

Life Satisfaction and Death Anxiety among Chinese Rural Elderly: Moderating Effects of Gender, Age and Spouse

Yuntian Xie¹, Baojuan Liu²

1(Department of Applied Psychology, Changsha Normal University, China)

2(Department of Psychology, Hunan Normal University, China)

ABSTRACT: Using a survey of 974 Chinese rural elderly, this study explored the relationship between life satisfaction and death anxiety among rural elderly and the moderating effects of gender, age, and spouse. The results showed that life satisfaction was significantly negatively correlated with death anxiety among rural elderly. Age and spouse had significant co-modulating effects on the relationship between life satisfaction and death anxiety among rural elderly. Specifically, life satisfaction of rural elderly with spouse and younger age significantly negatively predicted death anxiety. Moreover, life satisfaction of rural elderly with spouse and older age was not a significant predictor of death anxiety. Compared with those without spouse and younger age, life satisfaction in the rural elderly without spouse and older age was more significant in predicting death anxiety.

KEYWORDS— *Life Satisfaction, Death Anxiety, Rural Elderly*

I. INTRODUCTION

Life and death belong to the eternal topic of human beings. No one can escape from death. Actually, Chinese people attach great importance to family factors and thus consider the effects of their death, such as the pain that death brings to their loved ones and the annoyance of death to family members [1]. Death anxiety has been described as an underlying fear in the development and maintenance of many psychological disorders [2]. There are numerous studies and investigations on the presence and severity of death anxiety in a range of psychiatric disorders, particularly for anxiety and somatic symptoms [3]. The definition of death anxiety can be understood in at least two ways. From an emotional perspective, death anxiety is the negative emotional experience of anxiety and fear caused by a death over which the individual has no control [4]. From a cognitive perspective, the cognitive components of death anxiety include attitudes toward death, the ability to predict the future, and the ability to remind death [5].

Currently, population aging has become a prominent social issue in China. According to the 2016 China National Assessment Report on Aging and Health, the proportion of people aged 60 and above will rise from 12.4% to 28% over the period from 2010 to 2040. The average life expectancy will rise from 75.3 years in 2015 to 80 years in 2050. While there will be a fourfold increase from 22.6 million to 90.6 million in the number of people aged 80 years or older over the period from 2013 to 2050. According to the Chinese government work report for the 13th National People's Congress in March 2018, geriatric period was mentioned 10 times. And the authorities have proposed the strategy of "actively responding to the aging of the population, developing home care, community care and mutual care, promoting the integration of medical care and improving the quality of services in nursing homes". Compared with urban areas, the situation of population aging is more serious in China's vast rural areas. To make matters worse, more of China's aging population is located in economically backward rural areas. This urban-rural inversion will continue until 2040. The blind and large-scale migration of the rural population to the cities can increase farmers' income and reduce the urban-

rural income gap. However, it leads to the creation and increase of urban unemployment, which is not conducive to stable employment and increases the level of aging of the rural population. The lack of companionship, care or other social support affects the living and psychological conditions of rural older people, which in turn affects the stability of their family structure and social harmony.

In terms of life course, geriatric period is at the stage closest to death. While Death anxiety is one of the most common phenomena among the elderly[6]. How to alleviate their death anxiety should be a key point in addressing the aging issue. According to the comprehensive model of death anxiety, past regrets, future regrets, and the meaning of death are the three determinants of death anxiety [7]. The first two belong to the type of regret, and the last one is related to the individual's view of death. Furthermore, past and future regrets involve the individual's experience and evaluation of their own life situation. The meaning of death involves the individual's perception of death itself. For example, to think about death is to live better. This idea is implicit in the existentialist philosopher Heidegger's "Being-towards-death". Life satisfaction is an individual's subjective experience of life quality as well as an overall cognitive evaluation of life quality based on self-selected criteria [8]. Therefore, it is commonly used as a measure of well-being or quality of life. Studies have suggested that religious people and older adults had a significant negative correlation between life satisfaction and death anxiety[9]-[10]. Additionally, the satisfaction and recognition of one's life can prepare the elderly to face death. Based on these findings, this study proposes the first hypothesis that life satisfaction of rural elderly affects death anxiety.

On the other hand, each individual eventually has to face death. However, in the process of facing death, different people may have different levels of death anxiety under the influence of many variables. For example, some studies have found that women exhibit higher levels of death anxiety than men [11]. Others have found that death anxiety is not significant between them [12]. One study examined the effect of age on death anxiety in adults aged 18 to 85 years and showed that death anxiety was not significant in both men and women, which showed an inverted U-shaped change, with death anxiety peaking in the 20s and a second peak in women in their 50s [13].

In addition, spouses can also influence individuals' death anxiety [14]. Threats to the health of extremely important ones can lead to inefficient and pathological patterns of coping with death anxiety in some individuals [15]. Thus, it is evident that gender, age, and spouse may affect individuals' death anxiety and may interact with life satisfaction. Based on these findings, this study proposes a second hypothesis: gender, age, and spouse play a moderating role in the relationship between life satisfaction and death anxiety among rural older adults.

To sum up, based on the background of China's aging population, this study explored the relationship between life satisfaction and death anxiety among rural older adults and the moderating roles of gender, age, and spouse between them, expecting to provide a reference for enhancing life satisfaction and alleviating death anxiety among rural older adults.

II. METHODS

1.1 Data collection and samples

Using a random sampling method, we selected 974 rural elderly people in Jiangxi Province, China as subjects (mean age 70.12 years, $SD=7.21$). The entire sample consisted of 488 males (50.10%) and 486 females (49.90%). Based on age characteristics, the elderly were divided into younger (<80 years) and older (≥ 80 years) groups. 42(86.45%) of them were in the younger group and 132 (13.55%) were in the older group.

In addition, the study categorized participants into those with or without a spouse, depending on the status of the spouse. The latter included unmarried, spouse death, and divorced. There were 666 (68.38%) elderly people with spouses and 308 (31.62%) elderly people without spouses. In addition, all rural elderly in this study were homebound (excluding those living in nursing homes).

1.2 Measures

1.2.1 Life satisfaction. Life satisfaction was assessed using the Life Satisfaction Scale[16] with 5 items. The scale has a single dimension, with a seven-point Likert scale (1=strongly disagree; 7=strongly agree). A

higher score indicates higher life satisfaction. The coefficient in this study was 0.78. Where higher scores indicate higher life satisfaction, and the reliability for this scale in this sample was good, Cronbach's alpha=0.78.

1.2.2 Death anxiety. Death anxiety was measured by a 15-item scale of Chinese Version of Templer Death Anxiety Scale [17]. The scale has a single dimension, with a two-point Likert scale (Yes=1 point; no=0 point) and this means that total scores range between 0 and 15. The higher the score, the greater the level of death anxiety. The total score below 7 (<7) is considered as low death anxiety, and the other (≥ 7) is considered as high death anxiety. The reliability for this scale in this sample was good, Cronbach's alpha=0.76.

1.3 Procedure

The test was completed by a combination of the elderly answering the questions themselves, the subjects reading the questions, and the elderly answering orally. The criteria for exclusion of subjects were as follows: (1) mental impairment or mental retardation; (2) inability to understand the questions; and (3) refusal to complete the questionnaire.

1.4 Data analysis

After data recovery, data were analyzed and plotted using SPSS and R software, and the Bootstrap method (1000 replicate samples) was used to test the significance of the regression coefficients.

III. RESULTS

1.1 Common method deviation test

To reduce common method bias, this study controlled the procedure by anonymously answering questions and reverse scoring some entries during data collection. After data collection, the common method bias was examined using Harman's single factor analysis of variance. The results showed that there were five factors with eigenvalues greater than one, and the variance explained by the first factor was 19.23%, which was less than 40%, indicating that there was no serious common method bias in this study.

1.2 Descriptive statistics and relevant information

The score of death anxiety among rural elderly was 6.46 ± 3.43 . The proportion of elderly with high death anxiety ($n=470$) was 48.25% of the total number. There was no significant difference between gender and presence of spouse on death anxiety, $p > 0.05$, but the difference was significant by age group, and death anxiety was significantly higher in the lower aged elderly than in the higher aged elderly, $p < 0.05$ (see Table 1). The life satisfaction score of the rural elderly was 4.37 ± 1.11 . The proportion of elderly with life satisfaction scores higher than 5 was 26.90% ($n=262$). As shown in Table 1, there was no significant difference in life satisfaction between males and females, lower aged elderly and older elderly, unaccompanied and accompanied, $p > 0.05$. However, Pearson product difference correlation analysis showed a significant negative correlation between life satisfaction and death anxiety ($r = -0.20$, $p < 0.001$).

Table 1 Basic information on life satisfaction and death anxiety of rural elderly

	life satisfaction				death anxiety			
	<i>M</i> ± <i>SD</i>	<i>t</i>	<i>p</i>	Cohen's <i>d</i>	<i>M</i> ± <i>SD</i>	<i>t</i>	<i>p</i>	Cohen's <i>d</i>
male ($n=488$)	4.33±1.12	-0.30	0.767	-0.02	6.33±3.43	-1.19	0.236	-0.08
female ($n=486$)	4.38±1.15				6.59±3.44			
younger age ($n=842$)	4.38±1.15	0.73	0.469	0.07	6.55±3.42	2.07	0.039	0.19
older age ($n=132$)	4.30±1.06				5.89±3.47			
without spouse ($n=308$)	4.38±1.16	0.10	0.918	0.01	6.52±3.46	0.35	0.728	0.03
with spouse ($n=666$)	4.37±1.13				6.43±3.42			

In Figure 1, we observe that gender (0=female, 1=male), spouse (1=elderly with spouse, 0=elderly without spouse) and age (1=elderly with spouse, 0=elderly without spouse) were not significantly associated with life satisfaction, and death anxiety was significantly negatively associated with life satisfaction. Gender and

spouse were not significantly associated with death anxiety, while age was negatively associated with death anxiety. In this study, life satisfaction was divided into three groups: high, low, and medium, based on the mean plus or minus one standard deviation. The results of one-way ANOVA showed that there were significant differences in death anxiety among rural older adults in different life satisfaction groups ($F(2,971)=12.45$, $p<0.001$). The results of multiple comparisons showed that death anxiety was highest in the high group and lowest in the low group ($p<0.01$). As shown in Figure 2, the probability density was greater in the lower region of the high group and in the upper region of the middle group of the low group. Moreover, the median of the high subgroup was located at the lowest position compared to the low and middle subgroups.

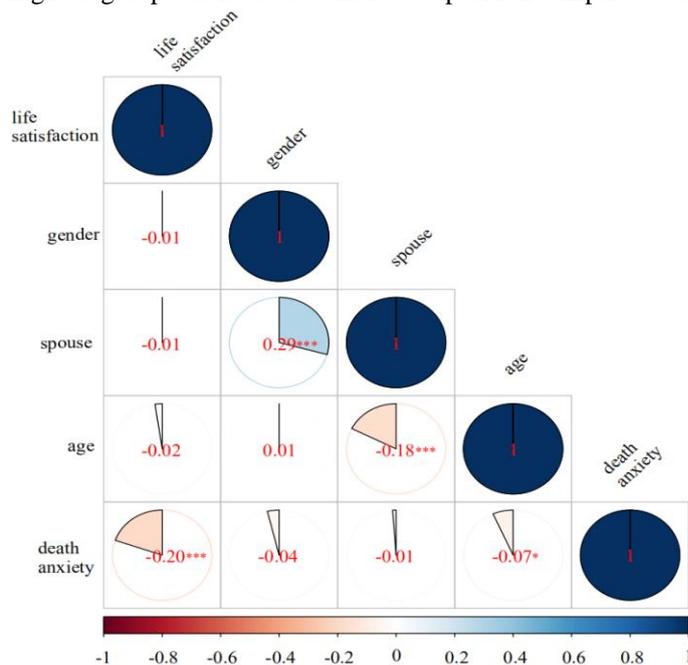


Figure 1 Correlation matrix of major variables

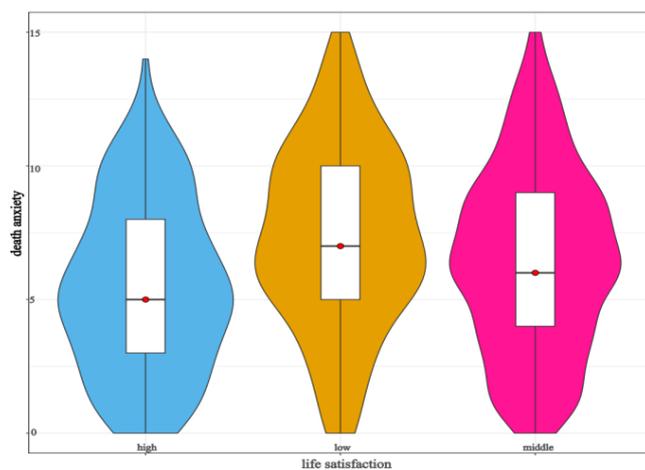


Figure 2 Death anxiety of rural elderly in different life satisfaction groups

1.3 Moderating effects of gender, age and spouse in life satisfaction on death anxiety among the rural elderly

The moderating effects were analyzed with life satisfaction as the independent variable, death anxiety as the dependent variable, and gender (1=male, 0=female), age (1=old, 0=young), and spouse (1=with spouse, 0=no spouse) as the moderating variables. As we see from Table 2, age and life satisfaction had a significant

negative predictive effect on death anxiety; the co-moderation effect of age and spouse was significant; and the co-moderation effect of gender, age and spouse was not significant.

Table 2 Moderating effects of gender, age and spouse

regression equation		overall fit index		regression coefficient significance			
dependent variable	independent variable	R	R ²	β	Bootstrap lower limit	Bootstrap upper limit	t
death anxiety	G	0.24	0.06	-0.03	-0.09	0.04	-0.85
	A			-0.09**	-0.17	-0.02	-2.47
	S			-0.01	-0.08	0.06	-0.08
	L			-0.19***	-0.26	-0.12	-5.46
	G×L			-0.01	-0.06	0.06	-0.02
	A×L			0.05	-0.04	0.14	1.14
	S×L			-0.01	-0.07	0.06	-0.20
	G×A			0.03	-0.04	0.12	0.82
	G×S			0.05	-0.02	0.12	1.38
	N×S			-0.03	-0.09	0.04	-0.88
	G×A×S			0.02	-0.04	0.09	0.61
	G×A×L			0.01	-0.07	0.11	0.23
	G×S×L			0.02	-0.04	0.09	0.68
	G×S×L			0.10*	0.01	0.16	2.32
G×A×S×L	0.01	-0.07	0.08	0.05			

G: gender; A: age; S: spouse; L: life satisfaction; *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

A further simple slope test revealed that life satisfaction of rural elderly without spouse and of low age significantly negatively predicted death anxiety ($B_{simple} = -0.13$, 95% CI = [-0.25, -0.02]), as shown in Figure 3, life satisfaction of rural elderly without a spouse was significantly more negative predictor of death anxiety ($B_{simple} = -0.34$, 95% CI = [-0.54, -0.09]). In figure 4, Life satisfaction among rural older adults with a spouse significantly negatively predicted death anxiety ($B_{simple} = -0.24$, 95% CI = [-0.33, -0.17]). While life satisfaction of rural older adults with a spouse and of higher age was a non-significant predictor of death anxiety ($B_{simple} = 0.10$, 95% CI = [-0.13, 0.31]).

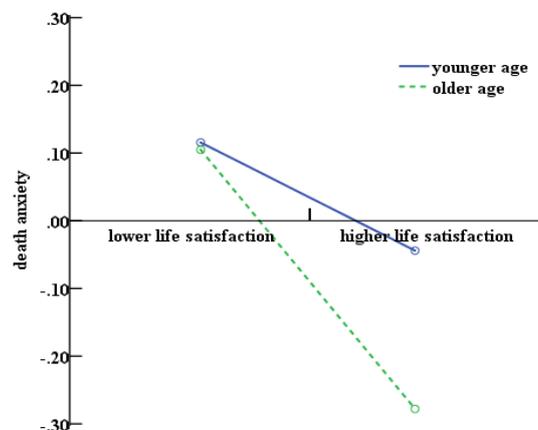


Figure 3 The moderating effect of the age among the rural elderly without spouse between life satisfaction and death anxiety

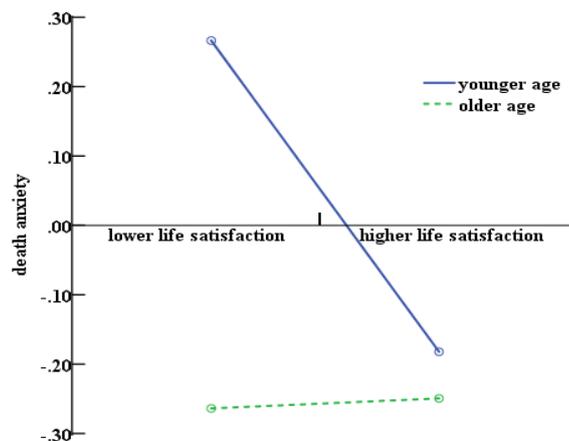


Figure 4 The moderating effect of the age among the rural elderly with spouse between life satisfaction and death anxiety

IV. DISCUSSION

1.1 Influence of life satisfaction on death anxiety among the rural elderly

This study found a higher rate of high death anxiety among rural elderly, which is consistent with the findings of Zhong et al. (2017)[18]. However, it is inconsistent with the findings of Han et al. (2017)[19]. It may be related to the geographical area where the study subjects are located. Due to the differences in regional culture, economic development level and other factors, the death anxiety of rural elderly people will show differences.

With the rapid development of China's economy, people's material living standards have improved greatly. However, the improvement of material life does not necessarily mean the improvement of spiritual life. This study found that senior citizens' life satisfaction is not high in rural areas where material life has greatly improved. This is consistent with the findings of previous studies [20]. Life satisfaction is a positive emotional experience, as opposed to death anxiety [21]. Rural elderly people experience more intense negative emotions such as tension and anxiety when thinking or talking about death. The present study verified the first hypothesis. In other words, life satisfaction was a significant negative predictor of death anxiety. The higher the life satisfaction, the lower the death anxiety. This was consistent with existing research results [10]. Moreover, misconceptions about death sometimes lead to a crisis of confidence in the meaning of life [22]. It is difficult for rural older adults to have a comprehensive and scientific understanding of death due to their level of knowledge and experience structure. Coupled with the influence of low life satisfaction, they are prone to higher levels of death anxiety. At the same time, the degree of death anxiety varies among older adults of different ages. The level of death anxiety in older adults is significantly lower than that in younger older adults. It is evident that fear of death decreases with age [23]. This may be due to an increased investment in relationships and the consequent increase in self-esteem [24]. For the younger elderly, they may feel that life is too short and that there are many unfulfilled wishes, and these unfulfilled wishes become today's regrets. According to the comprehensive model of death anxiety, these regrets are the determinants of death anxiety. Therefore, reducing some life regrets and increasing some life satisfaction can help alleviate death anxiety in the elderly.

1.2 Moderating effects of gender, age and spouse

This study partially tested the second hypothesis. It was found that gender did not have a significant moderating effect on the process by which life satisfaction affects death anxiety among rural elderly, while age and spouse had a significant co-regulatory function. Death anxiety among rural Chinese elderly mainly stems from fear of pain, fear of role loss, and fear of loneliness [19]. Perhaps, the elderly in rural China have experienced too many difficulties, such as three years of natural disasters, ten years of Cultural Revolution, and empty nest families). They have many similar psychological experiences. Facing suffering, role loss and

loneliness, they have similar perceptions and attitudes. So there was no significant difference in life satisfaction and death anxiety.

The co-regulatory effect of age and spouse can be analyzed from the following two aspects. On the one hand, life satisfaction significantly predicted death anxiety in the lower age group among rural elderly with a spouse, but not in the higher age group. For rural elderly with spouse and high age, life satisfaction has a small predictive effect on death anxiety. In contrast, its predictive effect was significantly enhanced for rural elderly with spouses but at lower ages. China's family planning policy has been in place for more than 30 years, starting in 1982 and ending in 2016. Currently, parents of only children are gradually entering geriatric period and becoming a group of lower-aged elderly. They are both worried about their only child and concerned about their loving spouse, which is a common characteristic of many older adults. And some studies have shown that spousal companionship and care are very important for older adults [25]-[26]. For older adults with a spouse, companionship and emotional attachment to the spouse is the most effective way to alleviate death anxiety, and this companionship and attachment keeps the elderly warm in the last stage of life. On the other hand, the negative predictive effect of life satisfaction on death anxiety was significantly stronger for the spouseless rural elderly compared to the younger elderly. In other words, for the spouseless rural elderly, if they can enrich their positive life emotional experiences as much as possible and improve their life satisfaction, their level of death anxiety will be significantly lower. However, the effect of life satisfaction on death anxiety was relatively weaker for rural elderly who were of low age and had no spouse. In addition, if their children work outside the home all the time, they will seriously lack companionship and emotional support, which will lead to their high level of death anxiety. In conclusion, different approaches should be taken to alleviate death anxiety for different types of rural elderly (those of low age and with spouses, those without spouses and of low age, etc.) from different perspectives.

1.3 Research significance and limitations

This study discusses the effects of life satisfaction on death anxiety in rural older adults and the moderating effects of gender, age, and spouse. It enriches the findings of previous studies on death anxiety, provides theoretical guidance to alleviate death anxiety among rural elderly, expands the comprehensive model of death anxiety, and reveals the joint effects of age and spouse on death anxiety among rural elderly. In the context of population aging and rural revitalization, how to improve the life satisfaction of rural elderly and how to explore problem-solving services for rural elderly are issues that need to be addressed to alleviate death anxiety among rural elderly.

Nonetheless, our research has some limitations, which also lead us to recommendations for future research. First of all, our data was acquired from the questionnaire, therefore we can combine the observation method, the interview method, the case method and other methods to analyze the real situation among the rural elderly from multiple perspectives and levels in future studies. Secondly, the moderating effects of gender, age and spouse were examined in this study, thus the comprehensive influence of variables should be taken into account in future research, such as social support, personality traits and coping styles, to further analyze the relationship between life satisfaction and death anxiety.

V. CONCLUSION

In conclusion, we can draw two conclusions from the research. On the one hand, life satisfaction and death anxiety of rural elderly are closely related. On the other hand, the relationship between life satisfaction and death anxiety in the rural elderly is affected by the interaction between age and spouse.

REFERENCES

Journal Papers:

- [1] Xu, S., Yan, C. C., Wu, J., Zhou, X. M., & Wu, M. X. (2015). Compilation of the Death Fear Scale for the Elderly. *Chinese Journal of Clinical Psychology*, 23(1), 7-12.
- [2] Iverach, L., Menzies, R. G., & Menzies, R. E. (2014). Death anxiety and its role in psychopathology: Reviewing the status of a transdiagnostic construct. *Clinical Psychology Review*, 34(7), 580-593.
- [3] Furer, P., & Walker, J. R. (2008). Death anxiety: A cognitive-behavioral approach. *Journal of Cognitive Psychotherapy*, 22, 167-182.
- [4] Schumaker, J. F., Barraclough, R. A., & Vagg, L. M. (1988). Death anxiety in Malaysian and Australian university students. *The Journal of Social Psychology*, 128(1), 41-47.
- [5] Cicirelli, V. G. (2006). Fear of death in mid-geriatric period. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 61(2), 75-81.
- [6] Mohammadpour, A., Sadeghmoghadam, L., Shareinia, H., Jahani, S., & Amiri, F. (2018). Investigating the role of perception of aging and associated factors in death anxiety among the elderly. *Clinical Interventions in Aging*, 13, 405-410.
- [7] Tomer, A., & Eliason, G. (1996). Toward a comprehensive model of death anxiety. *Death Studies*, 20(4), 343-365.
- [8] Diener, E. (1996). Traits can be powerful, but are not enough: Lessons from subjective well-being. *Journal of Research in Personality*, 30(3), 389-399.
- [9] Chaiwitornwanich, A. (2014). Belief in the afterlife, death anxiety, and life satisfaction of buddhists and christians in Thailand: Comparisons between different religiosity. *Social Indicators Research*, 124(3), 1-18.
- [10] Taghiabadi, M., Kavosi, A., Mirhafez, S. R., Keshvari, M., & Mehrabi, T. (2017). The association between death anxiety with spiritual experiences and life satisfaction in elderly people. *Electronic Physician*, 9(3), 3980-3985.
- [11] Azaiza, F., Ron, P., Shoham, M., & Gigini, I. (2010). Death and dying anxiety among elderly Arab Muslims in Israel. *Death Studies*, 34(4), 351-364.
- [12] Moreno, R. P., De La Fuente Solana, E. I., Rico, M. A., & Fernández, L. M. L. (2009). Death anxiety in institutionalized and non-institutionalized elderly people in Spain. *Journal of Death and Dying*, 58(1), 61-76.
- [13] Russac, R. J., Gatliff, C., Reece, M., & Spottswood, D. (2007). Death anxiety across the adult years: An examination of age and gender effects. *Death studies*, 31(6), 549-561.
- [14] Azeem, F., & Naz, M. A. (2015). Resilience, death anxiety, and depression among institutionalized and noninstitutionalized elderly. *Pakistan Journal of Psychological Research*, 30(1), 110-130.
- [15] Yalom, I. D. (2008). Staring at the sun: Overcoming the terror of death. *The Humanistic Psychologist*, 36(3-4), 283-297.
- [16] Diener, E. D., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment*, 49(1), 71-75.
- [17] Yang, H., Han, L. S., & Guo, H. M. (2012). Cross-cultural adjustment of the Death Anxiety Scale. *Chinese Journal of Practical Nursing*, 28(31), 53-57.

-
- [18] Zhong, T., Xu, S. C., & Yang, J. H. (2017). Correlation between death anxiety and death evasion in the elderly under Chinese cultural background: Taking Sichuan province as an example. *Medicine and Philosophy*, 38(8B), 72-74, 78.
- [19] Han, Z. C., Li, S. Z., & Zuo, D. M. (2017). Measurement of death anxiety in rural elderly: Verification and analysis based on DAQ scale. *Population Journal*, 39(4), 82-92.
- [20] Zhang, W. J., & Ji, J. Y., (2018). Longitudinal study of the impact of economic conditions on life satisfaction of urban and rural elderly in China, *Population and Development*, 24(5), 104-112.
- [21] Schumaker, J. F., Warren, W. G., & Groth-Marnat, G. (1991). Death anxiety in Japan and Australia. *Journal of Social Psychology*, 131(4), 511-518.
- [22] Sigrist, M. J. (2015). Death and the meaning of life. *Philosophical Papers*, 44(1), 83-102.
- [23] De Raedt, R., Koster, E. H. W., & Ryckewaert, R. (2013). Aging and attentional bias for death related and general threat-related information: Less avoidance in older as compared with middle-aged adults. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 68(1), 41-48.
- [24] Chopik, W. J., Edelstein, R. S., & Fraley, R. C. (2013). From the cradle to the grave: Age differences in attachment from early adulthood to geriatric period. *Journal of Personality*, 81, 171-183.
- [25] Cho, H. M., Kim, J. Y., Hwang, S. E., Kim, J. C., Kim, M. Y., & Lee, S. H. (2015). Association between living arrangements and influenza vaccination rates among elderly south Korean people: The fifth Korea National Health and Nutrition Examination Survey (KNHANES V-2). *Korean Journal of Family Medicine*, 36(4), 186-190.
- [26] Jang, H. Y., & Yi, M. (2017). Hermeneutic phenomenological study on caring experience of spouses of elderly people with dementia at home. *Journal of Korean Academy of Nursing*, 47(3), 367-379.