Well-being in Retirement: Examining the Role of Retirement Resources, Moderated by Gender and Caring for Grandchildren

Phaik Nie Chin[a]
Phaik Yuet Tung[b]
Kean Siang Ch'ng[c]
Universiti Sains Malaysia

Abstract: We examined the impact of financial resources (FR), health resources (HR), social resources (SR) and psychological resources (PR) on retirement well-being (RWB) among older adults in Malaysia. Using a quantitative approach with non-probability sampling, a self-administered questionnaire was distributed to individuals aged 60 years and above, yielding 166 usable responses. Data were analysed using multivariate regression analysis based on their diverse backgrounds. The findings reveal that all four types of retirement resources significantly and positively affect RWB, with PR emerging as the strongest predictor, followed by FR. Gender moderates the relationship between FR, SR and PR, and RWB, indicating that men's RWB is more influenced by FR and PR, while women benefit more from SR, though excessive SR can lower their RWB. The moderating effect of caring of grandchildren (CG) is insignificant for most resources except PR, where non-caregivers require strong PR to achieve similar levels of RWB. The findings highlight the importance of enhancing psychological resilience, financial resilience and social support among older adults. Practical implications include promoting health and wellness programs within the private sector and developing targeted policy interventions to strengthen retirees' overall well-being and quality of life in Malaysia.

Keywords: Financial resources, health resources, psychological resources, retirement resources, retirement well-being, social resources
JEL classification: G5, G51, G510

1. Introduction

As the global population ages, the number of individuals aged 65 or older is projected to double from 761 million in 2021 to approximately 1.6 billion by 2050 (United Nations, 2023). This demographic shift has substantial implications for both public and

a   Graduate School of Business, Universiti Sains Malaysia, Minden, 11800 Penang. Email: phaikniechin@usm.my (Corresponding author)
b   Graduate School of Business, Universiti Sains Malaysia, Minden, 11800 Penang. Email: cassie.tung1@gmail.com
c   School of Social Sciences, Universiti Sains Malaysia, Minden, 11800 Penang. Email: cks@usm.my

private sectors, affecting retirement savings, healthcare expenditures, economic growth and societal well-being. In Malaysia, the ageing population is projected to transition into an "aged society" by 2044 and a "super-aged society" by 2056 (World Bank, 2020). With life expectancy rising from 65.7 years to 74.7 years (World Health Organization, 2023), ensuring that Malaysians not only live longer but also live well has become a national priority.

Well-being in later life is a multidimensional concept including financial, social and psychological dimensions. It refers not only to economic security and physical health but also to subjective satisfaction, emotional balance and social connection (Joo et al., 2023; Liu et al., 2022; Moen, 1996). Subjective well-being reflects personal perceptions of happiness and life satisfaction (Diener, 1984). Theories of subjective well-being fall into three categories: biological theories link happiness to genetics and personality, satisfaction-of-goals theories relate it to the fulfilment of needs and life goals, and mental-state theories emphasise that happiness depends on how individuals perceive and evaluate their life circumstances (Diener et al., 2018). Psychological well-being involves resilience, optimism, autonomy, hope, gratitude, self-efficacy, emotional balance, personality and a sense of purpose (Kubicek et al., 2011; Pellerin & Raufaste, 2020; Ryff, 1989), whereas phychosocial well-being refers to the development of cognitive, emotional and spiritual strengths within individuals, families and communities, fostering positive and supportive social relationships among them (Kumar, 2020). Other factors such as income, age, gender, education, employment status, marital status, religion, cultural and location will affect individual's subjective well-being (Diener et al., 2018).

In Malaysia, older adults are often challenged by declining income, chronic health conditions and weakening social connections. Despite longer life expectancy, the quality of life among older adults is uneven. The prevalence of non-communicable diseases (NCDs), such as heart disease, diabetes and cancer remains high (International Trade Administration, 2023), while 16.5% of older Malaysians experience depression, with a higher prevalence among women (56.6%) than men (43.4%) (Vanoh et al., 2016). These figures reveal significant vulnerabilities related to both physical and psychological health. Social isolation, often caused by urban migration and smaller family sizes, further worsens well-being in later life.

Based on the Minimum Retirement Age Act 2012, retirement in Malaysia is defined as the "termination of a contract of service of an employee on the ground of age". This Act applies to all Malaysians in both the private and public sectors. Effective from 1st July 2013, the minimum retirement age was increased from 55 to 60 years to align with other ASEAN countries. However, this is only a minimum requirement, employers may retain employees beyond 60 with mutual consent, depending on the individual's work performance, health and productivity. In recent years, there have been proposals to raise the minimum retirement age to 62 years due to higher living costs and longer life expectancy. According to the World Population Review (2025), Malaysia and Thailand, with a retirement age of 60, have the second lowest minimum retirement age among ASEAN countries, ahead of Indonesia (58). The Philippines ranks highest at 65, followed by Singapore (63) and Vietnam (61). In comparison, developed nations such as Hong Kong (65), Taiwan (66) and Japan (64) have higher retirement ages. Despite these

differences, the Malaysian government has no immediate plans to revise the age limit, maintaining that 60 remains adequate.

To address financial challenges among retirees, the Budget 2024, announced by YAB Prime Minister Dato' Seri Anwar Ibrahim on 13 October 2023, prioritises retirement well-being to ensure dignity and comfort for the ageing population. According to EPF Chief Executive Officer Datuk Seri Amir Hamzah Azizan, only 60% of Malaysians are currently covered under the Employees Provident Fund (EPF) or Civil Service Pension Scheme, and savings remain low, 71% of their respondents only save RM500 or less per month (RinggitPlus, 2023). Several measures were introduced or enhanced under Budget 2024, including i-Saraan, i-Sayang and i-Suri, alongside the restructuring of EPF accounts on top of the existing programmes such as i-Invest and Retirement Top-Up Savings Account. The i-Saraan incentive limit was increased from RM300 to RM500 annually, providing informal workers lifetime incentives of up to RM5,000. The i-Sayang programme now allows working wives to allocate 2% of their EFP contribution to their husbands, while i-Suri offers matching incentives of up to RM3,000 for housewives under 55 registered in e-Kasih. While these initiatives improve financial resilience, they address only one dimension of retirement well-being. Older adults also need access to healthcare, social participation and psychological support. Therefore, understanding retirement well-being (RWB) requires examining how multiple resources interact to sustain quality of life during retirement.

Past studies have shown that individual well-being depends on access to several key resources: financial (FR), health (HR), social (SR) and psychological (PR). FR allow individuals to maintain their lifestyle and avoid economic stress (Cheung et al., 2023; Shoushtari-Moghaddam et al., 2024; Sousa-Ribeiro et al., 2024). HR, including physical strength and functional ability, are vital for daily independence (Joo et al., 2023; Liu et al., 2022; Sharifi et al., 2023; Sousa-Ribeiro et al., 2024). Social resource such as support from family, friends and community enhance belonging and emotional security (Chou & Chi, 2003; Liu et al., 2022; Shang, 2020; Shin et al., 2021; Shoushtari-Moghaddam et al., 2024; Wu & Chao, 2024). Psychological resources, including resilience, coping ability and optimism, help older adults adapt to retirement transitions (Lawton et al., 2024; Löckenhoff et al., 2009; Pellerin & Raufaste, 2020; Shoushtari-Moghaddam et al., 2024; Sinha & Irala, 2024).

Although each of these resources has been studied individually, limited research has examined how they collectively influence RWB, particularly among older Malaysians. Moreover, few studies have explored how gender and social roles, such as caring for grandchildren, moderate these relationships. Gender differences are important, as men and women rely on different types of resources. Men tend to depend more on financial stability, while women draw greater strength from emotional and social connections (Austen et al., 2022; Calasanti et al., 2021; Hed et al., 2020; Kubicek et al., 2011). Similarly, caring for grandchildren can either enhance life satisfaction through emotional fulfilment or increase stress and responsibility depending on the individual's available resources (Dong et al., 2023; Shen & Yang, 2022; Wang et al., 2023).

To address these gaps, this study applies Leung and Earl (2012)'s Retirement Resources Inventory (RRI) to assess how FR, HR, SR and PR influence RWB among older Malaysians. The resource-based perspective views these domains as interdependent

and dynamic, where the availability of one resource can compensate for or amplify the effects of another. The study aimed to address three research questions. First, whether FR, HR, SR and PR positively affected RWB. This research question is to confirm the positive impact of retirement resources on RWB for older adults. Second, we examined whether the positive relationship between FR, HR, SR, PR and RWB is stronger for females compared to male. This question addressed gender differences in retirement resources and their impact on RWB of older adults. Third, we examined whether the positive relationship between FR, HR, SR, PR and RWB is stronger for retirees who are taking care of their grandchildren. This question aimed to understand how the caregiving role impacts retirement resources and well-being.

The paper is structured into six sections. Section 1 serves as an introduction, providing an overview that discusses the background, literature gap and research objective. Section 2 covers the theoretical framework, literature review, hypotheses development and research framework. Section 3 details the research methodology employed in this study. Sections 4, 5 and 6 illustrate the research findings, discussion, implications and roadmap for recommendations.

2. Related Theory, Literature Review and Hypothesis Development

2.1 Resource-based Dynamic Model

The resource-based dynamic model, derived from Hobfoll's conservation of resources theory, suggests that various retirement-related outcomes are influenced by an individual's access to diverse types of resources (Zaniboni et al., 2021). This model emphasises how individuals utilise and manage available resources to optimise well-being. Wang et al. (2011) identified key resources, such as financial stability, physical health, social networks, emotional well-being and cognitive capacities, emphasising their collective impact on post-retirement quality of life. The resource-based dynamic model views resources as multifaceted, including financial, social, physical and psychological dimensions, and stresses the dynamic interplay of these resources across different cultures and historical contexts (Hobfoll, 2002).

The quantity of overall resources directly influences retirees' abilities to navigate challenges during the transition to retirement, subsequently affecting their physical and psychological well-being. Three potential well-being paths emerge: (i) Sustained well-being if total resources remain relatively unchanged after retirement; (ii) Negative shifts if retirees experience a decline in resources, such as loss of financial support or connections with former colleagues; and (iii) Positive changes when retirees acquire additional resources post-retirement, such as forming new friendships or developing new hobbies. This holistic perspective emphasises the significance of examining the intricate dynamics of resources in shaping individual and collective well-being throughout the retirement journey.

2.2 Retirement Well-being (RWB)

Retirement well-being refers to the overall quality of life and satisfaction experienced by individuals during their retirement years. Well-being is a positive state for individuals and

societies, akin to a resource like health, shaped by social, economic and environmental factors. It encompasses aspects such as quality of life and the ability to contribute meaningfully to the world. The assessment of a society's well-being hinges on its resilience, capacity-building for action, and readiness to face challenges (World Health Organization, n.d.). Based on the positive emotion, engagement, relationships, meaning and accomplishment (PERMA) well-being model (Butler & Kern, 2016; Seligman, 2011), individuals' retirement well-being can be measured by their frequency of positive emotion, engagement in tasks, relationships with others, meaning and accomplishment in life.

RWB has been examined in many other countries in the latest studies. These studies have found significant relationships between sources of meaning in life, planning, goal disruptions (Lawton et al., 2024), resilience (Trică et al., 2024), physical, financial, structural social support, functional social support, emotional, cognitive, personal agency, and self-control resources (Odone et al., 2021; Shoushtari-Moghaddam et al., 2024), retirement transition and adjustment difficulties (Hed et al., 2024; Sousa-Ribeiro et al., 2024), importance of work centrality (Hed et al., 2024), increase of retirement age (Odone et al., 2021; Pilipiec et al., 2021) and retirement well-being. Therefore, this study investigates the relationship between retirement resources and retirement well-being (RWB) among Malaysians, addressing a gap in the current body of research.

2.3 Hypothesis Development

2.3.1 Financial Resources

Financial resources (FR) represent a key determinant of retirement well-being (RWB), encompassing post-retirement income derived from personal savings, investments, pensions and social security schemes (Leung & Earl, 2012). While earlier studies emphasise the quantitative adequacy of these resources, recent research highlights their qualitative aspects. For example, Cheung et al. (2023) found that retirees with diversified investment portfolios reported greater confidence and satisfaction in retirement, suggesting that effective financial planning enhances psychological assurance beyond mere income adequacy. Similarly, Lone and Bhat (2022) showed that financial literacy significantly improves individuals' confidence in managing FR, thereby enhancing overall financial well-being.

In contrast, Lusardi and Mitchell (2011) argued that even when income levels are sufficient, inadequate financial knowledge can undermine long-term financial security, leading to disparities in retirement satisfaction. Shoushtari-Moghaddam et al. (2024) further mentioned that FR constitutes one of the eight factors influencing RWB across countries, indicating that financial capability interacts with culture variable. Additionally, Sousa-Ribeiro et al. (2024) observed that post-retirement employment can strengthen FR and consequently, improve RWB. Thus, FR is expected to be positively associated with RWB, forming the basis of Hypothesis One (H1) as follows:

H1: Financial resources (FR) positively affect retirement well-being.

2.3.2 Health Resources

Liu et al. (2022) found that maintaining good health habits, such as regular exercise and medical check-ups, improve physical health and supports a positive retirement experience. Building on this, Sharifi et al. (2023) and Sousa-Ribeiro et al. (2024) both emphasised that being physically active and staying healthy help retirees adjust better to life after work and also protect their mental health. Joo et al. (2023) further showed that active leisure activities, such as golf or hiking, can improve lifestyle satisfaction and overall RWB.

Several studies highlight that poor physical health can reduce resilience and well-being. Shin et al. (2021), Shoushtari-Moghaddam et al. (2024) and Trică et al. (2024) noted that retirees who face health or social challenges are more likely to experience low well-being, showing that physical vulnerability plays a key role in retirement adjustment. On the other hand, Trică et al. (2024) also found that resilience helps older adults maintain well-being even when facing health difficulties. Burton et al. (2021) added that investing in one's health can improve not only physical and mental outcomes but also financial stability during retirement. Similarly, Odone et al. (2021) suggested that continuing to work after retirement may benefit mental health and overall RWB. Based on these findings, Hypothesis Two (H2) proposes that HR are positively related to RWB:

H2: Health resources (HR) positively affect retirement well-being.

2.3.3 Social Resources

Social support plays an important role in RWB because it includes meaningful relation-ships and active participation in social activities. The quality and type of support are especially important (Chou & Chi, 2003). Liu et al. (2022) found that careful planning for social activities improves life satisfaction and physical health by increasing confidence in retirement. In addition, staying socially active helps older adults build self-esteem and maintain good mental health after retirement (Wu & Chao, 2024). Shang (2020) also highlighted the importance of social engagement, such as family support, in maintaining positive mental well-being and life satisfaction in older adults.

On the other hand, a lack of social support has negative effects. Shin et al. (2021) found that social vulnerability such as isolation or weak social networks reduces well-being and resilience among retirees. Supporting this, Shoushtari-Moghaddam et al. (2024) showed that both structural support (having a social network) and functional support (receiving help and care) are essential for RWB across countries. Based on these findings, having strong social connections not only improves mental and physical health but also provides emotional stability during life transitions. Therefore, Hypothesis Three (H3) proposes that SR is positively related to RWB as follows:

H3: Social resources (SR) are positively related to retirement well-being.

2.3.4 Psychological Resources

Emotional intelligence (EI) is an important psychological resource that helps people manage emotions and adapt to change. Mayer et al. (1999) defined EI as the ability to

recognise, understand and control emotion, while Slaski and Cartwright (2002, 2003) found that high EI reduces stress and improves overall well-being. Retirees with positive personality traits, such as agreeableness and extraversion, also tend to report greater life satisfaction (Löckenhoff et al., 2009). Similarly, Pellerin and Raufaste (2020) showed that psychological strengths like hope, gratitude and self-efficacy protect against stress and support emotional stability in later life.

More recent studies support these earlier findings. Lawton et al. (2024) highlighted the role of psychological resources in reducing the negative effects of stress during retirement, and added that having life goals, a sense of meaning and good planning further enhances well-being. Sinha and Irala (2024) also showed psychological and cultural factors influence how people plan and save for retirement. Shoushtari-Moghaddam et al. (2024) identified emotional, cognitive, personal agency and self-control resources as essential parts of RWB. In summary, the research emphasised the crucial role of PR in enhancing retirees' well-being, leading to the formulation of Hypothesis Four (H4) as follows:

H4: Psychological resources (PR) are positively related to retirement well-being.

2.3.5 Moderating Effect of Gender

Past studies have shown that women often report lower retirement satisfaction than men, mainly because they tend to have lower retirement income and savings (Seccombe & Lee, 1986). Research also suggests that women rely more on social and emotional connections for support, whereas men depend more on financial resources, highlighting the importance of considering gender differences when studying retirement (Kubicek et al., 2011). Gender roles throughout life also shape health outcomes after retirement; for example, Hed et al. (2020) found that lifelong social roles influence how men and women experience health and well-being later in life.

Austen et al. (2022) observed that retirement affects men and women differently within households, with women's retirement able to reduce men's satisfaction with leisure time, while men's retirement may lower women's financial satisfaction. Calasanti et al. (2021) and Gregoire et al. (2002) reported that men generally experience higher life satisfaction after retirement, mainly because they have more financial resources and private income, which puts women at a disadvantage. Interestingly, Dong et al. (2023) found that providing grandchild care can improve life satisfaction, especially among older men in rural areas. Past studies show that retirement experiences are strongly shaped by gender. Therefore, Hypothesis Five (H5a to H5d) was developed as follows:

H5a–d: The relationship between retirement resources (FR, HR, SR and PR) and RWB is more pronounced in females than in males.

2.3.6 Moderating Effect of Caring for Grandchildren

Grandparent caregiving plays a complex role in influencing retirees' well-being. Caring for grandchildren improves life satisfaction by helping grandparents stay socially active and boosting their confidence (Shen & Yang, 2022). Similarly, both Dong et al. (2023) and Wang et al. (2023) found that caregiving experiences positively influence

grandparents' mental health and life satisfaction by reducing loneliness, enhancing self-efficacy and strengthening emotional support from their children.

However, other studies highlight potential downsides. Danielsbacka et al. (2022) observed that grandparents who live with their grandchildren tend to experience a decline in health and well-being, possibly due to greater caregiving burdens or reduced personal autonomy. Both Danielsbacka et al. (2022) and Dong et al. (2023) found that grandparents who do not live with their grandchildren report higher life satisfaction. Meanwhile, Lai et al. (2021) showed that even the expectation of becoming a grandparent can enhance happiness, resilience and perceived physical health. Therefore, Hypothesis Six (H6a to H6d) is formulated as follows:

H6a–d: The positive relationship between retirement resources (FR, HR, SR and PR) and RWB is stronger for older adults who are actively engaged in taking care of their grandchildren compared to those who are not.

2.3.7 Control Variables

Demographic factors such as age, marital status and education have been shown to moderate the relationship between grandparenting and mental health (Lai et al., 2021). This is further supported by Dong et al. (2023), who observed that the positive effects of grandchild care on life satisfaction were particularly pronounced among older male adults living in rural areas. Additionally, greater well-being was observed with increased age, with women scoring higher in character strength and men in finance (Lee et al., 2022). Racial and ethnic background impact different aspects of well-being, with black employees scoring higher in emotional and character strength domains but lower in financial security, while Hispanics scored lower in financial security but higher in purpose, character strengths and social connectedness than Whites (Lee et al., 2022). Retirement planning behaviours, such as psychological, social perception and financial perception, were influenced by demographic factors (Murari et al., 2021). Furthermore, demographic factors, such as age moderate the relationship between financial literacy, financial behaviour, financial stress and financial well-being (Prakash et al., 2022). Weech-Maldonado et al. (2017) found that gender, age and race do not significantly impact happiness or perceived health. Additionally, demographic factors such as residence, education levels, age and marital status were identified as influencing older adults' perceived importance, desire and ability to engage in end-of-life self-care actions (Tzeng et al., 2019). Based on these findings, demographic data is included as control variables in this study. Figure 1 illustrates the conceptual framework of this study.

3. Research Methodology

3.1 Research Sample

In this study, the target population is older adults in Malaysia. The inclusive criteria required respondents to be 60 years old and above, which is the official retirement age in Malaysia. The unit of analysis for this study is the individual. This study employed purposive sampling because it focused on a specific subgroup i.e., older adults aged 60 years and above in Malaysia, in order to address the study's objectives. As explained
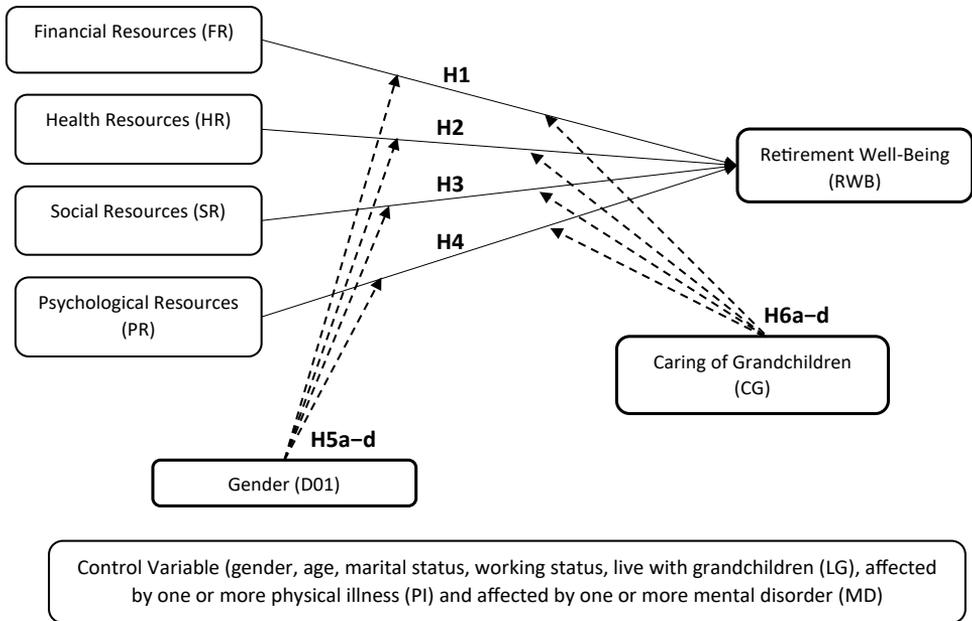
Figure 1. Research framework

by Teddlie and Yu (2007), purposive sampling is highly effective when the goal is to get information from a specific group, but because it is not a random method, the results cannot be fully generalised to the whole population. A total of 204 responses were collected over two months. During the screening stage, respondents were required to confirm that they were above 60 years old. Thirty-eight respondents did not meet this age criterion and were removed from the dataset, leaving 166 valid responses for analysis. A post-hoc power analysis was performed using G*Power, which yielded a statistical power of 82.05%. This value surpasses the widely accepted benchmark of 80%, indicating that the sample size is adequate (Cohen, 1988).

3.2 Research Design

This study's theoretical framework and hypotheses were evaluated using a quantitative research method to examine the relationship between retirement resources (FR, HR, SR and PR) and RWB, using self-administered survey questionnaires for primary data collection. The survey, designed using Google Forms, was distributed through various channels, such as social media and physical distribution, aiming to reach respondents across Malaysia. This approach facilitated efficient data collection and prompt responses. The questionnaire was first developed in English and then translated into Malay and Chinese by experts proficient in the respective languages. The translated Malay and Chinese versions were subsequently reviewed and compared with the original English version by a separate panel of experts to harmonise the translations and ensure accuracy.

The questionnaire was organised into four sections. Section A screened participants for eligibility. Section B collected demographic information such as gender, age, marital status, ethnicity, number of grandchildren and whether respondents live with grand-children. Section C focused on independent variables such as FR, HR, SR and PR. Section D assessed respondents' RWB through elements such as positive emotion, engagement, relationship, meaning and accomplishment. The final section evaluated the moderator variable "caring of grandchildren (CG)" and whether respondents spend time caring for their grandchildren and the amount of time devoted to this activity.

This is an anonymous online survey. Thus, no personal identifiable information was collected from our respondents, being in line with the ethical principles of autonomy and informed consent. Prior to beginning the questionnaire, participants were pre-sented with an information and consent statement that outlined the purpose of the study, the voluntary nature of participation, their rights as participants, and assurances of data confidentiality. Only participants who clicked "Agree" after reading the statement were able to proceed with the survey. Participation was entirely voluntary, and respondents were informed that they could withdraw at any time without penalty.

3.3 Measurement of Variables

FR, HR, SR and PR based on Leung and Earl (2012) served as independent variables and were assessed using a five-point Likert scale ranging from 1 to 5, with adjustments made for items involving reverse scoring. The scores were then categorised as follows: 1-2 as Low, 3 as Medium, and 4-5 as High. The dependent variable, RWB, based on the PERMA well-being model (Butler & Kern, 2016; Seligman, 2011), was measured using an eleven-point Likert scale ranging from 0 (indicating low well-being) to 10 (indicating high well-being). Gender (D01) and caring of grandchildren (CG) are moderators coded as 0 and 1 for data analysis. Demographic variables such as gender, age, marital status, working status, and whether they live with grandchildren (LG), affected by one or more major physical illnesses (PI) (e.g., heart disease, diabetes, foot problems, arthritis, hypertension), or affected by one or more mental disorders (MD) (e.g., dementia, depression, anxiety disorder, panic disorder) acted as control variables, measured through selection and open-field options.

3.4 Data Analysis and Econometric Models

STATA version 19 was used to compute descriptive statistics and explore the relationship between variables. First, we compared the RWB by respondents' socio-demographic. Mann-Whitney test (i.e., comparison between two groups) and Kruskal-Wallis test (i.e., comparison between more than two groups) were adopted since RWB is not normally distributed (Shapiro-Wilk test: z=3.726, p < 0.05). Then, a multivariate regression model was employed for statistical analysis due to the continuous nature of the dependent variable, ranging from 0 to 10 (Liu, 2016). The predictor variables included FR, HR, SR, PR, and control variables included gender, age, marital status, working status and whether living with grandchildren, affected by one or major physical illness or mental disorders. We also examined the interaction of gender and caring for grandchildren on

the relationship between FR, HR, SR, PR and RWB. Equations (1), (2) and (3) showed the multivariate regression model used in this study.

$$RWB_i = \propto + \beta_1 i.FR_i + \beta_2 i.HR_i + \beta_3 i.SR_i + \beta_4 i.PR_i + \beta_i i.C_i + \varepsilon_i \tag{1}$$

$$RWB_i = \propto + \beta_1 i.FR_i + \beta_2 i.HR_i + \beta_3 i.SR_i + \beta_4 i.PR_i + \beta_5\left(i.FR_i * i.D01_i\right) + \\ \beta_6\left(i.HR_i * i.D01_i\right) + \beta_7\left(i.SR_i * i.D01_i\right) + \beta_8\left(i.PR_i * i.D01_i\right) + \beta_i C_i + \varepsilon_i \tag{2}$$

$$Logit[\pi\,(RWB)] = \propto + \beta_1 i.FR_i + \beta_2 i.HR_i + \beta_3 i.SR_i + \beta_4 i.PR_i + \beta_5\left(i.FR_i * i.CG_i\right) + \\ \beta_6\left(i.HR_i * i.CG_i\right) + \beta_7\left(i.SR_i * i.CG_i\right) + \beta_8\left(i.PR_i * i.CG_i\right) + \beta_i C_i + \varepsilon_i \tag{3}$$

where $\propto$ is the constant, β_1, β_2, …, β_i are the coefficients of the predictors and ε_i is the error term. FR, HR, SR and PR are the categorical variables for financial resources, health resources, social resources and psychological resources, respectively (base = 1, low), D01 is a dummy variable for gender (base = 0, male) and CG is a dummy variable for caring for grandchildren (base = 0, yes).

4. Results

4.1 Respondents' Characteristics

Table 1 presents the respondents' characteristics. Out of 204 respondents, 166 respondents provided usable data for subsequent analysis. A total of 38 responses were excluded from the analysis due to not fulfilling the inclusion criteria. Among the 166 respondents, 47.59% are male and 52.41% are female, with 40.36% aged between 60 and 64 years old, 31.33% aged between 65 and 69 years old and 20.48% aged between 70 and 74 years old. Regarding marital status, 71.69% of respondents are married, while the balance falls under widow, single and divorced or separated categories. The working status among respondents is equally distributed, with 51.2% no longer working after reaching the retirement age of 60 years old. Most respondents do not live with their grandchildren (79.52%); however, 40.96% of respondents still take care of their grandchildren during the daytime while the parents are at work. These findings show that these two variables (i.e., living with grandchildren and caring for grandchildren) are not the same variable that need to be studied separately. Most respondents (66.27%) reported having at least one major physical illness (e.g., heart disease, diabetes, foot problems, arthritis, hypertension), whereas a smaller proportion (16.87%) were affected by one or more mental disorders (e.g., dementia, depression, anxiety disorder, panic disorder). The data shows the diversity of the respondents, which is fit for this study.

4.2 Retirement Well-being: PERMA (RWB)

Table 2 illustrates the descriptive analysis for overall RWB. The overall RWB score was computed as the average of all elements of the PERMA well-being model (positive emotion, engagement, relationships, meaning and accomplishment). The average RWB score is 6.75 out of 10, indicating general positive retirement well-being among respondents. When comparing the demographic factors, the data is not normally distributed (z= 3.726, p < 0.05). The largest difference is observed between respondents

Table 1. Respondents' characteristics

Characteristic	Frequency	Percentage	Stata coding
Gender			
Male	79	47.59	0
Female	87	52.41	1
Age			
60 – 64 years old	67	40.36	1
65 – 69 years old	52	31.33	2
70 – 74 years old	34	20.48	3
75 years old and above	13	7.83	4
Marital status			
Single	17	10.24	0
Married	119	71.69	1
Widow	25	15.06	2
Divorced/separated	5	3.01	3
Working Status			
Working	81	48.80	0
Not working	85	51.20	1
Living with grandchildren			
No	132	79.52	0
Yes	34	20.48	1
Caring of grandchildren			
No	98	59.04	0
Yes	68	40.96	1
Physical illness			
No	56	33.73	0
Mildly/moderately/more than moderately/severely	110	66.27	1
Mental disorder			
No	138	83.13	0
Mildly/moderately/more than moderately/severely	28	16.87	1

Source: Author's work (based on survey data).

Table 2. Retirement well-being: PERMA by socioeconomic factors

	Obs.	Retirement well-being: PERMA score										Mean	SD	Mann–Whitney (Z value) / Kruskal–Wallis rank test (Chi-squared)
		1	2	3	4	5	6	7	8	9	10			
Percentage of respondents	166	0.60	0.60	3.61	5.42	12.05	13.25	22.89	33.73	6.63	1.20	6.75	1.64	
Gender														-3.255***
Male	79	0.00	1.27	7.59	8.86	16.46	11.39	21.52	29.11	3.80	0.00	6.29	1.75	
Female	87	1.15	0.00	0.00	2.30	8.05	14.94	24.14	37.93	9.20	2.30	7.18	1.42	
Age														5.259
60 – 64 years old	67	1.49	0.00	1.49	2.99	8.96	16.42	31.34	28.36	7.46	1.49	6.89	1.51	
65 – 69 years old	52	0.00	1.92	3.85	7.69	11.54	9.62	13.46	42.31	7.69	1.92	6.82	1.81	
70 – 74 years old	34	0.00	0.00	2.94	5.88	17.65	14.71	14.71	38.24	5.88	0.00	6.70	1.56	
75 years old and above	13	0.00	0.00	15.38	7.69	15.38	7.69	38.46	15.38	0.00	0.00	5.92	1.75	
Marital status														1.712
Single	17	0.00	5.88	0.00	0.00	5.88	11.76	52.94	23.53	0.00	0.00	6.70	1.44	
Married	119	0.00	0.00	5.04	5.88	14.29	14.29	14.29	36.13	9.24	0.84	6.76	1.68	
Widow	25	0.00	0.00	0.00	4.00	8.00	12.00	40.00	32.00	4.00	0.00	7.04	1.24	
Divorced/separated	5	20.00	0.00	0.00	20.00	0.00	0.00	20.00	20.00	0.00	0.00	5.40	2.88	
Working Status														-2.072**
Working	81	0.00	0.00	7.41	8.64	14.81	9.88	27.16	20.99	9.88	1.23	6.49	1.77	
Not working	85	1.18	1.18	0.00	2.35	9.41	16.47	18.82	45.88	3.53	1.18	7.01	1.48	
Live with grandchildren														2.896***
No	132	0.76	0.76	1.52	3.03	9.09	14.39	26.52	35.61	6.82	1.52	6.97	1.50	
Yes	34	0.00	0.00	11.76	14.71	23.53	8.82	8.82	26.47	5.88	0.00	5.91	1.91	
Caring of grandchildren														-0.691
No	98	1.02	1.02	2.04	10.20	10.20	11.22	25.51	33.67	3.06	2.04	6.65	1.69	
Yes	68	0.00	0.00	4.41	1.47	10.29	20.59	22.06	33.82	7.36	0.00	6.91	1.35	

Table 2. Continued

| | Obs. | Retirement well-being: PERMA score | | | | | | | | | | Mean | SD | Mann–Whitney (Z value) / Kruskal–Wallis rank test (Chi-squared) |
		1	2	3	4	5	6	7	8	9	10			
Affected by one or more physical illness														5.014***
No	56	1.79	0.00	0.00	0.00	0.00	8.93	26.79	53.57	7.14	1.79	7.54	1.12	
Mildly/moderately/more than moderately/severely	110	0.00	0.01	4.55	10.00	15.45	18.18	22.73	23.64	3.64	0.91	6.36	1.61	
Affected by one or more mental disorders														2.948***
No	138	0.00	0.00	3.62	5.07	10.14	13.77	23.91	36.23	5.80	1.45	6.93	1.46	
Mildly/moderately/more than moderately/severely	28	3.57	3.57	0.00	14.29	10.71	21.43	25.00	21.43	0.00	0.00	5.90	1.76	

Notes: *p < 0.10, **p < 0.05, ***p < 0.01, Shapiro-Wilk test (z=3.726, p < 0.05), Obs. = Observation of respondents, SD = Standard deviation.
Source: Author's work (based on survey data).

Table 3. Correlation matrix

Variable	RWB	FR	HR	SR	PS	Gender	Age	MS	WS	LG	CG	PI	MD
RWB	1.000												
FR	0.368*	1.000											
HR	0.366*	0.188*	1.000										
SR	0.309*	0.332*	0.095	1.000									
PS	0.609*	0.289*	0.278*	0.195*	1.000								
Gender	0.246*	0.092	0.190*	0.197*	0.186*	1.000							
Age	-0.109	0.049	-0.150	-0.061	-0.181*	-0.048	1.000						
MS	-0.014	0.031	-0.084	0.023	0.025	0.052	0.325	1.000					
WS	0.153*	-0.060	0.042	0.073	0.020	0.107	0.032	0.036	1.000				
LG	-0.253*	-0.144	-0.071	-0.104	-0.374*	-0.084	0.349*	0.107	-0.102	1.000			
CG	0.082	-0.041	-0.171*	0.016	-0.036	0.033	0.295*	0.074	0.127	0.427*	1.000		
PI	-0.358*	-0.013	-0.455*	-0.044	-0.418*	-0.195*	0.228*	-0.104	-0.187*	0.141	0.206*	1.000	
MD	-0.247*	-0.018	-0.387*	0.016	-0.129	-0.022	-0.111	-0.028	0.054	-0.149	0.050	0.219*	1.000

Notes: $*p<0.05$, MS = Marital status, WS = Working status, LG = Living with grandchildren, CG = Caring of grandchildren, PI = Affected by one or more physical illness, MD = Affected by one or more mental disorder.

Source: Author's work (based on survey data).

not affected by one or more physical illnesses and those affected by at least one physical illness (Z = 5.014, p < 0.01). The next largest difference is found between respondents not affected by one or more mental disorders and those affected by at least one mental disorder (Z = 2.948, p < 0.01). Statistically significant differences are also found for gender (Z = −3.255, p < 0.01), working status (Z = −2.072, p < 0.05), and whether respondents live with grandchildren (Z = 2.896, p < 0.01). However, no statistically significant differences are observed across age groups ($\chi^2(3)$ = 5.259, p > 0.05), marital status ($\chi^2(3)$ = 1.712, p > 0.05) and whether caring of grandchildren (Z = -0.691, p > 0.05). Overall, the study indicates that RWB is highest among group without physical illness or mental disorder, female respondents, those not working after the retirement age of 60, and those not living with grandchildren.

4.3 Descriptive Analysis and Diagnostic Check

We performed a diagnostic check before the regression analysis. Table 3 shows the correlation matrix of the study while Table 4 illustrates the descriptive summary of all variables. The correlation matrix shows that all pairwise correlations among predictors are below 0.70, which suggests that multicollinearity does not pose a serious problem (Dormann et al., 2013). The Breusch–Pagan test was used to check whether the variance of the residuals remained constant across the fitted values. The result was not statistically significant, $\chi^2(1)$ = 2.93, p = 0.087, which means the null hypothesis of homoskedasticity cannot be rejected at the 5% level. In other words, there is no strong evidence of heteroskedasticity, and the constant-variance assumption appears reasonable. However, robust (heteroskedasticity-consistent) standard errors were still applied as a precaution, given that the dependent variable shows high kurtosis (> 3.3), indicating a non-normal and heavy-tailed distribution.

Table 4. Summary of descriptive analysis of all variables in the study

Variable	Type	Mean	SD	Mix	Max	Skewness	Kurtosis
RWB	Continuous	6.756	1.561	1.27	9.67	-0.870	3.500
FR	Categorical	2.060	0.630	1	3	-0.045	2.524
HR	Categorical	2.711	0.455	2	3	-0.930	1.865
SR	Categorical	1.795	0.726	1	3	0.332	1.949
PS	Categorical	2.247	0.617	1	3	-0.209	2.409
Gender	Binary	–	–	0	1	-0.096	1.010
Age	Continuous	66.662	5.162	60	88	0.828	3.733
MS	Categorical	1.109	0.603	0	3	0.782	4.856
WS	Binary	0.512	0.501	0	1	-0.048	1.002
LG	Binary	0.205	0.405	0	1	1.463	3.140
CG	Binary	0.410	0.493	0	1	0.367	1.135
PI	Binary	0.663	0.474	0	1	-0.688	1.473
MD	Binary	0.169	0.376	0	1	1.770	4.131

Notes: SD = Standard deviation, MS = Marital status, WS = Working status, LG = Living with grandchildren, PI = Affected by one or more physical illness, MD = Affected by one or more mental disorder.
Source: Author's work (based on survey data).

4.4 Multivariate Regression Analysis

This section shows the hypotheses results. The multivariate regression was applied due to the continuous outcome of the dependent variable (Liu, 2016). Two fitted models (Model 1 and Model 2) were constructed for RWB measure, and seven regression models were run to test related hypotheses. Model 1 includes four independent variables (FR, HR, SR and PR) individually and collectively, along with control variables such as gender, age group, marital status, working status, whether living with grand-children, affected by one or more physical illness and affected by one or more mental disorder. Model 2 expands on Model 1 by incorporating moderating variables such as gender and caring for grandchildren. Tables 5 and 6 illustrate the coefficients of RWB for both Model 1 and Model 2, respectively.

Table 5 shows the regression results for H1 to H4. When FR, HR, SR and PR were measured individually, they are statistically significant and positively affecting RWB. Based on Model A, medium and high-level FR statistically and positively affect RWB at 99% significance levels. The findings indicate that as FR increases from low to medium and from low to high, RWB rises by 1.075 (t = 3.39, p<0.001) and 1.678 points (t = 4.75, p<0.001), respectively. Based on model B, the findings indicate that as HR increases from medium to high, RWB increases by 0.704 points (t = 2.31, p<0.10). Based on model C, the findings indicate that as SR increases from low to medium and from low to high, RWB increases by 0.908 points (t = 3.67, p<0.001) and 0.897 points (t = 2.79, p<0.05), respectively. Based on model D, the findings indicate that as PR increases from low to medium and from low to high, RWB rises by 2.010 points (t = 5.44, p<0.001) and 3.037 points (t = 7.44, p<0.001), respectively. Thus, H1, H2, H3 and H4 are supported. When considering all retirement resources (FR, HR, SR and PR) collectively in Model E, PR remains the strongest predictor, followed by FR and SR, while HR becomes insignificant.

The findings on control variables provide additional insights into demographic influences on RWB. Based on the full model (Model E under Table 6), gender, age, marital status, live with grandchildren, affected by one or more than one physical illness or mental disorder do not significantly impact on RWB, suggesting that these demographic factors are less critical in the presence of retirement resources collectively. However, working status shows significant and positive effect on RWB, indicating that older adults who are still working increase their RWB by 0.432 points compared to those who are not working (t = -2.45, p<0.10).

Figure 2 and Table 6 (Model F) illustrate the interaction of FR, HR, SR, PR and gender. As shown in Figure 2(a), men's RWB increases steadily with higher levels of FR, whereas women's RWB remains relatively stable across all FR levels. Regression results in Table 6 confirm a significant FR × Gender interaction. Specifically, compared to men, women report significantly lower predicted RWB at both medium (β = −1.184, t = −2.35, p < 0.05) and high (β = −1.398, t = −2.19, p < 0.05) levels of FR. These findings suggest that while higher FR are strongly associated with improved RWB for men, this association is weaker for women, whose well-being appears to depend less on financial status. Thus, H5a is not supported. Figure 2(b) shows females consistently report slightly higher RWB than males across all levels of HR, without a strong interaction effect, suggesting that better HR benefit both genders similarly. Thus, H5b is not supported.

Table 5. Regression results (robust standard error) for hypothesis 1 to 4

	Retirement well-being				
	A	B	C	D	E (Full model)
FR medium	1.075*** (3.39)				0.655* (2.60)
FR high	1.678*** (4.75)				0.787** (2.61)
HR high		0.704* (2.31)			0.269 (1.09)
SR medium			0.908*** (3.67)		0.521* (2.37)
SR high			0.897** (2.79)		0.356 (1.37)
PR medium				2.010*** (5.44)	1.608*** (4.90)
PR high				3.037*** (7.44)	2.576*** (6.60)
Female	0.362 (1.76)	0.366 (1.80)	0.315 (1.50)	0.216 (1.14)	0.087 (0.46)
Age	-0.014 (-0.63)	-0.008 (-0.30)	-0.001 (-0.03)	-0.008 (-0.32)	-0.006 (-0.27)
Married	0.417 (1.20)	0.378 (1.03)	0.379 (1.14)	0.243 (0.80)	0.276 (0.99)
Widow	0.432 (1.03)	0.762 (1.74)	0.330 (0.81)	0.437 (1.15)	0.325 (0.91)
Divorced/separated	-0.993 (-0.84)	-1.244 (-1.07)	-0.899 (-0.86)	-1.464 (-1.44)	-1.101 (-1.09)
Not working (retired)	0.378 (1.89)	0.323 (1.59)	0.288 (1.41)	0.381* (2.07)	0.432* (2.45)
Live with grandchildren	-0.647* (-2.26)	-0.842** (-2.73)	-0.780* (-2.57)	-0.074 (-0.23)	-0.036 (-0.13)
Affected by one or more than one physical illness	-0.830*** (-4.06)	-0.615** (-2.86)	-0.878** (-4.56)	-0.325 (-1.67)	-0.27 (-1.35)
Affected by one or more than one mental disorder	-0.789* (-2.37)	-0.551 (-1.55)	-0.878** (-2.69)	-0.633* (-2.10)	-0.588 (-1.80)
Constant	6.757*** (4.82)	6.735*** (4.07)	6.536*** (4.06)	4.956** (2.97)	4.091** (3.01)
Observations	166	166	166	166	166
F value	12.30***	8.26***	9.92***	19.44***	22.58***
R-squared	0.3917	0.3142	0.3565	0.4937	0.5631

Notes: t statistics in parentheses, *p<0.05, **p<0.01, ***p<0.001, base for each variable: low FR, medium HR, low SR, low PR, male, single, working, do not live with grandchildren, not affected by one or more than one physical illness or mental disorder.
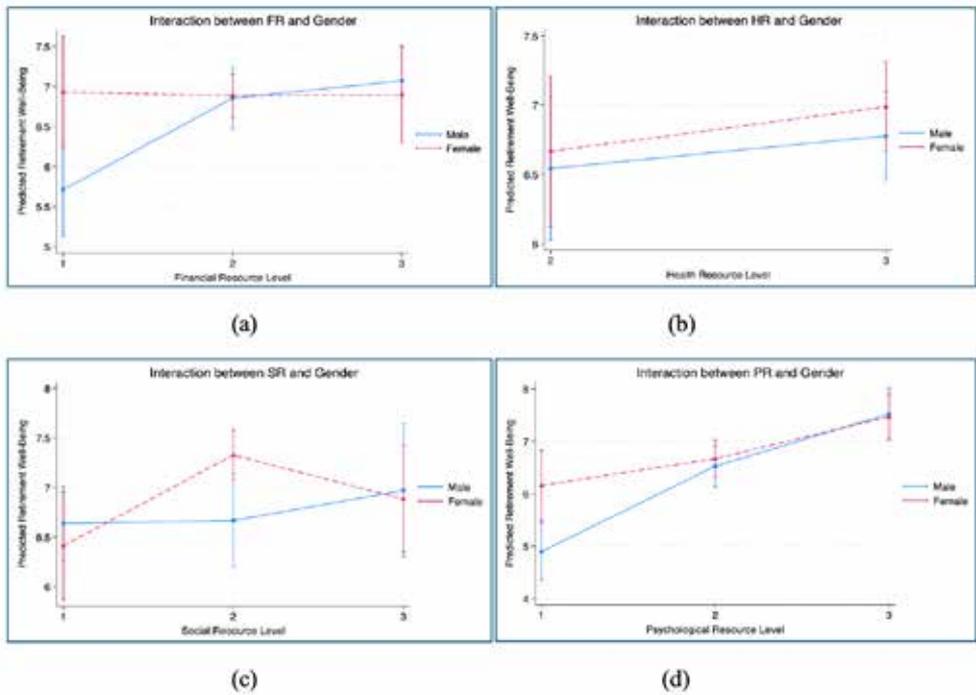*Source*: Author's work (based on survey data).

Figure 2. Interaction between FR, HR, SR, PR and gender
Source: Author's own creation.

Figure 2(c) and Table 6 exhibit an interaction effect as SR increases from low to medium (β = 0.886, t = 1.99, $p < 0.05$), suggesting that women's predicted RWB increases significantly compared to men's when the level of SR rises from low to medium. However, women's predicted RWB decreases when the level of SR is high, whereas men experience higher RWB with increasing SR. Thus, H5c is supported. In terms of PR, Figure 2(d) confirms a significant PR × Gender interaction. Men are more dependent on PR to improve their predicted RWB as compared with women. Women report significantly lower predicted RWB at both medium (β = −1.117, t = −2.35, $p < 0.05$) and high (β = −1.315, t = −2.54, $p < 0.05$) levels of PR. Thus, H5d is not supported.

Figure 3 and Table 6 (Model G) show the interaction term between FR, HR, SR, PR and caring of grandchildren. As illustrated in Figures 3(a), 3(b), 3(c) and 3(d), the predicted RWB for respondents who take care of grandchildren is consistently higher than for those who do not across all levels of FR, HR, SR and PR. Nevertheless, regression results in Table 6 indicate a significant interaction effect as PR increases from low to high (β = -1.230, t = -2.20, $p < 0.05$). Therefore, hypotheses H6a, H6b and H6c are not supported but H6d is supported. Nevertheless, based on Figure 3, we noticed that predicted RWB for those who take care of grandchildren can be significantly improved if they are given more FR, HR and PR, whereas the predicted RWB for those who do not take care of grandchildren reduce when they have too much SR, but increase significantly when they are given more PR.
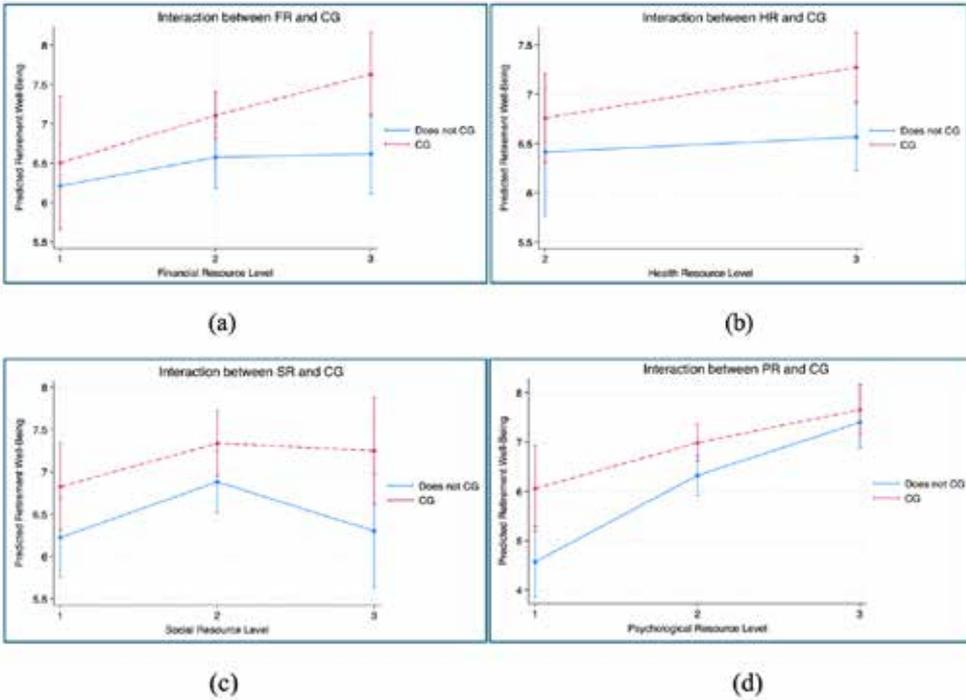
Figure 3. Interaction between FR, HR, SR, PR and caring of grandchildren
Source: Author's own creation.

Table 6. Regression result (robust standard error) with interaction effect

	Retirement well-being	
	Model F	Model G
FR medium	1.142***	0.362
	(3.46)	(1.16)
FR high	1.364***	0.406
	(3.21)	(1.09)
HR high	0.235	0.151
	(0.74)	(0.41)
SR medium	0.0296	0.658**
	(0.09)	(2.26)
SR high	0.334	0.077
	(0.86)	(0.20)
PR medium	1.630***	1.751***
	(4.98)	(3.97)
PR high	2.627***	2.825***
	(6.22)	(5.52)
Female	1.824***	0.015
	(3.61)	(0.08)
FR medium*Female	-1.184**	
	(-2.35)	
FR high*Female	-1.398**	
	(-2.19)	
HR high*Female	0.086	
	(0.19)	

Table 6. Continued

	Retirement well-being	
	Model F	Model G
SR medium*Female	0.886**	
	(1.99)	
SR high*Female	0.138	
	(0.25)	
PR medium*Female	-1.117**	
	(-2.35)	
PR high*Female	-1.315**	
	(-2.54)	
Care of Grandchildren (CG)		0.921
		(1.62)
FR medium*CG		0.240
		(0.45)
FR high*CG		0.720
		(1.23)
HR high*CG		0.361
		(0.82)
SR medium*CG		-0.147
		(-0.33)
SR high*CG		0.347
		(0.60)
PR medium*CG		-0.824
		(-1.52)
PR high*CG		-1.230**
		(-2.20)
Age	-0.015	-0.015
	(-0.64)	(-0.68)
Married	0.307	0.060
	(1.17)	(0.20)
Widow	0.402	0.324
	(1.18)	(0.87)
Divorced/separated	-1.071	-1.210
	(-1.05)	(-1.17)
Not working (retired)	0.287	0.364**
	(1.58)	(2.07)
Live with grandchildren	-0.089	-0.427
	(-0.33)	(-1.34)
Affected by one or more than one physical illness	-0.289	-0.444*
	(-1.39)	(-1.92)
Affected by one or more than one mental disorder	-0.595*	-0.644*
	(-1.79)	(-1.97)
Constant	4.54***	5.075***
	(3.05)	(3.40)
Observations	166	166
F value	33.11	16.40
R-squared	0.5939	0.5948

Notes: t statistics in parentheses. *p<0.05, **p<0.01, ***p<0.001. Base for each variable – low FR, medium HR, low SR, low PR, male, single, working, do not live with grandchildren, not affected by one or more than one physical illness or mental disorder, not taking care of grandchildren.
Source: Author's work (based on survey data).

5. Discussions

We aim to investigate the impact of financial resources (FR), health resources (HR), social resources (SR) and psychological resources (PR) on retirement well-being (RWB) and to examine the moderating effects of gender and caring for grandchildren (CG) among older adults in Malaysia. Findings from the study show that retirement resources significantly impact retirement well-being, aligned with the resource-based dynamic model, which view resources as multifaceted including financial, social, physical and psychological dimensions (Hobfoll, 2002). Various retirement-related outcomes are influenced by an individual's access to diverse types of resources (Zaniboni et al., 2021). Generally, the greater the resources, the better the retirement well-being.

The findings indicate that PR is the most significant predictor of RWB. The greater the PR, the better the RWB. These results are consistent with previous studies (Lawton et al., 2024; Pellerin & Raufaste, 2020; Shoushtari-Moghaddam et al., 2024; Sinha & Irala, 2024). Prior research has emphasised the importance of PR, having life goals, a sense of meaning and good planning in mitigating the negative impact of external stressors and fostering positive well-being outcomes amidst external challenges, which are crucial for RWB. Our findings further confirm that older adults who exhibit higher emotional resilience, possess good memory, and demonstrate strong abilities to learn, solve problems and make decisions report higher levels of RWB.

In addition to PR, the findings also reveal that FR significantly and positively affects RWB. The results indicate that older adults who have a steady income to support themselves or their family members, or who receive financial support through personal savings, investment, pensions or the Employees Provident Fund (EPF), are more likely to experience higher levels of RWB. The findings are consistent with prior research highlighting that retirees with diversified investment portfolios reported greater satisfaction in retirement (Cheung et al., 2023) , and post-retirement employment can strengthen FR and consequently, improve RWB (Sousa-Ribeiro et al., 2024). Financial stability allows individuals to maintain their standard of living, access necessary health-care and avoid financial stress, all of which contribute to overall well-being.

Next, the findings indicate that SR is another important factor affecting RWB positively. Older adults who receive greater informational support (such as advice, guidance, or constructive feedback on handling difficult situations), emotional support (such as having someone who listens, acknowledges their feelings, provides comfort during stress, and shows genuine interest in their well-being), and tangible support (such as help with meal preparation, household chores, financial assistance, transportation, or care-related tasks) tend to experience higher levels of retirement well-being (RWB). These forms of support collectively enhance their ability to cope with challenges, maintain emotional stability, and sustain a better quality of life in later years. The results are consistent with prior research indicating that social connectedness and active participation in social activities (Liu et al., 2022; Shang, 2020; Shin et al., 2021; Wu & Chao, 2024), as well as receiving structural support and functional support improve RWB among older adults (Shoushtari-Moghaddam et al., 2024).

Additionally, regarding HR, the results show that HR positively affects RWB. Specifically, older adults who are free from major physical illness or mental disorders

and are able to perform daily activities independently tend to report higher levels of RWB. However, the association is weaker as compared to SR, FR and PR. In addition, we find that older adults who are affected by one or more major physical illness or mental disorder have significantly lower mean levels of RWB than those who are not affected. The findings are consistent with past studies identifying that physical health and mental health are vital for overall RWB (Burton et al., 2021; Odone et al., 2021; Shin et al., 2021; Shoushtari-Moghaddam et al., 2024; Trică et al., 2024). Physical activities such as regular exercise, golf and hiking, can improve retiree's physical health, lifestyle satisfaction and thus, overall RWB (Joo et al., 2023; Liu et al., 2022; Sharifi et al., 2023; Sousa-Ribeiro et al., 2024).

The findings related to demographic factors are inconsistent with previous studies (Lee et al., 2022; Murari et al., 2021; Tzeng et al., 2019). This inconsistency could be attributed to the dominant influence of retirement resources, which may play a more significant role in determining retirement well-being than demographic characteristics.

In terms of the moderating effect of gender, we find significant interaction effects between gender and FR, SR and PR. These findings suggest that retirement resources influence men and women differently in achieving higher levels of RWB, even though greater retirement resources generally lead to better RWB. Specifically, women are less sensitive to FR and PR compared to men but are more responsive to SR in enhancing RWB. However, larger SR appears to reduce RWB among women. The findings are consistent with Kubicek et al. (2011), who found that women tend to rely more on social and emotional connections for support, whereas men depend more on financial resources during retirement. Similarly, Gregoire et al. (2002) reported that men generally experience higher life satisfaction after retirement, mainly because they possess greater financial resources and private income. This financial advantage places women at a relative disadvantage, which is consistent with the present study's findings.

In terms of the moderating effect of caring of grandchildren (CG), there is no significant interaction effect between CG and FR, HR and SR. The only significant interaction is between CG and a high level of PR, suggesting that individuals who do not take care of their grandchildren require greater PR to achieve better RWB compared to those who do. Our findings show that older adults who take care of their grandchildren exhibit better RWB compared to those who do not (refer to Figure 3), which is consistent with previous findings (Dong et al., 2023; Shen & Yang, 2022; Wang et al., 2023) as taking care of grandchildren positively influence grandparents' mental health and life satisfaction by reducing loneliness.

6. Implications, Limitations, Future Research and Conclusions

6.1 Implications to Existing Retirement Well-being Policies and Regulations in Malaysia

Existing retirement well-being policies and regulations in Malaysia emphasises on savings adequacy such as i-Sara, i-Sayang, i-Suri and the new EPF flexible account, which is only one of the components under retirement well-being for older adults. However, there are no clear policies in ensuring the availability of other retirement resources, which are health resources, social resources and psychological resources. Even though

older adults are given free treatment or only minimum charges in Malaysia's general hospital, the long queue and waiting time of required treatment might provide stress to the ageing population. In terms of social resources and psychological resources, the support from the government is still lacking. Based on the findings of this study, we outline the implications and propose recommendations to enhance RWB among older adults in Malaysia.

First, the findings show that financial resources have a strong and positive effect on RWB. When FR increases from low to medium or high, RWB rises significantly. This means that older adults who have a steady income, personal savings, investments, pensions or EPF support enjoy better well-being. However, many Malaysians still save less than RM500 per month, which limits their financial security after retirement. To improve FR, the government and organisations should give older adults flexibility to continue working after age 60 and provide pre-retirement counselling to help them plan financially. Awareness of agencies such as AKPK (Agensi Kaunseling dan Pengurusan Kredit or Credit Counselling and Debt Management) should be strengthened, and income policies can be reviewed to encourage more savings. Behavioural nudges such as reminders and commitment saving programs can also encourage better financial habits.

Second, PR is the strongest predictor of RWB. When PR increases from low to medium or high, RWB improves the most compared with other resources. Older adults with higher resilience, confidence, memory and problem-solving skills report higher life satisfaction. The findings also show that PR can reduce depressive symptoms and improve emotional stability during retirement. To strengthen PR, government and organisations can design programs that improve emotional resilience, self-efficacy and coping skills. Early screening for depression and counselling support should be introduced in workplaces before retirement. Community-based activities that help retirees find purpose and meaning in life can also enhance psychological well-being.

Third, SR also shows a positive relationship with RWB. Older adults who receive emotional, informational and tangible support (for example, advice, encouragement, or help with daily tasks) experience better RWB. However, the results also reveal gender differences where women's well-being improves when SR increases from low to medium but declines at high levels of SR, while men's well-being continues to increase. This means social activities must be well-balanced. The government and community centres can organise group activities such as cooking, yoga, or technology classes to reduce loneliness. Organisations can host family days that include parents of employees to promote intergenerational connection.

Fourth, HR has a positive but weaker relationship with RWB compared to FR, SR and PR. Older adults who are physically healthy and free from major illness or mental disorders report higher RWB. Those affected by one or more illnesses have significantly lower well-being. To improve HR, the government should continue promoting healthy diets, exercise and regular medical check-ups for early disease detection. Employers can also provide healthy food options in cafeterias and offer annual health screenings for staff above 40 years old.

Fifth, we find that gender moderates the effect of FR, SR and PR on RWB. Men benefit more from FR and PR, while women depend less on FR but are more sensitive to SR. However, too much SR can reduce women's RWB. This suggests that men and

women rely on different types of support in retirement. Therefore, retirement programs should consider gender needs. Financial literacy and investment programs may benefit men more, while women may benefit from emotional support and empowerment programs that strengthen psychological well-being.

Lastly, the findings show that caring for grandchildren improves overall RWB, but those who do not care for grandchildren need stronger psychological resources to maintain their well-being. The interaction between PR and caregiving is significant where caregivers with high PR achieve higher RWB. To reduce the caregiving burden, the government should ensure that childcare centres are safe, properly regulated and staffed by trained personnel. This will allow grandparents to enjoy retirement without feeling overburdened, while also helping younger parents balance work and family life.

6.2 Limitations, Future Research and Conclusion

The study has several limitations. First, ethnicity and education level were not included in data collection. Future research should include these variables, as they are fundamental demographic factors in Malaysian studies. Second, the study involved only 166 respondents, which may not be generalisable to all Malaysians. Future research should include a larger and more diverse sample across East and West Malaysia, as well as comparisons between urban and rural populations, to gain a deeper understanding of retirement well-being (RWB) among Malaysians. Third, a longitudinal study would provide more in-depth and robust results over time.

In conclusion, the results confirm that retirement well-being in Malaysia depends most on psychological strength, financial security, social support and good health. A holistic approach that builds these four resources through policy, education and community engagement will help older Malaysians achieve happier, healthier and more meaningful retirements.

References

Austen, S., Kalsi, J.K., & Mavisakalyan, A. (2022). Retirement and the distribution of intra-household wellbeing. *Journal of the Economics of Ageing, 23*, Article 100404. https://doi.org/10.1016/j.jeoa.2022.100404

Burton, W.N., Schultz, A., & Edington, D.W. (2021). Health and wealth: The importance for lifestyle medicine. *American Journal of Lifestyle Medicine, 15*(4), 407–412. https://doi.org/10.1177/15598276211005348

Butler, J., & Kern, M.L. (2016). The PERMA-Profiler: A brief multidimensional measure of flourishing. *International Journal of Wellbeing, 6*(3), 1–48. https://doi.org/10.5502/IJW.V6I3.526

Calasanti, T., Carr, D., Homan, P., & Coan, V. (2021). Gender disparities in life satisfaction after retirement: The roles of leisure, family, and finances. *Gerontologist, 61*(8), 1277–1286. https://doi.org/10.1093/geront/gnab015

Cheung, Y.-L., Mak, B.S.C., Shu, H., & Tan, W. (2023). Impact of financial investment on confidence in a happy future retirement. *International Review of Financial Analysis, 89*, Article 102784. https://doi.org/10.1016/j.irfa.2023.102784

Chou, K.L., & Chi, I. (2003). Reciprocal relationship between social support and depressive symptoms among Chinese elderly. *Aging & Mental Health, 7*(3), 224–231. https://doi.org/10.1080/136031000101210

Cohen, J. (1988). *Statistical power analysis for the behavioural sciences* (2nd ed.). Lawrence Erlbaum Associates.

Danielsbacka, M., Křenková, L., & Tanskanen, A.O. (2022). Grandparenting, health, and well-being: A systematic literature review. *European Journal of Ageing, 19*, 341–368. https://doi.org/10.1007/S10433-021-00674-y

Diener, E. (1984). Subjective well-being. *Psychological Bulletin, 95*(3), 542–575. https://doi.org/10.1037/0033-2909.95.3.542

Diener, E., Oishi, S., & Tay, L. (2018). Advances in subjective well-being research. *Nature Human Behaviour, 2*, 253–260. https://doi.org/10.1038/s41562-018-0307-6

Dong, X., Ling, H., Yang, T., & Wang, K. (2023). Grandchild care and life satisfaction of older adults: Empirical evidence from China. *Frontiers in Psychology, 14*, Article 1081559. https://doi.org/10.3389/fpsyg.2023.1081559

Dormann, C.F., Elith, J., Bacher, S., Buchmann, C., Carl, G., Carré, G., Marquéz, J.R.G., Gruber, B., Lafourcade, B., Leitão, P.J., Münkemüller, T., McClean, C., Osborne, P.E., Reineking, B., Schröder, B., Skidmore, A.K., Zurell, D., & Lautenbach, S. (2013). Collinearity: A review of methods to deal with it and a simulation study evaluating their performance. *Ecography, 36*(1), 27–46. https://doi.org/10.1111/j.1600-0587.2012.07348.x

Gregoire, T.K., Kilty, K., & Richardson, V. (2002). Gender and racial inequities in retirement resources. *Journal of Women & Aging, 14*(3–4), 25–39. https://doi.org/10.1300/J074V14N03_03

Hed, S., Berg, A.I., Hansson, I., Kivi, M., & Waern, M. (2020). Gender differences in resources related to depressive symptoms during the early years of retirement: A Swedish population-based study. *International Journal of Geriatric Psychiatry, 35*(11), 1301–1308. https://doi.org/10.1002/gps.5367

Hed, S., Berg, A.I., Hansson, I., Kivi, M., & Waern, M. (2024). Depressive symptoms across the retirement transition in men and women: Associations with emotion regulation, adjustment difficulties and work centrality. *BMC Geriatrics, 24*, Article 643. https://doi.org/10.1186/s12877-024-05228-2

Hobfoll, S.E. (2002). Social and psychological resources and adaptation. *Review of General Psychology, 6*(4), 307–324. https://doi.org/10.1037/1089-2680.6.4.307

International Trade Administration. (2023). *Malaysia healthcare aging population*. https://www.trade.gov/market-intelligence/malaysia-healthcare-aging-population

Joo, J.Y., Yoon, J.I., Lim, S., & Won, H. (2023). Retirement resources and post-retirement well-being: The mediating effect of sense of coherence and the moderated mediation effect of leisure activity types. *Current Psychology, 42*, 26877–26887. https://doi.org/10.1007/s12144-023-05013-1

Kubicek, B., Korunka, C., Raymo, J.M., & Hoonakker, P. (2011). Psychological well-being in retirement: The effects of personal and gendered contextual resources. *Journal of Occupational Health Psychology, 16*(2), 230–246. https://doi.org/10.1037/a0022334

Kumar, C. (2020). Psychosocial well-being of individuals. In W. Leal Filho, A.M. Azul, L. Brandli, P.G. Özuyar, & T. Wall (Eds.), *Quality Education* (pp. 676–686). Springer International Publishing. https://doi.org/10.1007/978-3-319-95870-5_45

Lai, D.W.L., Li, J., & Bai, X. (2021). To be or not to be: Relationship between grandparent status and health and wellbeing. *BMC Geriatrics, 21*(1), Article 204. https://doi.org/10.1186/s12877-021-02052-w

Lawton, A., Miller-Lewis, L., & Gerace, A. (2024). Predicting wellbeing in retirees during the COVID-19 pandemic: The roles of meaning in life and goal setting. *Journal of Adult Development, 31*, 170–183. https://doi.org/10.1007/s10804-023-09455-6

Lee, M.T., McNeely, E., Weziak-Bialowolska, D., Ryan, K.A., Mooney, K.D., Cowden, R.G., & VanderWeele, T.J. (2022). Demographic predictors of complete well-being. *BMC Public Health, 22*, Article 1687. https://doi.org/10.1186/S12889-022-13769-7

Leung, C.S.Y., & Earl, J.K. (2012). Retirement Resources Inventory: Construction, factor structure and psychometric properties. *Journal of Vocational Behavior, 81*(2), 171–182. https://doi.org/10.1016/j.jvb.2012.06.005

Liu, C., Bai, X., & Knapp, M. (2022). Multidimensional retirement planning behaviors, retirement confidence, and post-retirement health and well-being among Chinese older adults in Hong Kong. *Applied Research in Quality of Life, 17*, 833–849. https://doi.org/10.1007/s11482-020-09901-7

Liu, X. (2016). *Applied ordinal logistic regression using Stata: From single-level to multilevel modeling*. SAGE Publications, Inc.

Löckenhoff, C.E., Terracciano, A., & Costa, P.T. (2009). Five-factor model personality traits and the retirement transition: Longitudinal and cross-sectional associations. *Psychology and Aging, 24*(3), 722–728. https://doi.org/10.1037/a0015121

Lone, U.M., & Bhat, S.A. (2022). Impact of financial literacy on financial well-being: A mediational role of financial self-efficacy. *Journal of Financial Services Marketing, 29*, 122–137. https://doi.org/10.1057/S41264-022-00183-8

Lusardi, A., & Mitchell, O.S. (2011). *Financial literacy and planning: Implications for retirement wellbeing* (NBER Working Paper no. 17078). https://doi.org/10.3386/W17078

Martin, P. (2002). Individual and social resources predicting well-being and functioning in the later years: Conceptual models, research and practice. *Ageing International, 27*(2), 3–29. https://doi.org/10.1007/S12126-002-1000-6/METRICS

Mayer, J.D., Caruso, D.R., & Salovey, P. (1999). Emotional intelligence meets traditional standards for an intelligence. *Intelligence, 27*(4), 267–298. https://doi.org/10.1016/S0160-2896(99)00016-1

Moen, P. (1996). A life course perspective on retirement, gender, and well-being. *Journal of Occupational Health Psychology, 1*(2), 131–144. https://doi.org/10.1037/1076-8998.1.2.131

Murari, K., Shukla, S., & Adhikari, B. (2021). Do psychological social and financial perceptions of post-retirement life and demography influence the retirement planning behaviour? *International Journal of Social Economics, 48*(11), 1545–1566. https://doi.org/10.1108/IJSE-08-2020-0581

Odone, A., Gianfredi, V., Vigezzi, G.P., Amerio, A., Ardito, C., d'Errico, A., Stuckler, D., & Costa, G. (2021). Does retirement trigger depressive symptoms? A systematic review and meta-analysis. *Epidemiology and Psychiatric Sciences, 30*, Article e77. https://doi.org/10.1017/S2045796021000627

Pellerin, N., & Raufaste, E. (2020). Psychological resources protect well-being during the COVID-19 pandemic: A longitudinal study during the French lockdown. *Frontiers in Psychology, 11*, Article 590276. https://doi.org/10.3389/fpsyg.2020.590276

Pilipiec, P., Groot, W., & Pavlova, M. (2021). The effect of an increase of the retirement age on the health, well-being, and labor force participation of older workers: A systematic literature review. *Journal of Population Ageing, 14*, 271–315. https://doi.org/10.1007/s12062-020-09280-9

Prakash, N., Alagarsamy, S., & Hawaldar, A. (2022). Demographic characteristics influencing financial wellbeing: A multigroup analysis. *Managerial Finance, 48*(9–10), 1334–1351. https://doi.org/10.1108/MF-09-2021-0466

RinggitPlus. (2023). *Malaysian financial literacy survey 2023*. https://ringgitplus.com/en/blog/wp-content/uploads/2023/10/RMFLS-2023-Survey-Report-FINAL.pdf

Ryff, C.D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology, 57*(6), 1069–1081. https://doi.org/10.1037/0022-3514.57.6.1069

Seccombe, K., & Lee, G.R. (1986). Gender differences in retirement satisfaction and its antecedents. *Research on Aging, 8*(3), 426–440. https://doi.org/10.1177/0164027586008003005

Seligman, M.E.P. (2011). *Flourish: A visionary new understanding of happiness and well-being*. Free Press. https://psycnet.apa.org/record/2010-25554-000

Shang, Q. (2020). Social support, rural/urban residence, and depressive symptoms among Chinese adults. *Journal of Community Psychology, 48*(3), 849–861. https://doi.org/10.1002/jcop.22302

Sharifi, M., Nodehi, D., & Bazgir, B. (2023). Physical activity and psychological adjustment among retirees: A systematic review. *BMC Public Health, 23*, Article 194. https://doi.org/10.1186/s12889-023-15080-5

Shen, K., & Yang, X. (2022). Caring for grandchildren and life satisfaction of grandparents in China. *Aging and Health Research, 2*(3), Article 100095. https://doi.org/10.1016/j.ahr.2022.100095

Shin, O., Park, S., Kang, J.Y., & Kwak, M. (2021). Types of multidimensional vulnerability and well-being among the retired in the U.S. *Aging & Mental Health, 25*(7), 1361–1372. https://doi.org/10.1080/13607863.2020.1768212

Shoushtari-Moghaddam, E., Asadollahi, A., & Kaveh, M.H. (2024). Validation of the retirement resources inventory in Persian: Assessing psychometric properties among Iranian retirees. *Current Gerontology and Geriatrics Research, 2024*, Article 1467773. https://doi.org/10.1155/2024/1467773

Sinha, P., & Irala, L.R. (2024). Prepared for retirement? Think again: A systematic review and future research agenda. *Management Review Quarterly, 75*, 1–38. https://doi.org/10.1007/s11301-024-00437-w

Slaski, M., & Cartwright, S. (2002). Health, performance and emotional intelligence: An exploratory study of retail managers. *Stress and Health, 18*(2), 63–68. https://doi.org/10.1002/SMI.926

Slaski, M., & Cartwright, S. (2003). Emotional intelligence training and its implications for stress, health and performance. *Stress and Health, 19*(4), 233–239. https://doi.org/10.1002/SMI.979

Sousa-Ribeiro, M., Knudsen, K., Sverke, M., & Lindfors, P. (2024). To work after retirement: A qualitative study among mental health nursing assistants. *Nordic Psychology, 77*(3), 200–226. https://doi.org/10.1080/19012276.2024.2336231

Teddlie, C., & Yu, F. (2007). Mixed methods sampling: A typology with examples. *Journal of Mixed Methods Research, 1*(1), 77–100. https://doi.org/10.1177/1558689806292430

Trică, A., Golu, F., Sava, N.I., Licu, M., Zanfirescu, Șerban A., Adam, R., & David, I. (2024). Resilience and successful aging: A systematic review and meta-analysis. *Acta Psychologica, 248*, Article 104357. https://doi.org/10.1016/j.actpsy.2024.104357

Tzeng, H.-M., Barker, A., Kang, Y. (Sunny), Okpalauwaekwe, U., & Yin, C.-Y. (2019). Are older adults' demographic characteristics social determinants of their perceived importance, desire, and ability to perform end-of-life self-care actions? *Nursing Forum, 54*(4), 565–574. https://doi.org/10.1111/nuf.12371

United Nations. (2023). *World social report 2023: Leaving no one behind in an ageing world*. https://desapublications.un.org/publications/world-social-report-2023-leaving-no-one-behind-ageing-world

Vanoh, D., Shahar, S., Yahya, H.M., & Hamid, T.A. (2016). Prevalence and determinants of depressive disorders among community-dwelling older adults: Findings from the Towards Useful Aging Study. *International Journal of Gerontology, 10*(2), 81–85. https://doi.org/10.1016/J.IJGE.2016.02.001

Wang, J., Gu, R., Zhang, L., & Zhang, L. (2023). How is caring for grandchildren associated with grandparents' health: The mediating effect of internet use. *Frontiers in Public Health, 11*, Article 1196234. https://doi.org/10.3389/fpubh.2023.1196234

Wang, M., Henkens, K., & van Solinge, H. (2011). Retirement adjustment: A review of theoretical and empirical advancements. *American Psychologist, 66*(3), 204–213. https://doi.org/10.1037/A0022414

Weech-Maldonado, R., Miller, M.J., & Lord, J.C. (2017). The relationships among socio-demograph-ics, perceived health, and happiness. *Applied Research in Quality of Life, 12*, 289–302. https://doi.org/10.1007/S11482-017-9517-8

World Bank. (2020). *A silver lining: Productive and inclusive aging for Malaysia*. https://www.worldbank.org/en/country/malaysia/publication/a-silver-lining-productive-and-inclusive-aging-for-malaysia

World Health Organization. (n.d.). *Promoting well-being*. https://www.who.int/activities/promoting-well-being

World Health Organization. (2023). *Malaysia: Health data overview for Malaysia*. https://data.who.int/countries/458

World Population Review. (2025). *Retirement age by country 2025*. https://worldpopulation/review.com/country-rankings/retirement-age-by-country

Wu, J., & Chao, Q. (2024). How older adults fulfill their retirement plans relates to positive mental health: A path model analysis of social activity and self-esteem. *Current Psychology, 43*, 5963–5974. https://doi.org/10.1007/s12144-023-04735-6

Zaniboni, S., Topa, G., & Balducci, C. (2021). Core self-evaluations affecting retirement-related outcomes. *International Journal of Environmental Research and Public Health, 18*(1), Article 174. https://doi.org/10.3390/IJERPH18010174