



The Comprehensive Impact of Retirement Planning Achievement, Active Aging, and Retirement Adjustment on Mental Health: an Empirical Analysis

Jing Yuan^{a*}, Boyao Zhao, Buxin Han^{b*}

CAS Key lab of Mental Health, Institute of Psychology, University of Chinese Academy of Sciences, 16 Lincui Rd., Beijing, 100101, China

^{a*}546838849@qq.com, ^{b*}hanbx@psych.ac.cn

Abstract. With the acceleration of global aging and the increasing retirement population, the mental health of older adults has gained growing attention. Based on the Life-Span Developmental Perspective, Self-Determination Theory, and Active Aging Theory, this study identifies retirement planning, active aging, and retirement adjustment as key variables influencing mental health. Existing literature shows a lack of multidimensional integration in this field. This study constructs a comprehensive model of the effects of retirement planning achievement, active aging, and retirement adjustment on mental health to explore these issues. Analysis of questionnaire data from 900 retired individuals aged 55–74 across China reveals the following findings: (1) Active aging is the strongest predictor of mental health ($\beta = 0.506$), significantly enhancing mental health through health management, social participation, and economic security; (2) Different dimensions of retirement adjustment affect mental health in varying ways. Retirement enjoyment significantly promotes mental health, while retirement loss significantly weakens mental health; (3) Retirement planning achievement affects mental health through the mediation of active aging and retirement adjustment. Mediation analysis shows that the 'active aging path' has the strongest positive effect on mental health, followed by the 'retirement adjustment path'; (4) Among demographic factors, females, individuals with higher family income, good self-rated health, and those who regularly participate in social activities (e.g., square dancing, calligraphy, and painting) exhibit better mental health and retirement adjustment. Conversely, those with lower income, lower education, and longer retirement duration demonstrate weaker mental health and adjustment capabilities; (5) Mental health scores are highest in self-awareness and interpersonal dimensions, while active aging is at a moderate level. Both retirement planning achievement and retirement adjustment are relatively low, with current social participation and social networks being insufficient, and economic factors still acting as a limiting factor in active aging. The study also highlights the importance and necessity for individuals post-retirement to focus on building social networks and actively participating in society.

Keywords: retirement planning achievement, active aging, retirement adjustment, mental health, retired older adults

1 Introduction

With the acceleration of global aging, the rapid growth of the elderly population has profound effects on the economic system, social structure, and individual mental health. Retirement marks a significant life transition, often involving changes in social roles, income, relationships, and lifestyle [1]. Mental health among older adults significantly impacts individual well-being and broader societal harmony [2]. Exploring the influencing factors of elderly mental health helps identify potential intervention points, optimize health management, social support, and policy formulation, promote active aging, reduce family and social burdens, and provide scientific evidence and practical directions for building a more inclusive and supportive aging society.

This study draws on three key theories—Self-Determination Theory, Active Aging Theory, and Life-Span Developmental Perspective—to examine factors influencing post-retirement mental health. **1) Self-Determination Theory (SDT)** emphasizes the psychological needs of autonomy, competence, and relatedness [3][4]. Retirement planning influences mental health by enhancing an individual's sense of autonomy and control over the future [5][6]; community participation and skill development enhance competence, while family support and social networks reinforce relatedness [7]. SDT provides theoretical support for understanding the psychological connections between retirement planning achievement, active aging, and retirement adaptation. **2) Active Aging Theory** emphasizes that health management, social participation, and security are key to improving the quality of life for older adults [8]. The core concept of active aging includes a scientific, proactive, and productive view of aging, advocating that older adults should pursue "aging with enjoyment, learning, and contribution" [7]. The implementation of retirement planning provides the foundation for health management and social participation, thus promoting active aging [8][9]. Active aging theory explains how active aging and retirement adaptation contribute to mental health and the mediating pathways involved. **3) Life-Span Development Theory** focuses on transitional periods in life, highlighting the importance of psychological adaptation and growth during various life stages, especially when facing challenges such as reduced financial resources and changes in social roles [10]. This theory emphasizes the need for resource optimization and compensation in old age, particularly when older adults face adaptation pressures post-retirement, and underscores the growing importance of personal learning, growth, and late-life development [7].

Based on these theories, this study identifies three key factors—retirement planning, active aging, and retirement adaptation—that influence mental health. **1) Retirement planning** involves not only financial security but also health management, social support, and living environment considerations [11][12]. The degree of retirement planning achievement reflects how well individuals prepare for retirement, significantly improving life satisfaction and mental well-being [13]. Adequate and scientific retirement planning can effectively alleviate psychological stress by reducing loneliness, enhancing life satisfaction, and improving older adults' ability to cope with aging, thus further enhancing mental health [14][15]. **2) Active aging** is regarded as a key factor in improving mental health, particularly emphasizing the importance of older adults' ac-

tive participation in social and economic life [7]. Health management, physical exercise, and social participation can effectively improve older adults' quality of life and mental health [16][9]. Economic stability enhances safety and reduces anxiety, while a positive attitude toward life helps older adults adapt to role changes after retirement [17][18]. Older adults should continue to engage in social and economic activities post-retirement, enhancing their personal development potential and improving emotional, psychological, and social health [19]. 3) Retirement adaptation is critical for helping older adults transition from work to retirement life. Social support, self-efficacy, and a sense of value play important roles in this process [20][7]. By increasing social participation and cognitive abilities, older adults can better adapt to retirement, thus improving mental health [21]. The paths of psychological adaptation may vary significantly across different cultures [22]. In summary, the combined influence of retirement planning, active aging, and retirement adaptation on mental health is interconnected and dynamic. Active aging and retirement adaptation may mediate the impact of retirement planning achievement on mental health. Existing research has explored the process from single factors to multidimensional interactions, gradually revealing the complex effects of these three factors on mental health. However, further exploration is needed in the areas of multidimensional impacts and mediating effects. Life-span development theory provides the theoretical foundation for adaptation mechanisms, self-determination theory focuses on psychological needs, and active aging theory provides practical directions. These three theories complement each other and offer a multidimensional theoretical framework for exploring how they jointly influence the mental health of older adults.

In summary, this study aims to explore the comprehensive impact of retirement planning achievement, active aging, and retirement adjustment on mental health. It examines how retirement planning achievement influences mental health through the mediating effects of active aging and retirement adjustment, revealing the complex relationships among these variables, and providing theoretical support and practical directions for optimizing mental health pathways for older adults. The following hypotheses are proposed: H1-H3: Retirement planning achievement, active aging, and retirement adjustment positively influence the mental health of retired older adults; H4-H5: Active aging and retirement adjustment mediate the relationship between retirement planning achievement and mental health; H6-H7: Retirement planning achievement positively influences retirement adjustment and active aging levels; H8: Active aging positively influences retirement adjustment levels. A structural equation model is constructed based on these hypotheses.

2 Research Methodology

This study incorporated general demographic characteristics, including gender, marital status, self-rated family income, and self-rated health status. Studies indicate that square dancing enhances the mental health of middle-aged and older adults and promote the realization of active aging [23], while calligraphy is more beneficial for both the physical and mental health of older adults and their retirement adjustment [19]. The target

population for this study was retirees aged 55-74 from various cities across China, who are about to or have already retired and are facing various challenges and opportunities in post-retirement life.

The study employed four established scales to assess the mental health status of retired older adults from multiple dimensions. A preliminary survey was conducted by distributing questionnaires to the target group via email and the WeChat social platform, with 69 participants included in the pilot analysis. The internal consistency reliability of the scales was verified using Cronbach's alpha coefficient.

The Retirement Planning Achievement scale includes five dimensions: financial, health, social network, housing, and psychological planning, measured using a 4-point Likert scale [13]. The Cronbach's alpha for this scale was 0.910.

The Active Aging scale measures seven dimensions: self-reliance, active social participation, mature mental wisdom, financial security, healthy lifestyle, active learning, and maintaining family relationships, measured using a 4-point Likert scale [24]. The Cronbach's alpha for this scale was 0.957.

The Retirement Adaptation Questionnaire includes three dimensions, measured using a 5-point Likert scale [25]. The overall Cronbach's alpha for this scale was 0.887, and the Cronbach's alpha for the three subdimensions—retirement enjoyment, retirement loss, and work nostalgia—were 0.770, 0.779, and 0.845, respectively.

The Mental Health scale measures five dimensions: adaptability, cognitive functioning, emotional experience, interpersonal interaction, and self-awareness, measured using a 4-point Likert scale [26]. The Cronbach's alpha for this scale was 0.876.

The Cronbach's alpha coefficients for the four scales were all above 0.8, indicating good internal consistency and demonstrating that the measurement tools used in this study have high reliability. The study collected data from 926 retirees aged 55-74 through an online questionnaire platform. After screening for response bias using lie detection items, 900 valid responses were included in the final analysis. SPSS 29.0.1 and Mplus 8.3 were used for data analysis in this study.

3 Research Results

3.1 Sample Frequency Distribution

The sample population consisted of an equal gender distribution (50% male and 50% female), with a majority being married individuals who reported moderate to high income levels and relatively good self-rated health. However, their participation in social and cultural activities was relatively low, as detailed in Table 1. The internal consistency reliability results of the formal survey scales varied. The Retirement Planning Achievement scale had a Cronbach's alpha of 0.754, Active Aging reached a high of 0.884, and Retirement Adaptation had a lower value of 0.621, approaching the minimum acceptable range (The lower reliability score for retirement adjustment may indicate the need for further refinement of this scale in future studies.). However, the subdimensions of Work Nostalgia (0.840) and Retirement Enjoyment (0.709) showed higher reliability. The Cronbach's alpha for the Mental Health scale was 0.737. Overall, the scales provided a reliable foundation for the study.

3.2 Descriptive Statistics and Status Analysis

Statistical analysis revealed that the mean and standard deviation for all variables fell within reasonable ranges. The skewness and kurtosis analysis indicated that, except for marital status, the distribution of other variables was relatively uniform, meeting statistical requirements. Retirement Planning Achievement and Retirement Adaptation levels were relatively low, suggesting areas for further development. Active Aging was also found to have deficiencies; while self-reliance, health management, and family support were strong, financial security and social participation were insufficient. Mental health appeared unbalanced, with higher scores in self-awareness and interpersonal interaction, indicating a solid psychological health foundation. However, adaptability and cognitive functioning were moderate, suggesting a need for enhanced cognitive and adaptability training. Participation in square dancing was higher compared to other activities, such as calligraphy and painting.

Table 1. Analysis of Differences in Core Variables by General Characteristics(M $\pm$ SD)N=900

		Rate (%)	Retirement Planning Achievement	Active Aging	Retirement Adjustment	Mental Health
Gender	Male	50	1.975 $\pm$ 0.413	3.027 $\pm$ 0.364	3.462 $\pm$ 0.403	3.037 $\pm$ 0.318
	Female	50	2.053 $\pm$ 0.354	3.123 $\pm$ 0.343	3.484 $\pm$ 0.357	3.044 $\pm$ 0.305
Square Dance	No	63.1	1.955 $\pm$ 0.404	3.007 $\pm$ 0.356	3.432 $\pm$ 0.383	3.008 $\pm$ 0.315
	Yes	36.9	2.115 $\pm$ 0.332	3.191 $\pm$ 0.327	3.542 $\pm$ 0.366	3.094 $\pm$ 0.297
Calligraphy and Painting	No	75.8	1.976 $\pm$ 0.399	3.031 $\pm$ 0.366	3.443 $\pm$ 0.377	3.017 $\pm$ 0.311
	Yes	24.2	2.133 $\pm$ 0.316	3.211 $\pm$ 0.287	3.566 $\pm$ 0.378	3.112 $\pm$ 0.301
Marital Status	Married	92.8	2.019 $\pm$ 0.388	3.076 $\pm$ 0.355	3.476 $\pm$ 0.383	3.050 $\pm$ 0.307
	Single	0.7	1.843 $\pm$ 0.262	3.120 $\pm$ 0.218	3.406 $\pm$ 0.435	3.079 $\pm$ 0.319
	Divorced	3.3	1.945 $\pm$ 0.390	3.019 $\pm$ 0.424	3.362 $\pm$ 0.296	2.868 $\pm$ 0.354
	Widowed	3.2	1.964 $\pm$ 0.359	3.096 $\pm$ 0.367	3.501 $\pm$ 0.372	2.933 $\pm$ 0.322
Household In- come	Insufficiency	6.7	1.437 $\pm$ 0.452	2.782 $\pm$ 0.374	3.308 $\pm$ 0.496	2.820 $\pm$ 0.361
	Average	64.1	2.006 $\pm$ 0.365	3.031 $\pm$ 0.357	3.427 $\pm$ 0.353	3.006 $\pm$ 0.300
	Sufficiency	29.2	2.163 $\pm$ 0.276	3.237 $\pm$ 0.273	3.612 $\pm$ 0.371	3.165 $\pm$ 0.275
	Very unhealthy	1.4	2.045 $\pm$ 0.390	3.026 $\pm$ 0.464	3.387 $\pm$ 0.381	2.903 $\pm$ 0.376
Self-rated Health	Relatively unhealthy	13.4	1.870 $\pm$ 0.417	2.961 $\pm$ 0.374	3.385 $\pm$ 0.356	2.944 $\pm$ 0.295
	Generally healthy	40.7	1.967 $\pm$ 0.392	3.032 $\pm$ 0.372	3.424 $\pm$ 0.390	2.992 $\pm$ 0.314
	Relatively healthy	39.2	2.107 $\pm$ 0.349	3.151 $\pm$ 0.318	3.537 $\pm$ 0.364	3.119 $\pm$ 0.295
	Very healthy	5.2	2.043 $\pm$ 0.374	3.148 $\pm$ 0.303	3.628 $\pm$ 0.377	3.110 $\pm$ 0.280

3.3 Analysis of Differences in Core Variables by General Characteristics

The results of the difference analysis indicated that women scored significantly higher than men in terms of Retirement Planning Achievement ($p < 0.01$) and Active Aging ($p < 0.01$). Individuals with higher household income, better self-rated health, and regular participation in social activities such as square dancing and calligraphy exhibited

superior scores in Retirement Planning Achievement, Active Aging, Retirement Adaptation, and Mental Health ($p<0.01$). Marital status showed a significant difference only in Mental Health scores ($p<0.01$), as detailed in Table 1.

3.4 Correlation Analysis

The correlation analysis revealed significant relationships between household income, self-rated health, and social activities with the four core variables. Retirement Planning Achievement, Active Aging, and Retirement Adaptation were all positively correlated with Mental Health. Notably, Active Aging showed the strongest correlation with Mental Health, with Retirement Enjoyment showing a significant positive correlation, while Retirement Disappointment had a significant negative correlation. Square dancing and calligraphy were found to have a particularly strong effect in promoting Active Aging, Mental Health, and Retirement Planning Achievement. As shown in Fig. 1.

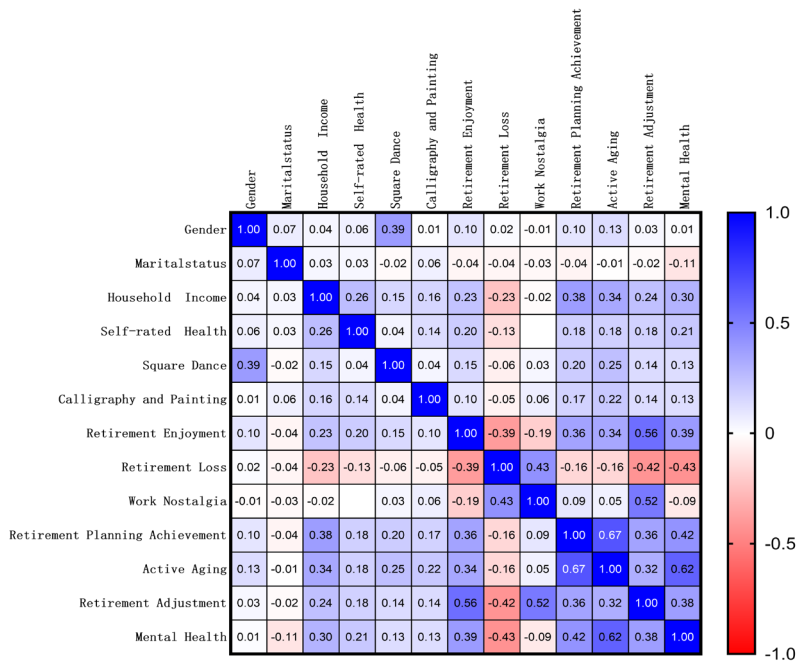


Fig. 1. Correlation Analysis

3.5 Regression Analysis of Influencing Factors on Mental Health

As shown in Table 2, the model's explanatory power for mental health significantly increased with the stepwise inclusion of variables. The change in ΔR^2 indicates that each group of variables added improved the model's explanatory ability, particularly after the introduction of the active aging and retirement adaptation variables, highlighting their key role in mental health. Retirement planning achievement had a significant

positive effect on mental health, though its significance diminished with the inclusion of other variables. Active aging demonstrated a significant positive effect and was the strongest predictor of mental health ($\beta = 0.566$). Among the subdimensions of retirement adaptation, the dimension of retirement loss had the most significant negative effect on mental health ($\beta = -0.327$), suggesting that negative experiences may significantly undermine mental health. The positive effect of retirement enjoyment was significant, but weaker than that of retirement loss. The effect of work nostalgia was not significant. Regarding the influence of general demographic characteristics, gender had a significant negative impact on mental health, indicating that men may experience slightly poorer mental health than women. Marital status had a significant negative effect on mental health, suggesting that being unmarried or widowed may adversely affect mental health. Household income had a significant positive effect, but its effect gradually weakened with the inclusion of other variables, suggesting that the importance of economic conditions may be mediated by other variables. Self-reported health had a significant positive effect on mental health, indicating that self-assessed health status might be an important foundation for mental health. Participation in square dancing and calligraphy/painting activities had a significant positive effect on mental health; however, once the core variables were added, this effect was no longer significant, indicating that their influence may be mediated or overshadowed by variables such as active aging.

Table 2. Regression Analysis of Influencing Factors on Mental Health

characteristic	Model 1		Model 2		Model 3		Model 4		Model 5	
	β	p	β	p	β	p	β	p	β	p
Gender	-0.036	0.283	-0.05	0.125	-0.066	0.019	-0.058	0.034	-0.050	0.49
Marital status	-0.121	<.001	-0.100	<.001	-0.107	<.001	-0.104	<.001	-0.116	<.001
Household income	0.236	<.001	0.128	<.001	0.086	0.003	0.069	0.014	0.025	0.342
Self-rated health	0.145	<.001	0.119	<.001	0.096	<.001	0.078	0.003	0.064	0.009
Square dancing	0.099	0.004	0.057	0.079	-0.006	0.837	-0.019	0.501	-0.021	0.423
Calligraphy and painting	0.078	0.014	0.041	0.177	-0.014	0.606	-0.023	0.364	-0.014	0.547
Retirement planning achievement			0.333	<.001	-0.023	0.525	-0.066	0.060	-0.055	0.091
Active aging					0.599	<.001	0.579	<.001	0.566	<.001
Retirement adjustment							0.194	<.001		
Retirement Enjoyment									0.081	0.003
Retirement Loss									-0.327	<.001
Work Nostalgia									0.042	0.108
<i>F</i>	23.659***		37.423***		78.878***		79.623***		88.601***	
<i>R</i> ²	0.137		0.227		0.415		0.446		0.523	
<i>Adj. R</i> ²	0.131		0.221		0.409		0.440		0.517	
ΔR^2	0.137		0.090		0.188		0.031		0.109	

Note: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

3.6 Structural Equation Model Analysis

A multivariable path analysis using structural equation modeling (SEM) was conducted with Mplus 8.3. After controlling for general demographic variables such as gender, marital status, family income level, self-reported health, and regular participation in activities like square dancing and calligraphy, the results showed that the direct effect of retirement planning achievement on mental health was not significant. However, retirement planning achievement had a significant positive effect on both active aging and retirement adaptation. Both active aging and retirement adaptation had significant positive effects on mental health, with active aging significantly influencing retirement adaptation. Hypotheses H1 was not supported, while hypotheses H2-3 and H6-8 were confirmed, as illustrated in Fig 2. Mediation analysis revealed that the mediation paths med1, med2, and med3 were all significant, with effect sizes of 0.276, 0.035, and 0.009, respectively. Hypotheses H4 and H5 were supported. Path comparison analyses (diff1, diff2, and diff3) showed significant differences, indicating that the positive effect of the "active aging path" on mental health was significantly stronger than that of the "retirement adaptation path," and the retirement adaptation path was stronger than the "active aging-retirement adaptation chain mediation path." Further details are provided in Table 3.

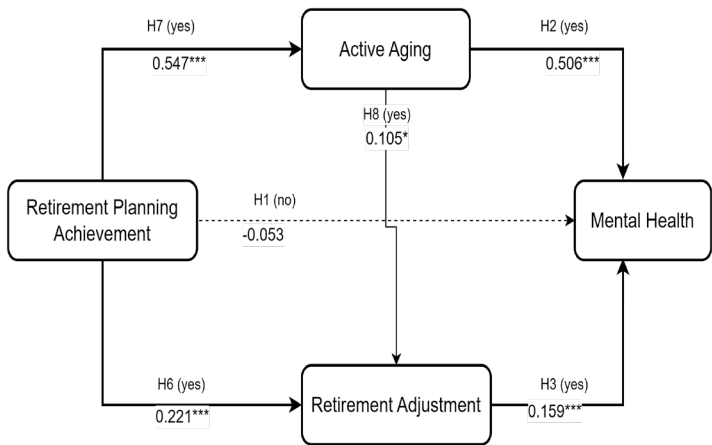


Fig. 2. Structural Equation Model

Table 3. Specific Mediation Effect Analysis

	point	Esti- mate	Product of coefficients			BOOTSTRAP 5000 TIMES 95% CI			
			S.E.	Est./S.E.(Z)	P-Value	bias corrected		percentile	
						lower	upper	lower	upper
INDIRECT EFFECTS									
	med1	0.276	0.023	12.097	0.000	0.235	0.324	0.233	0.322
	med2	0.035	0.009	3.729	0.000	0.019	0.057	0.018	0.055
	med3	0.009	0.004	2.066	0.039	0.001	0.019	0.001	0.018

CONTRASTS								
diff1	0.241	0.026	9.317	0.000	0.192	0.294	0.129	0.294
diff2	0.267	0.023	11.669	0.000	0.226	0.314	0.225	0.313
diff3	0.026	0.012	2.199	0.028	0.005	0.053	0.004	0.050

(Note: x, m, w, and y represent retirement planning achievement, active aging, retirement adaptation, and mental health, respectively. med1, med2, and med3 represent the x-m-y path, x-w-y path, and x-m-w-y path, respectively. diff1 = med1 - med2; diff2 = med1 - med3; diff3 = med2 - med3.)

4 Discussion

This study explores the comprehensive impact of retirement planning achievement, active aging, and retirement adaptation on the mental health of elderly individuals. The results indicate that all three factors significantly influence the mental health of retired seniors. Among these, the positive effect of active aging is the most prominent, while the influence of retirement adaptation is characterized by its diversity due to the dimensional differences within this construct. The impact of retirement planning achievement on mental health is mediated through enhancing active aging practices and promoting retirement adaptation. These findings align with the initial research expectations and provide evidence for further understanding the mechanisms influencing the mental health of elderly individuals, highlighting the necessity and importance of retirees exercising personal agency.

4.1 The Core Role of Active Aging

Active aging strongly predicts mental health outcomes ($\beta = 0.506$), especially through its role as a mediator. The dimensions of health, participation, and security were verified as core pathways for improving mental health among older adults, reinforcing the core role of active aging in mental health [8]. This study further confirms the central role of social participation and health management in active aging practices. Continued engagement in social activities and maintaining health management are crucial ways to improve elderly mental health [7]. Older adults can effectively reduce feelings of depression and anxiety and enhance psychological adaptability by increasing social participation and health management [27].

4.2 The Multifaceted Impact of Retirement Adaptation

The multidimensional nature of retirement adaptation was verified in this study. The findings reveal that the impact of retirement adaptation on mental health differs across its dimensions. The sense of enjoyment in retirement positively influences mental health, while retirement-related feelings of loss significantly diminish mental health. These findings align with Self-Determination Theory, demonstrating how fulfilling psychological needs, such as autonomy and relatedness, enhances mental health. This suggests that positive retirement experiences (e.g., retirement enjoyment) can enhance

psychological resilience, while negative experiences (e.g., retirement loss) may contribute to the deterioration of mental health [28]. The study also shows that retirement enjoyment is negatively correlated with both retirement loss and work nostalgia, reflecting a compound experience. Work nostalgia did not significantly impact mental health. However, this result contradicts the positive effect of work nostalgia found in Zhang and Wang (2018) [25] and the findings of Wells et al. (2006), which indicated maladaptation to retirement life [29]. The discrepancy may stem from differences in sample representativeness, and the paths of psychological adaptation may vary significantly across different cultures [22]. Future studies should investigate the cultural and methodological factors contributing to these inconsistencies.

4.3 Mediating Effects

The degree of retirement planning achievement affects mental health through the mediating effects of successful aging and retirement adjustment. Mediation path effect analysis indicates that the "successful aging mediation path" has a significantly stronger positive effect on mental health than the "retirement adjustment mediation path," and the "retirement adjustment path" is significantly stronger than the "successful aging-retirement adjustment chain mediation path." This confirms the role of successful aging theory in explaining how successful aging and retirement adjustment promote mental health and their underlying mediating mechanisms [8][9]. High levels of retirement planning achievement provide various resource supports for enhancing successful aging, which in turn positively influences the improvement of older adults' mental health. These results align with the life-span development theory's emphasis on the need for resource optimization and compensation in later life [10]. Furthermore, this study underscores that retirement planning is not merely an economic preparation but also involves aspects such as health management and social support systems [11]. A comprehensive and effective retirement plan can alleviate post-retirement psychological stress and provide better mechanisms for adaptation [30]. The degree of retirement planning achievement also significantly promotes retirement adjustment, supporting the validity and applicability of the four-stage retirement model proposed by Dai et al. (2017) [31]. A high degree of retirement planning achievement helps enhance the positive dimensions of retirement adjustment (retirement enjoyment). Future interventions should focus more on strategies to reduce retirement loss, such as strengthening social support and psychological counseling, to balance the multidimensional impacts of retirement adjustment and further improve older adults' overall mental health.

4.4 The Promotive Role of General Information Characteristics

Higher family income, better self-rated health, and regular participation in social or cultural activities were associated with better mental health levels. The study also confirmed that economic security is a key factor influencing mental health [16], and self-rated health has a significant positive effect on mental health [32][33]. Square dancing,

a common community activity among Chinese older adults, and calligraphy, a traditional art form, are linked to better mental health [34][35][19], suggesting that communal activities like square dancing may hold greater significance in collectivist societies.

4.5 Current Status of Mental Health

Mental health was particularly strong in the dimensions of self-recognition and interpersonal communication, with better self-awareness and social interactions effectively promoting mental health. Active aging was found to be at a moderate level, while retirement planning achievement and retirement adaptation were relatively low, indicating insufficient social participation and social networks in the current state. This underscores the need to focus on building social networks and actively participating in society post-retirement. Financial security was found to be low, indicating that economic factors continue to be a limiting factor in active aging. This result aligns with the current 5.53% retirement preparation index in China [36].

This study provides new theoretical insights and empirical support for the comprehensive impact of retirement planning achievement, active aging, and retirement adaptation on elderly mental health. Active aging is the strongest predictor of mental health, emphasizing the importance of practical application. The severity of aging in China, the global economic downturn, and international instability pose significant pressures and challenges to the country [37], and traditional retirement thinking no longer meets the demands of the times [38]. Therefore, advocating for retirees to exercise personal agency is of great significance. The life-span development theory stresses individual adaptability and agency, advocating for proactive adaptation to changes in personal and external environments [7]. The theory of active aging provides direction for practice [8]. To enhance the mental health of retired seniors and help them better and more rapidly adapt to post-retirement life, it is crucial to overcome dependency, start with self-change, and proactively adapt to the challenges of change, ensuring a thriving path of holistic development [19].

4.6 Limitations and Future Directions

Although this study provides empirical support for the impact of retirement planning achievement, active aging, and retirement adaptation on mental health, several limitations exist. First, the sample lacks diversity and representativeness, as it is primarily composed of urban retirees, excluding rural retirees, which may limit the generalizability of the findings. Future studies should expand the sample scope to include elderly populations from different cultural and economic backgrounds and urban-rural settings. Second, this study employs a cross-sectional design, which does not reveal the dynamic changes of retirement planning, active aging, and retirement adaptation throughout the life cycle. Future studies should consider using longitudinal research designs to capture the evolution of these variables. Furthermore, the cross-sectional design limited the ability to capture long-term changes in mental health variables, this study did not include the moderating roles of data technology and social support. Future research can explore the combined effects of multiple factors, including the moderating roles of data

technology and social support, and construct a more comprehensive theoretical model. Developing digital tools for personalized retirement planning and promoting online platforms for cultural engagement could enhance active aging practices.

5 Conclusion

Retirement planning achievement influences mental health through complex mediating mechanisms involving active aging and retirement adaptation. While the direct effect of retirement planning achievement on mental health is not significant, it influences mental health through the mediating effects of active aging and retirement adaptation. Active aging is the core factor influencing mental health, with the strongest positive predictive effect on mental health. The dual impact of retirement adaptation highlights its complexity; retirement adaptation has a significant duality in its effect on mental health: positive dimensions (e.g., retirement enjoyment) significantly promote mental health, while negative dimensions (e.g., retirement loss) significantly undermine mental health. Among the general information characteristics, individuals who are female, have higher income, report good self-rated health, and engage in social activities (such as square dancing and calligraphy) show better performance in the four study variables. Individuals with lower income, limited education, and prolonged retirement periods exhibit poorer mental health and adaptation abilities, thus necessitating special attention to the support needs of these vulnerable groups.

Practical Recommendations: Baltes (1999) emphasizes individual plasticity through the life-span development perspective, which highlights that people continuously build skills and knowledge throughout their lives, particularly emphasizing individual agency [10]. Self-Determination Theory (SDT) posits that the satisfaction of three basic psychological needs—autonomy, competence, and relatedness—is crucial for mental health [3][4]. We advocate for and encourage older adults to actively explore their talents, cultivate interests, develop abilities, and seek life satisfaction, while proactively preparing for retirement. This involves reintegrating the personal, social, natural, and cosmic self to achieve holistic growth and health [39]. Furthermore, governments and social organizations at all levels should pay particular attention to the support needs of vulnerable groups, especially the elderly in rural areas, older individuals, and people with disabilities [40]. A comprehensive design of planning and adaptation service systems should be developed, with appropriate policy support and humanistic care. Additionally, retirement planning education should be strengthened, active aging promoted, and retirement adaptation support optimized.

References

1. Wang, C.Y., Wang, H.C., Liu, X.L., Chen, W.J., He, G.P.: Research progress on social adaptation among pre-retirement groups. *Chinese Journal of Gerontology* 38(23), 5864–5866 (2018).
2. Li, J., Wu, Z.Y., Han, B.X.: Development of the elderly mental health scale (urban version). *Chinese Mental Health Journal*, 23(9), 656–660 (2009).

3. Deci, E.L., Ryan, R.M.: *Intrinsic motivation and self-determination in human behavior*. Springer Science & Business Media, New York (1985).
4. Huang, M.X., Liu, Y.: Psychological mechanisms underlying adopting human-machine collaboration in augmented managerial decision-making: A perspective of Self-Determination Theory. *Advances in Psychological Science* 31(11), 1981–1993 (2023).
5. Liu, Z.Q., Pan, X.Q., Wei, L.H., Xu, Y.P.: Collective psychological ownership and creativity: A self-determination theory perspective. *Journal of Management Science in China* 24(11), 98–115 (2021).
6. Yang, H., Shao, J.J., Zhang, Q.H., Jiang, Y., Li, J.M., Bai, X.J.: Mediating Role of Security and Perceived Control on the Relationship between Fear of Aging and Older Adults' Vulnerability to Fraud. *Chinese Journal of Clinical Psychology* 27(5), 1036–1040 (2019).
7. Han, B.X.: *Psychological adjustment of retirement*. National Open University Press, Beijing (2024).
8. World Health Organization: *Active ageing: A policy framework*. Geneva: WHO (2002).
9. Fu, H., Chen, Q.R.: Positive Aging: Research and Practice of the Mental Health of Elderly from a Global View. *Studies of Psychology and Behavior* 13(05), 713–720 (2015).
10. Baltes, P.B., Staudinger, U.M., Lindenberger, U.: *Lifespan psychology: Theory and application to intellectual functioning*. *Annual Review of Psychology* 50, 471–507 (1999).
11. Zhang, L.Y., Wang, Z.J.: Research status and localization development of retirement planning. *Advances in Psychological Science* 27(02), 251–267 (2019).
12. Mustafa, W.M.W., Islam, M.A., Asyraf, M., Hassan, M.S., Royhan, P., Rahman, S.: The effects of financial attitudes, financial literacy, and health literacy on sustainable financial retirement planning: The moderating role of the financial advisor. *Russian Law Journal* (2023).
13. Wu, J.Q., Chao, Q.L.: 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 (2024).
14. Lai, Y.C.: Research progress on loneliness among the elderly. *Chinese Journal of Gerontology* 32(11), 2429–2432 (2012).
15. Wen, Y.J.: *Future Time Insight and Retirement Financial Planning — Analysis based on the opportunity-ability-willingness model*. Central University of Finance and Economics (2022).
16. Yang, J., Wei, H.F., Wang, F.Z., Zhai, J.Y.: Psychological Health Status and Coping Strategies of the Elderly from the Perspective of Active Aging. *Journal of Mudanjiang Medical University* 45(02), 75–81 (2024).
17. Qu, Y.J., Jing, J.: Optimizing community mental health services for the elderly under the perspective of active aging. *Guandong Journal* 45 (03), 60–66 (2021).
18. Wolf, K., Schmitz, J.: Scoping review: Longitudinal effects of the COVID-19 pandemic on child and adolescent mental health. *European Child & Adolescent Psychiatry* 33, 1257–1312 (2024).
19. Han, B.X., Wang, X.R.: From Flow to Flourishing: Comprehensive Models of Happiness. *Journal of Suzhou University (Educational Sciences Edition)* 10(2), 83–94 (2022).
20. Wang, C.Y., Wang, H.C., Liu, X.L., Chen, W.J., He, G.P.: A study on social adaptation of pre-retirement groups. *Chinese Journal of Gerontology* 38(2), 5864–5866 (2018).
21. Ji, J.Y.: Retirement Adjustment of the Older People in Urban China. *Population Research* 42(04), 91–103 (2018).
22. Richardson, R., Keyes, K., Chen, C.Y., Maung, G.Y.K., Rowe, J., Calvo, E.: Societal adaptation to aging and prevalence of depression among older adults: Evidence from 20 countries. *The Milbank Quarterly* 101(2), 426–456 (2023).

23. Liu, X., Du, Q.J., Wang, Y.: Effects of square dancing on positive and negative emotions in middle-aged and elderly people under the context of active aging. *Proceedings of the 13th National Sports Science Conference*(China Sports Science Society, Beijing), 639–641(2023).
24. Zhang, J.G., Zhang, Y., Shi, Y., et al.: Reliability and validity of the Chinese version of the Active Aging Scale. *Chinese Journal of Gerontology* 37(21), 5424–5426 (2017).
25. Zhang, M.Y., Wang, D.H.: Application of Retirement Adjustment Questionnaire in Chinese Retirees of State-owned Enterprise. *Chinese Journal of Clinical Psychology* 26(05), 876–881 (2018).
26. Fu, J.N., Zhai, B.Y., Zhao, X.F., Zheng, Z.W., Li, J.: Reliability and Validity of the Brief Version of the Mental Health Inventory for the Elderly. *Chinese Journal of Clinical Psychology* 3(31), 640–644 (2023).
27. Zhou, H., Chen, L.Q., Hao, X.J., Chen, C.X.: Correlation among self-efficacy, sense of self-worth, and social adaption of young retired elderly in urban area. *CHINESE NURSING RESEARCH* 35(23), 4209–4213 (2021).
28. Zhang, Y.R., Yang, W., Zhang, S.Q., Yu, Z.X., Li, J.J.: Can social health insurance improve mental health? An analysis of supplementary high-cost illness insurance in China. *Journals of Gerontology Series B: Psychological Sciences and Social Sciences*79(10), gbae139(2024).
29. Wells, Y., de Vaus, D., Kendig, H., et al.: Healthy retirement project: Technical report. Latrobe University (2006).
30. Huang, N.C., Kuo, P.H., Hsu, W.C., Hu, S.C.: Retirement planning and types of healthy lifestyle after retirement: A nationwide survey in Taiwan. *Health Promotion International*38(3) (2023).
31. Dai, Y.E., Wen, F.F., Zuo, B., Wu, Y., Dai, T.T.: Individual-based psychological models of retirement. *Advances in Psychological Science* 25(03), 443–451 (2017).
32. Zhang, L.Y., Liu, C.B.: Effect of Reemployment on Mental Health of Urban Retired Elderly. *Population and Economics*25(3), 56–70 (2022).
33. Huang, W.J., Lv, K.Y.: The Impact of ‘reemployment after Retirement’ on Subjective Well-being of the Elderly—An Empirical Analysis Based on CHARLS Data. *Taxation and Economy*230(3), 22–31 (2020).
34. York, Q.Y., Shen, J.H., Yang, Y.: How ‘dama’ becomes drama—Assessing the ideological forces underlying open-air group dances by Chinese senior females. *Leisure Studies* 39(4), 558–567 (2020).
35. Sun, J.J., Sun, K.X.: The Effect of Support from Adult Children and Community Environment on the Mental Health of Older People. *Population and Development* 30(05), 15–26 (2024).
36. Tsinghua University: 2023 China Resident Retirement Preparation Index Survey Report. <https://www.sem.tsinghua.edu.cn/info/1022/35283.htm> (2023).
37. Peking University: China’s path to healthy aging: A major report from The Lancet Commissions. [https://doi.org/10.1016/S0140-6736\(22\)01546-X](https://doi.org/10.1016/S0140-6736(22)01546-X) (2022).
38. Zhang, J.H., Pang, S.Q., Hong, X.P., Zheng, Z.H., Li, M.L., Huang, Y.F., Wang, W.J.: Translation of Process of Retirement Planning Scale for pre-elderly people and its reliability and validity. *Journal of Nursing*(China) 30(10), 1–6 (2023).
39. Han, B.X.: Integrating the four selves to achieve holistic health: A case study of Su Dongpo’s poetry. *Psychology and Health* 321, 22–23 (2023).
40. Wang, Q; Fan, KY; Li, P. Effect of the Use of Home and Community Care Services on the Multidimensional Health of Older Adults. *Int. J. Environ. Res. Public Health*19(22), 15402(2022).

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