factors. As the proposed moderators (monthly income, occupation) were categorical, they were dummy-coded for regression analysis. To facilitate a more powerful and interpretable analysis of the interaction effects, multi-category variables were dichotomized based on practical significance and sample distribution. Specifically, monthly income was collapsed into two groups: "below NT40,000" and "NT40,000 and above." Occupation was similarly collapsed into "military, civil service, or teaching" and "service industry."

## 4. Results

### 4.1 Inter-Variable Correlations

Descriptive statistics and Pearson correlations are presented in Table 2. Monthly income was positively associated with retirement planning, whereas occupation was negatively associated with self-determination and retirement planning. Self-determination was also positively associated with aging attitudes and retirement planning.

**Table 2: Descriptive Statistics and Correlation Analysis (N=381)**

|                          | Mean | S. D  | 1        | 2       | 3       | 4       | 5 |
|--------------------------|------|-------|----------|---------|---------|---------|---|
| 1 Monthly income         | 2.71 | 1.216 | 1        |         |         |         |   |
| 2 Occupation             | 2.86 | 1.897 | -0.266** | 1       |         |         |   |
| 3 Self-Determination     | 6.09 | 0.581 | 0.023    | -0.121* | 1       |         |   |
| 4 Attitudes Toward Aging | 6.34 | 0.535 | 0.026    | -0.093  | 0.710** | 1       |   |
| 5 Retirement planning    | 5.74 | 0.771 | 0.133**  | -0.120* | 0.522** | 0.585** | 1 |

\* $P < 0.05$ , \*\* $P < 0.01$ 

### 4.2 The Mediating Effect of Attitudes Toward Aging

To test the hypothesis that attitudes toward aging mediate the relationship between self-determination and retirement planning, we conducted a mediation analysis using Model 4 of the PROCESS macro for SPSS. A bootstrapping procedure with 5,000 resamples was employed to generate 95% bias-corrected confidence intervals (CIs) for the estimation of the indirect effect.



As presented in Table 3 and Figure 3, the results indicated a significant and positive total effect of self-determination on retirement planning (path *c*),  $\beta=0.287$ ,  $p<0.001$ , 95% CI [0.136, 0.439]. As the confidence interval did not contain zero, Hypothesis 1 was supported.

Next, the individual paths of the mediation model were examined. Self-determination was a significant positive predictor of attitudes toward aging (path *a*),  $\beta=0.653$ ,  $p<0.001$ , 95% CI [0.588, 0.719], supporting Hypothesis 2. In turn, attitudes toward aging significantly predicted retirement planning (path *b*),  $\beta=0.622$ ,  $p<0.001$ , 95% CI [0.457, 0.787], which supports Hypothesis 3. After controlling for the mediator, the direct effect of self-determination on retirement planning (path *c*) remained significant,  $\beta=0.287$ ,  $p<0.001$ , 95% CI [0.136, 0.439].

Finally, the bootstrap analysis confirmed a significant positive indirect effect of self-determination on retirement planning through attitudes toward aging (Indirect Effect = 0.406, 95% Bootstrapped CI [0.251, 0.562]). As the confidence interval for this indirect effect did not include zero, Hypothesis 4 was supported. This finding indicates that attitudes toward aging partially mediate the relationship between self-determination and retirement planning. An analysis of the effect decomposition, as shown in Table 4, revealed that this indirect effect accounted for 58.59% of the total effect, highlighting its substantial role as a mediating mechanism.

**Table 3 Mediation Effect Analysis Table**

|                        | Attitudes Toward Aging |            |              | Retirement planning |            |              |
|------------------------|------------------------|------------|--------------|---------------------|------------|--------------|
|                        | $\beta$                | se         | Boot95%CI    | $\beta$             | se         | Boot95%CI    |
| Self-Determination     | 0.653***               | 0.033      | 0.588, 0.719 | 0.287***            | 0.077      | 0.136, 0.439 |
| Attitudes Toward Aging |                        |            |              | 0.622***            | 0.084      | 0.457, 0.787 |
| R <sup>2</sup>         |                        | 0.504      |              |                     | 0.365      |              |
| Adjusted R-squared     |                        | 0.502      |              |                     | 0.362      |              |
| F                      |                        | 384.405*** |              |                     | 108.787*** |              |

\*\*\*P<0.001

**Table 4 : Total Effect, Direct Effect, and Mediate Effect Analsis Table**

|                 | Effect | SE    | LLCI  | ULCI  | Percentage |
|-----------------|--------|-------|-------|-------|------------|
| Total Effect    | 0.693  | 0.058 | 0.579 | 0.808 |            |
| Direct Effect   | 0.287  | 0.077 | 0.136 | 0.439 | 41.41%     |
| Indirect Effect | 0.406  | 0.080 | 0.251 | 0.562 | 58.59%     |

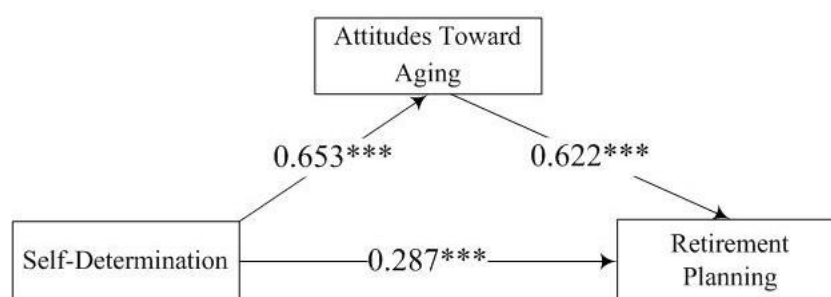


Figure 3 Mediation Effect Analysis

#### 4.3 Analysis of Moderated Mediation by Socioeconomic Factors

This study employed a moderated mediation model to investigate whether the indirect effect of self-determination on retirement planning through attitudes toward aging is conditional on socioeconomic factors, namely monthly income and occupation. The results for each moderator are presented below.

### 4.3.1 Moderated Mediation Analysis with Monthly Income

To test Hypotheses H5-1 and H6-1, we examined whether monthly income moderates the indirect pathway. Specifically, we tested for moderation in the first stage of the mediation model (i.e., the effect of self-determination on attitudes toward aging; path *a*) and the second stage (i.e., the effect of attitudes toward aging on retirement planning; path *b*). The results are detailed in Table 5 and depicted in Figure 4.

The analysis first confirmed the underlying mediation pathway after controlling for the moderator. Self-determination remained a significant positive predictor of attitudes toward aging ( $B=0.391$ ,  $p<0.001$ ), and attitudes toward aging significantly predicted retirement planning ( $\beta=0.928$ ,  $p<0.001$ ).

Regarding the moderation tests, the interaction term between self-determination and monthly income was a significant predictor of attitudes toward aging ( $\beta=0.179$ ,  $P<0.01$ , 95% CI [0.049, 0.309]). This result indicates that monthly income significantly moderates the first stage of the mediation path (path *a*). This finding provides partial support for Hypothesis H5-1, suggesting the effect of self-determination on attitudes toward aging is conditional on an individual's income level.

However, the interaction term between attitudes toward aging and monthly income did not significantly predict retirement planning ( $\beta=-0.212$ ,  $p>0.05$ , 95% CI [-0.553, 0.129]). This indicates that monthly income does not moderate the second stage of the mediation path (path *b*). Therefore, Hypothesis H6-1 was not supported.

**Table 5 Analysis of the effect of moderating mediation of monthly income**

|                                     | Attitudes Toward Aging |         |                | Retirement planning |        |               |
|-------------------------------------|------------------------|---------|----------------|---------------------|--------|---------------|
|                                     | $\beta$                | se      | Boot95%CI      | $\beta$             | se     | Boot95%CI     |
| Self-Determination                  | 0.391***               | 0.103   | 0.189, 0.593   | 0.127               | 0.231  | -0.328, 0.581 |
| Attitudes Toward Aging              |                        |         |                | 0.928***            | 0.254  | 0.429, 1.426  |
| monthly income                      | -1.127**               | 0.405   | -1.924, -0.330 | 0.801               | 0.770  | -0.713, 2.314 |
| Self-Determination x monthly income | 0.179**                | 0.066   | 0.049, 0.309   |                     |        |               |
| Self-Determination x monthly income |                        |         |                | 0.116               | 0.161  | -0.200, 0.433 |
| Aging Attitude x Monthly Income     |                        |         |                | -0.212              | 0.174  | -0.553, 0.129 |
| R <sup>2</sup>                      |                        | 0.514   |                |                     | 0.379  |               |
| F                                   |                        | 132.975 |                |                     | 45.823 |               |

\*\* $P<0.01$ , \*\*\* $P<0.001$

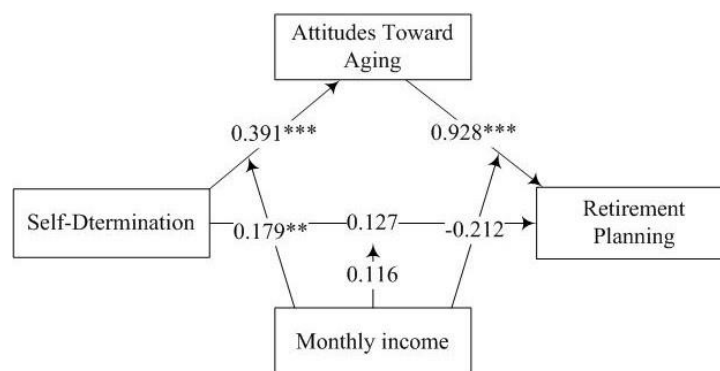


Figure 4 Reconciliation mediation model diagram of monthly income

#### 4.3.2 Moderated Mediation Analysis with Occupation

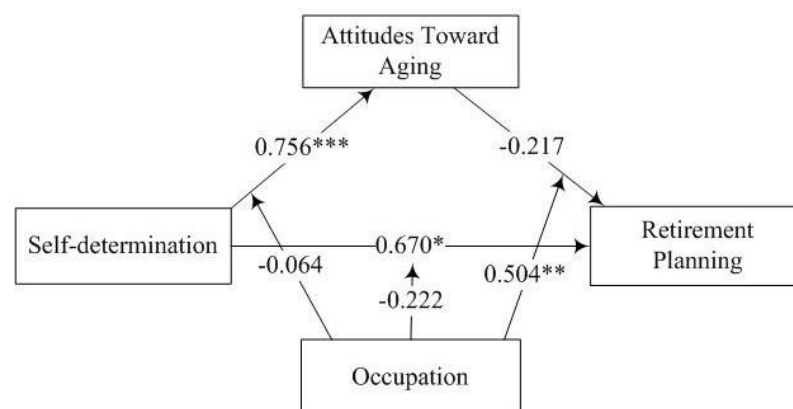
To further test the boundary conditions of the model, we examined the moderating role of occupation in the mediation pathway, addressing Hypotheses H5-2 and H6-2. The results of this analysis are presented in Table 6 and Figure 5. The analysis revealed that self-determination had a significant positive effect on attitudes toward aging ( $\beta=0.756, p<0.001$ ). However, when controlling for occupation, the main effect of attitudes toward aging on retirement planning was not significant ( $\beta=-0.217, p>0.05$ ). Regarding the moderation tests, the interaction between self-determination and occupation did not significantly predict attitudes toward aging ( $\beta=-0.064, p>0.05$ ). This indicates that the first stage of the mediation pathway (path *a*) is not moderated by occupation. Therefore, Hypothesis H5-2 was not supported.

Crucially, the interaction term between attitudes toward aging and occupation was a significant predictor of retirement planning ( $\beta=0.504, p<0.01, 95\% \text{ CI } [0.154, 0.854]$ ). This result demonstrates that occupation significantly moderates the second stage of the mediation pathway (path *b*). Although the main effect of attitudes toward aging was non-significant, its effect on retirement planning is conditional upon an individual's occupation. This finding provides strong support for Hypothesis H6-2.

**Table 6 Analysis of the mediating effect of occupation**

|                                 | Attitudes Toward Aging |         |               | retirement planning |        |                |
|---------------------------------|------------------------|---------|---------------|---------------------|--------|----------------|
|                                 | $\beta$                | se      | Boot95%CI     | $\beta$             | Se     | Boot95%CI      |
| Self-Determination              | 0.756***               | 0.114   | 0.531, 0.980  | 0.670*              | 0.281  | 0.117, 1.224   |
| Attitudes Toward Aging          |                        |         |               | -0.217              | 0.309  | 0.826, 0.391   |
| Occupation                      | 0.400                  | 0.419   | -0.424, 1.225 | -1.870              | 0.788  | -3.420, -0.321 |
| Self-determination x Occupation | -0.064                 | 0.068   | 0.198, 0.071  |                     |        |                |
| Self-determination x Occupation |                        |         |               | -0.222              | 0.163  | -0.542, 0.098  |
| Aging attitude x Occupation     |                        |         |               | 0.504**             | 0.178  | 0.154, 0.854   |
| R <sup>2</sup>                  |                        | 0.505   |               |                     | 0.381  |                |
| F                               |                        | 128.102 |               |                     | 46.108 |                |

\* $P<0.05$ , \*\* $P<0.01$ , \*\*\* $P<0.001$



**Figure 5 Moderating mediation model of occupations**

This study also examined the moderating effects of socioeconomic factors on the relationship between self-determination and attitudes toward aging (H5-1 and H5-2), and on the relationship between attitudes toward aging and retirement planning (H6-1 and H6-2). The results revealed distinct conditional effects. Specifically, monthly income was found to significantly moderate the effect of self-determination on attitudes toward aging, as indicated by the significant interaction term ( $B=0.179, p<.01$ ). In contrast, occupation significantly moderated the effect of attitudes toward aging on retirement planning, with its interaction term also reaching significance ( $B=0.504, p<.01$ ).

These findings demonstrate that the psychological process linking self-determination to retirement planning is indeed contingent upon individuals' background conditions. For future policy design, these results underscore the importance of considering both economic and career-related factors to enhance the efficacy of retirement preparation initiatives.

## 5. Conclusion and Implications

### 5.1 Conclusion

This study aimed to investigate the influence of self-determination and attitudes toward aging on the retirement planning of older adults, further examining the moderating role of socioeconomic factors, namely monthly income and occupation. The findings contribute to a deeper understanding of the psychological processes underlying retirement behavior. They align with existing literature suggesting that retirement planning is a crucial mechanism through which individuals can effectively leverage their pre-retirement resources—including socioeconomic status, psychological states, and health—to achieve better post-retirement outcomes.

First, the results revealed a significant positive effect of self-determination on retirement planning. This indicates that individuals with higher intrinsic motivation are more inclined to proactively plan for their retirement across financial, social, and leisure domains. This finding is consistent with the core tenets of Self-Determination Theory (SDT), which posits that the satisfaction of basic psychological needs for autonomy, competence, and relatedness fosters greater behavioral initiative and a stronger propensity for long-term goal planning (Deci & Ryan, 2000).

Second, this study confirmed that attitudes toward aging partially mediate the relationship between self-determination and retirement planning. Older adults who possess more positive attitudes toward aging are more likely to engage in proactive retirement preparation. This result resonates with research on age stereotypes and self-perceptions of aging, which shows that a positive outlook on aging promotes health-promoting behaviors and life planning, thereby positively influencing quality of life in later years (Levy, 2003).

Furthermore, the moderating roles of socioeconomic factors were significant and nuanced. Monthly income was found to moderate the effect of self-determination on attitudes toward aging. This suggests that when economic resources are more abundant, individuals can approach the aging process with a greater sense of autonomy, which in turn facilitates more positive attitudes (Kim & Moen, 2002). Moreover, occupation moderated the relationship between attitudes toward aging and retirement planning. This finding implies that for certain professions, perhaps those with high work-related identity or less favorable pension structures, a positive attitude toward aging may not translate as effectively into concrete planning behaviors.

In sum, this study delineates the dynamic interplay among self-determination, attitudes toward aging, and retirement planning. It illuminates how the psychological mechanisms and behavioral tendencies of older adults differ across various background conditions, offering valuable insights for future theoretical development and policy implementation.

### 5.2 Practical Implications

Our findings, which align with the conclusions of Noone, Stephens, and Alpass (2022), reveal that promoting positive attitudes toward retirement has substantial practical implications. We recommend a dual-level approach, targeting both governmental policy and organizational practice, to construct a more inclusive retirement support system in an aging society.

At the governmental level, retirement planning should be integrated as a core component of national aging policies. This includes promoting comprehensive retirement education programs that encompass psychological well-being, financial management, health promotion, and social connectivity. To address the psychological dimension specifically, multifaceted strategies such as media campaigns, educational interventions, and community advocacy should be employed to foster a positive societal perception of aging, thereby empowering older adults to navigate this life transition proactively.

At the organizational level, employers should cultivate supportive work environments by offering flexible work arrangements, opportunities for professional development, and phased retirement options to facilitate a smoother transition. Furthermore, for employees with fewer resources, such as those with low income or in physically demanding jobs, organizations should provide targeted retirement counseling and planning tools to mitigate the psychological stress and preparatory barriers associated with this transition.

Finally, we suggest that industry stakeholders actively develop services for the aging population that integrate health promotion, psychological support, and lifelong learning to meet diverse retirement needs. The design of future long-term care services, should also consider the influence of aging attitudes and self-determination on service acceptance to enhance the appropriateness and uptake of these offerings.

### 5.3 Limitations and Future Research Directions

While this study provides initial insights, several limitations should be acknowledged. First, the sample was drawn from individuals aged 55 and above residing in Taiwan, which may limit the generalizability of our findings to other populations and age cohorts. Second, the cross-sectional design precludes definitive causal inferences regarding the relationships among variables over time. To address these limitations, future research could advance this line of inquiry in several directions. Longitudinal studies using larger, more culturally diverse samples are needed to establish causality and enhance external validity. Adopting qualitative or mixed-methods approaches would also offer a richer understanding of the lived experiences behind older adults' retirement planning processes.

Furthermore, future models could be expanded to incorporate additional potential mediators and moderators, such as social support, health status, family structure, and perceptions of senior housing. Investigating the role of emerging technologies, such as artificial intelligence in senior care services, also presents a promising avenue for inquiry. Collectively, such research would provide a more robust evidence base to inform policy and guide the development of innovative services for an aging population.

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### References

- Adams, G. A., & Rau, B. L. (2011). Putting off tomorrow to do what you want today: planning for retirement. *American Psychologist*, 66(3), 180-192
- Adler, N. E., Boyce, T., Chesney, M. A., Cohen, S., Folkman, S., Kahn, R. L., & Syme, S. L. (1994). Socioeconomic status and health: the challenge of the gradient. *American psychologist*, 49(1), 15-24
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179-211.
- Blustein, D. L. (2008). The role of work in psychological health and well-being: a conceptual, historical, and public policy perspective. *American psychologist*, 63(4), 228-240.
- Chu, Chia-hui (2014). A Study of Retirement Planning and Quality of Life in Taipei Area. *Master of Agriculture Thesis Department of Applied Science of Living College of Agriculture Chinese Culture University*
- Chu, Fen-Yu (2015). A case study on the attitudes towards aging of senior learners in China, Macau, Singapore and Taiwan. *Department of Social Science, National Open University*. (22) 1-27
- Chu, Po-An (2020). The Influences of Self-Determination Theory and Life of Values on Social Network Service and Subjective Well-Being: Take Taiwanese Elderly as an Example, *Department of International Business. Ming Chuan University*
- Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological inquiry*, 11(4), 227-268.
- Deci, E. L., & Ryan, R. M. (Eds.) (2004). *Handbook of self-determination research*. University Rochester Press.
- Deci, E. L., & Ryan, R. M. (2012). Self-Determination Theory. *SAGE Publications Ltd 1 Oliver's Yard 55 City Road London EC1Y 1SP*, 416-437
- Feldman, D. C., & Beehr, T. A. (2011). A three-phase model of retirement decision making. *American Psychologist*, 66(3), 193-203.

- Gagné, M., Parker, S. K., Griffin, M. A., Dunlop, P. D., Knight, C., Klonek, F. E., & Parent-Rochelleau, X. (2022). Understanding and shaping the future of work with self-determination theory. *Nature Reviews Psychology*, 1(7), 378-392.
- Hamm, J. M., Heckhausen, J., Shane, J., Infurna, F. J., & Lachman, M. E. (2019). Engagement with six major life domains during the transition to retirement: Stability and change for better or worse. *Psychology and Aging*, 34(3), 441-456.
- Hayes, A. F. (2022). Introduction to mediation, moderation, and conditional process analysis: A regression-based approach (3rd Ed.). *The Guilford Press*.
- Hershey, D. A., Jacobs-Lawson, J. M., McArdle, J. J., & Hamagami, F. (2007). Psychological foundations of financial planning for retirement. *Journal of Adult Development*, 14, 26-36.
- Kaiser, H. F. (1974). An index of factorial simplicity. *psychometrika*, 39(1), 31-36.
- Kim, J. E., & Moen, P. (2002). Retirement transitions, gender, and psychological well-being: A life-course, ecological model. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 57(3), 212-222.
- Kraus, M. W., Piff, P. K., & Keltner, D. (2011). Social class as culture: The convergence of resources and rank in the social realm. *Current directions in psychological science*, 20(4), 246-250.
- Kuang-Chuan Hsieh (2006). A Preliminary Study of University Students' Perception about Aging and Old Peoples-An Example for Help and Care Profession Departments. *Studies in the Humanities and Social Science*, (5),187-208
- Lachman, M. E., & Weaver, S. L. (1998). The sense of control as a moderator of social class differences in health and well-being. *Journal of personality and social psychology*, 74(3), 763-773.
- Levy, B. R. (2003). Mind matters: Cognitive and physical effects of aging self-stereotypes. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 58(4), 203-211
- Levy, B., Ashman, O., & Dror, I. (2000). To be or not to be: The effects of aging stereotypes on the will to live. *OMEGA-Journal of Death and Dying*, 40(3), 409-420.
- Lifshitz, H. (2002). Attitudes toward Aging in Adult and Elderly People with Intellectual Disability. *Educational Gerontology*, 28(9), 745-759
- Lusardi, A., & Mitchell, O. S. (2014). The economic importance of financial literacy: Theory and evidence. *American Economic Journal: Journal of Economic Literature*, 52(1), 5-44.
- Mor-Barak, M. E. (1995). The meaning of work for older adults seeking employment: The generativity factor. *The International Journal of Aging and Human Development*, 41(4), 325-344.
- Morgan, L. A., & Kunkel, S. R. (2007). *Aging, society, and the life course* (3rd ed). Springer Publishing Company, New York
- National Development Council (2024). Population Projections for the Republic of China (Taiwan):2024-2070
- Nelson, T. D. (2010). Ageism: The strange case of prejudice against the older you. In *Disability and aging discrimination: Perspectives in law and psychology* (pp. 37-47). New York, NY: Springer New York.
- Noone, J. H., Stephens, C., & Alpass, F. (2010). The process of retirement planning scale (PRePS): Development and validation. *Psychological Assessment*, 22(3), 520-531.
- Noone, J., Earl, J., Stephens, C., Rafalski, J., Allen, J., Alpass, F., & Topa, G. (2021). An application of the resource-based dynamic process model in the context of retirement planning. *Work, Aging and Retirement*. 8(3), 1-16
- Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. Guilford publications.
- Smith, J. P. (2004). Unraveling the SES: health connection. *Population and development review*, 30, 108-132.
- Topa, G., Moriano, J. A., Depolo, M., Alcover, C. M., & Morales, J. F. (2009). Antecedents and consequences of retirement planning and decision-making: A meta-analysis and model. *Journal of Vocational Behavior*, 75(1), 38-55.
- Wang, M., & Huang, Z. (2024). A contemporary review of employee retirement. *Current Opinion in Psychology*, 55, 101749.
- Wang, M., & Shultz, K. S. (2010). Employee retirement: A review and recommendations for future investigation. *Journal of Management*, 36(1), 172-206.
- Wang, M., Henkens, K., & Van Solinge, H. (2011). Retirement adjustment: A review of theoretical and empirical advancements. *American psychologist*, 66(3), 204-213.



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