

The Satisfaction Level of the Needs of the Rural Elderly Affects Their Life Satisfaction: the Mediating Effect of Loneliness

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Abstract. A total of 245 rural elderly aged over 60 in Longling County, Yunnan Province were investigated by Life Satisfaction Index-A(LSIA), the Emotional and Social Loneliness Scale (ESLS) and self-compiled satisfaction level of the needs questionnaire to explore the relationship among satisfaction level of the elderly needs and life satisfaction of rural elderly, and to test the mediating role of loneliness. The results show that: (1) the satisfaction level of the needs of the elderly is positively correlated with life satisfaction. (2) Loneliness was a full mediator factor between the satisfaction level of the needs of economic income, life care, spiritual comfort and life satisfaction. The improvement of life satisfaction of the rural elderly can be achieved not only by meeting their needs, but also by reducing their loneliness.

Introduction

Life satisfaction is one of the important indicators to measure the quality of life and mental health of the elderly[1]. The life satisfaction is the inner experience of the individual based on the evaluation of his life. Existing studies have found that the satisfaction level of the elderly needs, such as spiritual comfort, life care and economic support, has an important influence on the life satisfaction of the elderly[2,3,4,5].

There is no uniform standard for the division of the needs of the elderly at home and abroad. Zhou et al. [6] divided the needs of the urban elderly into material life, daily care, health care and spiritual and cultural needs. Lu et al. [7] proposed that the needs of the rural elderly includes basic life, life and health care, spiritual comfort and cultural entertainment needs. Based on the above research, and combined with the actual situation in rural areas, this study divides the needs of the rural elderly into four aspects: economic income, health care, life care and spiritual comfort.

Loneliness is also an important factor affecting the life satisfaction of the elderly. The study found that there was significant negative correlations among loneliness and life satisfaction of the elderly[8-9]. In addition, the satisfaction level of the needs of the elderly will affect loneliness. Studies have shown that family economic support, daily care, health care, and emotional support have a significant impact on the loneliness of the elderly[10]. And there is significant negative correlations among loneliness of the elderly and the level of emotional, material and service-oriented social support provided by their children [11,12].

In summary, It has been found that the satisfaction level of the needs of the elderly has an impact on loneliness and life satisfaction, and loneliness is also affected life satisfaction. Therefore, loneliness may play mediating role between the satisfaction level of the needs of the elderly and life satisfaction.

Methods

Research Object. 250 elder people aged over 60 in two administrative villages in Longling County, Yunnan Province were selected, and 245 were effectively tested. Wherein the male 112 (45.7%) and female 133 (54.3%). And 120 (49%) of those aged 60 to 69, 80 (32.7%) of those aged 70 to 79, 43(17.6%) of those aged 80 to 89, and 2 (0.8%) people over 90 years old. And 186 people (75.9%)

who are illiterate, 47 (19.2%) in primary school, 12 (4.9%) in junior high school and above. 244 of Han nationality (99.6%), one of Yi nationality (0.4%).

Research Tools. Life Satisfaction Index A Scale (LSIA) [13]. The scale is a 20-item questionnaire, with scores ranging from 0 to 20, Scoring for single dimensions. The higher score indicates the higher life satisfaction. In this study, the scale of the Cronbach's α coefficient was 0.726, suggesting satisfactory internal consistency of the scale.

The total score is divided into 4 levels. 0 to 5 is divided into 1 level, indicating that it is dissatisfaction. 6 to 10 is divided into 2 levels, indicating less satisfied. 11 to 15 is divided into 3 levels, indicating satisfactory. 16 to 20 is divided into 4 levels, indicating very satisfactory.

Emotional and Social Loneliness Scale (ESLS) [14]. The scale, compiled by Wittenberg and Reis, is a 10-item questionnaire, including 5-item of emotional loneliness (EL) and 5-item social loneliness (SL). The scale uses Likert 5 points to score from 1 to 5 points from "none" to "very often". Add the scores of each item to a total score of 50. The higher score indicates the stronger loneliness. In this study, the scale of the Cronbach's α coefficient was 0.826.

The Satisfaction Level of the Needs Questionnaire. The needs of the elderly people includes four core aspects in their daily life, economic income needs, health care needs, life care needs and spiritual comfort needs, which are measured by the level of satisfaction on four aspects. Each question has three options: unsatisfied, basically satisfied, and fully satisfied, with 1, 2, and 3 points respectively. Because the questionnaire is designed to test the satisfaction level of the needs of the elderly in different aspects, and the different aspects of needs of the elderly are not theoretically homogeneous. Therefore, the questionnaire did not calculate the total score and did not calculate the Cronbach's α coefficient.

In addition, the questionnaire also includes demographic information such as gender, age, education level, ethnicity, hukou type, and marital status.

Research Implementation and Data Analysis. Since the respondents were the elderly in remote rural areas, most of them were illiterate. In the survey, one-on-one interviews were used. The investigators referred the questions to the respondents and filled out the questionnaire according to their answers. In order to ensure the quality of the investigation, the investigators are served by local university students. In this study, Epidata3.1 software was used for data entry and verification, and SPSS 22.0 software was used for data analysis and processing.

Results

The descriptive statistics of the satisfaction level of the needs of the elderly, loneliness and life satisfaction and the correlation analysis of the three. It can be seen from Table 1 that the average score of the economic income needs satisfaction of the rural elderly is the lowest, between the unsatisfied and the basic satisfaction. The average score for satisfaction of life care, health care, and spiritual comfort needs is at a level that is basically met. The average score of life satisfaction of the elderly is between the less satisfied and more satisfied, close to the lower limit of the satisfaction. The average score of loneliness in the elderly is at a lower level than the total score, indicating that the elderly have lower loneliness. Correlation analysis shows that the four aspects of the satisfaction level of the needs of the elderly were significantly negatively correlated with loneliness. In addition to health care, the other three aspects of the satisfaction level of the needs of the elderly are significantly positively correlated with life satisfaction, loneliness is significantly negatively correlated with life satisfaction.

Table 1 Descriptive statistics of the satisfaction level of the needs of the elderly, loneliness and life satisfaction and their correlation

	<i>M (SD)</i>	1	2	3	4	5	6
Economic income needs	1.57(0.647)	-					
Health care needs	2(0.192)	0.184 ^b	-				
Life care needs	1.98(0.271)	0.124	-0.08	-			
Spiritual comfort needs	2(0.248)	0.241 ^c	0.431 ^c	0.123	-		
Loneliness	17.78(4.068)	-0.228 ^c	-0.164 ^a	-0.256 ^c	-0.308 ^c	-	
Life satisfaction	10.76(4.029)	0.231 ^c	0.11	0.229 ^c	0.296 ^c	-0.664 ^c	-

Note: ^a refers to $P < 0.05$, ^b refers to $P < 0.01$, ^c refers to $P < 0.001$.

The effect of loneliness on the mediation effect between the satisfaction level of the needs of the rural elderly and life satisfaction. Because the life satisfaction of rural elderly may be affected by demographic factors such as gender, education level, and marital status, this study conducts regression analysis based on strict control of the above variables. Using the mediation effect test procedure proposed by Wen et al. [15], the control variables, independent variables (the satisfaction level of the needs of economic income, health care, spiritual comfort and life care), and mediator variables (loneliness) were included in the regression model. The results are shown in Table 2.

The results showed that the satisfaction level of the needs of economic income, life care and spiritual comfort in the model 1 was significantly positive predictive of the life satisfaction of the rural elderly, and in the model 2, there was a significant negative prediction of the loneliness of the rural elderly. Because the satisfaction level of the needs of health care is not significant for life satisfaction, the analysis of models 2 and 3 will not include this requirement. Model 3 adds loneliness to the model based on Model 1, the results showed that loneliness had a significant predictive effect on life satisfaction, but the predictive effect of the satisfaction level of economic income, life care and spiritual comfort needs was not significant. This indicates that the direct effect of the satisfaction level of the needs of economic income, life care and spiritual comfort is significant. Loneliness plays a full intermediary role between the three and life satisfaction.

Table 2 Regression analysis of the satisfaction level of the needs of the elderly and loneliness to life satisfaction

Variable	Model 1			Model 2			Model 3		
	β	<i>SE</i>	<i>t</i>	β	<i>SE</i>	<i>t</i>	β	<i>SE</i>	<i>t</i>
Gender ^d	0.167	0.508	2.653 ^b	-0.192	0.504	-3.108 ^b	0.053	0.419	1.020
Age	0.05	0.345	0.744	-0.074	0.341	-1.121	0.005	0.278	0.083
Education	0.017	0.443	0.261	-0.096	0.441	-1.495	-0.039	0.360	-0.747
Registered household ^e	-0.158	0.645	-2.645 ^b	0.001	0.642	0.009	-0.158	0.522	-3.262 ^b
Marriage ^f	-0.169	0.571	-2.573 ^a	0.252	0.565	3.923 ^c	-0.017	0.474	-0.319
Economic income needs	0.144	0.378	2.381 ^a	-0.134	0.374	-2.248 ^a	0.064	0.308	1.290
Health care needs	-0.014	1.376	-0.209	-	-	-	-	-	-
Life care needs	0.191	0.886	3.202 ^b	-0.200	0.869	-3.454 ^b	0.074	0.725	1.517
Spiritual comfort needs	0.247	1.076	3.734 ^c	-0.241	0.969	-4.079 ^c	0.098	0.816	1.955
Loneliness							-0.595	0.053	-11.118 ^c
<i>R</i> ²	0.221			0.240			0.489		
<i>F</i>	7.395 ^c			9.336 ^c			25.008 ^c		

Note: ^a refers to $P < 0.05$, ^b refers to $P < 0.01$, ^c refers to $P < 0.001$; Reference group: d male, e rural household, f married.

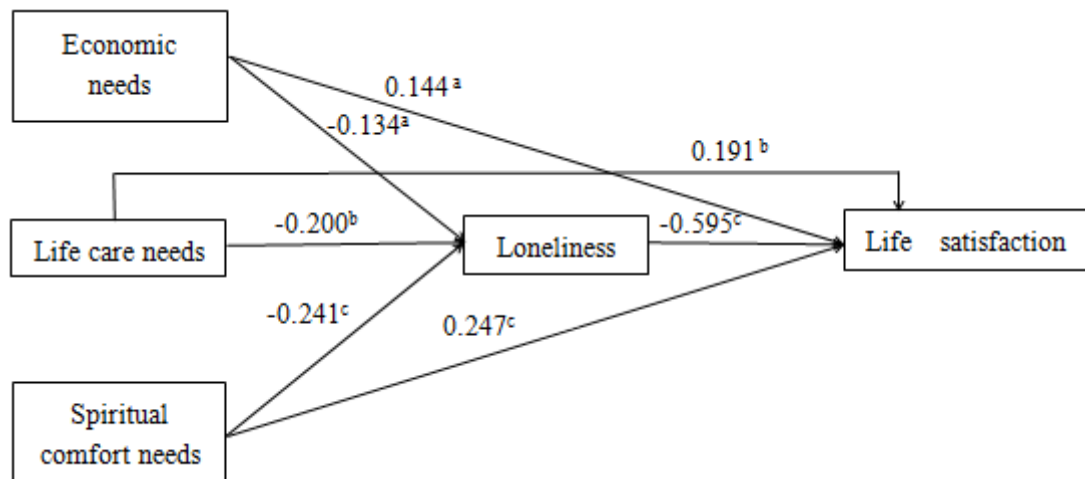
The Bootstrap method of bias correction was used to test the mediating effect of loneliness

between the satisfaction level of the needs of the elderly and life satisfaction[16]. Indirect estimation was performed by extracting 5000 Bootstrap samples from the raw data ($N = 245$). As shown in Table 3, the Bootstrap 95% confidence interval for loneliness indirect effects does not contain zero on three aspects. This suggests that the mediating effect of loneliness between the satisfaction level of the needs of the elderly and life satisfaction is significant. The path of the effect of the satisfaction level of the needs of the elderly on the life satisfaction is shown in Figure 1.

Table 3 Bootstrap analysis of mediation effect test of loneliness

	Indirect effect value	Boot standard error	Boot CI lower limit	Boot CI upper limit	Relative mediating effect
Economic income needs	0.08	0.28	0.39	1.50	53.4%
Life care needs	0.12	0.78	0.89	3.89	65.0%
Spiritual comfort needs	0.13	0.74	1.68	4.57	52.9%

Note: The upper and lower limits of *Boot CI* do not include 0, suggesting it is statistically significant.



Note: ^a refers to $P < 0.05$, ^b refers to $P < 0.01$, ^c refers to $P < 0.001$.

Figure. 1 Path for the satisfaction level of the needs of the elderly to affect the elderly's life satisfaction

Discussion

The Relationship between the satisfaction level of the needs of the rural elderly and the Life Satisfaction. This study found that the satisfaction level of the needs of the economic income, life care and spiritual comfort of rural elderly were significantly positively correlated with life satisfaction and had a significant positive predictive effect on life satisfaction. This shows that the more economic income, life care, and spiritual comfort needs of the elderly can be met, the higher their life satisfaction will be.

The reason why the satisfaction level of the needs of the elderly can affect life satisfaction could theoretically be explained by Maslow's hierarchy of needs. The theory divides people's needs from low to high into the needs of physiology, safety, love and belonging, respect and self-realization. Among them, the first four needs are missing needs, which will endanger the survival of individuals if such needs are not met. Specifically, the needs of rural elderly, economic income, life care and spiritual comfort are all missing needs. Among them, economic income needs is the basis of survival, life care needs are the guarantee of life, and spiritual comfort needs is the embodiment of love and respect. The lack of satisfaction of these three needs means that the basic life of the elderly is difficult and will directly lead to a decrease in their life satisfaction.

Tao et al. [17] found that economic income is the first factor affecting the life satisfaction of the elderly, exceeding the impact of physical health and spiritual factors on life satisfaction. This is inconsistent with the results of this study. The reason may be that although the rural elderly have

lower economic income, their basic survival is no longer a problem, and thus it is not enough to become the primary factor affecting their life satisfaction. This study found that in the three types of needs of the elderly, the satisfaction level of the needs of spiritual comfort has greatest prediction effect on the life satisfaction of the elderly, which is basically consistent with the results of Guo et al. [4] and Qu [18]. This result means that the level of life satisfaction of the elderly depends largely on whether their spiritual comfort needs are met, and emotional support plays a greater role than substantial support such as life care. Therefore, while meeting the economic and life care needs of the rural elderly, we must pay more attention to their spiritual comfort needs.

The loneliness of rural elderly in the mediation of the satisfaction level of the needs of the elderly and life satisfaction. This study found that the loneliness of rural elderly plays a mediating role in the satisfaction level of the needs of the elderly and life satisfaction. Specifically, loneliness is a full mediator factor between economic income needs, life care needs, spiritual comfort needs and life satisfaction.

Liang et al. [8] found that the elderly with ample family economic conditions are less worried about their children and their own lives, and can also get better care, which reduces their loneliness. Perhaps because of this, the satisfaction degree of economic income needs affect life satisfaction through loneliness. For the life care of the rural elderly, it is mainly reflected in the care of children or spouses in their daily diet and illness. In this study, the elderly are mainly taken care of by their sons, and no one goes to a nursing home or pays someone to take care of them. So, while the elderly life care needs are met, the elderly will also get more mental care from their children, which will help alleviate their loneliness and improve their life satisfaction. Perhaps it is the reason why the satisfaction level of the elderly's spiritual comfort needs affects their life satisfaction through loneliness.

The cognitive-emotional complexity theory of Labouvie-Vief et al. [19,20] suggests that individuals have the ability to recognize positive and negative emotions and to coordinate them into a complex, organized structure. The satisfaction level of the needs of the elderly affects life satisfaction through loneliness, which reflects an emotional complexity. When the needs of the elderly is more satisfied, the negative emotion of loneliness is weakened, and so the elderly show higher life satisfaction.

It is worth noting that in this study, the objective existing conditions for the elderly are not optimistic (in the remote western border rural areas), but compared with the elderly in the southern city of China, there is less difference between them[9]. This suggests that the rural elderly can be more effectively regulate their emotions in the face of poorer living conditions. The reason may be related to the emotional optimization of the elderly – suppression of negative emotions while maximizing positive emotions [21,22].

In summary, this study found that the life satisfaction of rural elderly is related to the satisfaction level of the needs of the elderly, and loneliness can fully mediate economic income, satisfaction of life care needs, spiritual comfort needs on life satisfaction. Therefore, families and society can reduce the loneliness of the elderly by meeting their needs, thereby effectively improving the life satisfaction of the elderly.

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