A Current Investigation on the Subjective Well-being of the Lonely Elderly in Nursing Institutions in Changsha

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Abstract: The purpose of this study is to understand the current status and influencing factors of subjective well-being among the lonely elderly in nursing institutions in Changsha. A cross-sectional survey was conducted using cluster sampling to select 173 elderly people living alone from 5 nursing institutions providing centralized support for households under the "Five Guarantees" system in Changsha. The Memorial University of Newfoundland Scale of Happiness (MUNSH) was used for the survey. The subjective well-being score of the lonely elderly in nursing institutions in Changsha was at a medium level (28.64 ± 12.70 points). Univariate analysis showed that there were significant differences in subjective well-being among the lonely elderly with different ages, educational levels, marital statuses, children's situations, economic conditions, health conditions, and institutional elderly care willingness ($P < 0.05$). Multivariate linear regression further confirmed that children's situation ($\beta = -0.157$) and health condition ($\beta = -0.195$ to -0.388) were the core negative predictors of subjective well-being; institutional elderly care willingness significantly improved the level of subjective well-being ($\beta = 0.227$). The subjective well-being of the lonely elderly in nursing institutions in Changsha is influenced by multiple factors such as age, marital status, children's situation, economy, health, and institutional elderly care willingness. Comprehensive measures such as building a multi-dimensional intervention system based on economic security, centered on health support, and linked by social integration are needed to enhance their happiness in old age.

1. Introduction

The seventh national census in China shows that the population aged 60 and above is 264.02 million, accounting for 18.70% of the total population (among which, the population aged 65 and above is 190.64 million, accounting for 13.50%)[1]. Among the elderly population, the lonely elderly face more pronounced challenges such as lack of economic support, weakened social connections, and heightened mental health risks due to being without a spouse or children, or having deceased children[2,3]. Their quality of life and subjective well-being have garnered significant attention. Subjective well-being (SWB), as a core indicator for measuring individual quality of life and mental health[4], not only reflects the overall evaluation of elderly individuals' lives but also serves as a

critical basis for assessing the effectiveness of elderly care policies and social support systems. As the capital of Hunan Province and a key city in central China, Changsha has witnessed a deepening aging trend, with the number of elderly living alone increasing accordingly[5]. However, systematic research on the subjective well-being of the lonely elderly in nursing institutions in this region remains limited, with unclear current status, influencing factors, and underlying mechanisms. This study aims to analyze the overall level of subjective well-being among such lonely and elderly individuals in Changsha through a cross-sectional survey. It systematically explores the impacts of demographic characteristics, health status, economic conditions, and willingness to live in nursing institutions, providing empirical evidence for local governments and relevant institutions to develop targeted interventions and improve the elderly care service system.

2. Subjects and Methods

2.1. Study Subjects

Cluster sampling was employed to select five nursing institutions providing centralized support for households under the "Five Guarantees" system from Yuelu District, Yuhua District, Wangcheng District, and Changsha County in Changsha. A total of 173 eligible lonely elderly were enrolled as study subjects, and a questionnaire survey was conducted from November to December 2025. Inclusion criteria: ① Age ≥60 years; ② No spouse or children; ③ Residing in the survey location for at least six months; ④ Voluntary participation in the study. Exclusion criteria: ① Elderly individuals without family support residing outside the local area during the survey; ② Subjects unable to cooperate due to severe physical or mental disorders; ③ Refusal to participate. A total of 184 questionnaires were distributed, with all 184 recovered, achieving a 100% response rate. Among these, 173 were valid. The study was approved by the Nursing and Behavioral Medicine Ethics Review Committee of Hunan University of Chinese Medicine (ZYYHLLL2025008). All participants provided informed consent and voluntarily participated in the study.

2.2. Methods and Content

The survey questionnaire consists of two parts: ① General information questionnaire, including the gender, age, marital status, educational level, economic situation, and health status of the elderly; ② The Memorial University of Newfoundland Happiness Scale (MUNSH)[6], developed by Albert Kozma, comprising 24 items. Among these, 10 items reflect positive and negative affect, with 5 items reflecting positive affect (PA) and 5 items reflecting negative affect (NA). Additionally, 14 items reflect positive and negative experiences, with 7 items reflecting positive experiences (PE) and 7 items reflecting negative experiences (NE). The total happiness score = PA-NA+PE-NE. This scale demonstrates good reliability and validity, with a Cronbach's α coefficient of 0.8664.

2.3. Statistical Processing

Statistical analysis was performed using SPSS 31.0 software. The general characteristics of elderly individuals living alone in Changsha's nursing homes were described using frequency (percentage). Subjective well-being and its influencing factors were evaluated using mean±standard deviation (M±SD) to describe their levels and fluctuations. Univariate analysis was conducted using independent samples t-test and analysis of variance, while multivariate analysis was performed with multiple linear regression. A P-value <0.05 was considered statistically significant.

3. Results

3.1. General Situations of the Lonely Elderly in Nursing Institutions in Changsha

General situations of the lonely elderly in nursing institutions in Changsha is shown in Table 1.

Table 1: General Situation of the Lonely Elderly in Nursing Institutions in Changsha (n=173)

Variable	Option	Frequency	Percentage
Gender	Male	90	52.0%
	Female	83	48.0%
Age	60-69 years old	70	40.5%
	70-79 years old	90	52.0%
	80-89 years old	13	7.5%
Degree of education	Primary school degree and below	147	85.0%
	Junior high school degree	15	8.7%
	Senior high school degree	6	3.5%
	University degree or higher	5	2.9%
Marital status	Single	126	72.8%
	Divorce	14	8.1%
	Bereft of one's spouse	33	19.1%
Child status	Childless	146	84.4%
	Deceased children	27	15.6%
Economic condition	Good, pension and savings are sufficient to cover daily expenses	19	11.0%
	Average, pensions and savings barely cover daily expenses	35	20.2%
	Poor, with pensions and savings insufficient to cover daily expenses	34	19.7%
	Very poor, requiring additional financial assistance	85	49.1%
Health condition	Excellent, no chronic diseases	27	15.6%
	Average, chronic diseases that do not affect daily life	93	53.8%
	Poor, requiring regular medical care	48	27.7%
	Very poor, unable to perform daily activities	5	2.9%
Willingness toward institutional elderly care	Yes	157	90.8%
	No	16	9.2%

3.2. Univariate Analysis of Subjective Well-being and Influencing Factors among the Lonely Elderly in Nursing Institutions in Changsha

Among the lonely elderly in nursing institutions in Changsha, 88 individuals (51.0%) reported moderate subjective well-being, 60 (34.6%) demonstrated high subjective well-being, and 25 (14.4%) showed low subjective well-being. Univariate analysis revealed that economic status, health condition, age, child status, marital status, and willingness toward institutional elderly care were significant factors influencing their subjective well-being (SWB) and its dimensional scores

(p<0.05)(Table 2).

Table 2: The Difference Test of Demographic Variables of the Lonely Elderly in Nursing Institutions in Changsha (M±SD)

Variable		n	PA	PE	NA	NE	SWB
Gender	Male	90	5.16±3.82	7.18±3.81	3.13±3.27	4.69±3.86	28.51±12.31
	Female	83	5.23±4.02	7.47±4.41	3.42±3.55	4.51±3.87	28.77±13.18
Age	60-69 years old	70	5.74±3.96	8.23±4.39	2.74±2.99	3.97±3.81	31.26±12.61
	70-79 years old	90	4.82±3.79	6.60±3.60[1]	3.51±3.59	4.96±3.83	26.96±12.23[1]
	80-89 years old	13	4.77±4.36	7.38±4.99	4.46±3.93	5.54±4.10	26.15±14.80
Degree of education	Primary school degree and below	147	5.29±3.92	7.33±4.10	3.24±3.43	4.48±3.93	28.91±12.93
	Junior high school degree	15	4.40±3.79	7.73±4.06	2.93±3.10	6.00±3.30	27.20±11.83
	Senior high school degree	6	3.33±3.50	6.00±4.56	4.33±3.67	6.33±3.88	22.67±13.31
	University degree or higher	5	6.80±4.15	7.20±4.60	4.00±3.74	2.00±0.00[2]	32.00±6.48
Marital status	Single	126	5.22±3.94	7.17±4.06[3]	3.13±3.33	4.59±3.86	28.68±12.38
	Divorce	14	7.14±3.30	9.86±4.33	2.29±2.70	3.14±3.66	35.57±12.60
	Bereft of one's spouse	33	4.24±3.80[3]	6.79±3.90[3]	4.24±3.80	5.27±3.87	25.52±13.12[3]
Child status	Childless	146	5.49±3.80	7.58±4.00	2.85±3.17	4.15±3.54	30.07±11.78
	Deceased children	27	3.56±4.13[4]	5.93±4.42	5.56±3.78[4]	7.04±4.62[4]	20.89±14.76[4]
Economic condition	Good	19	8.00±2.98	10.11±4.54	2.00±2.83	2.84±3.00	37.26±10.35
	Average	35	5.71±4.00[5]	7.94±4.86	3.43±3.99	4.63±4.19	29.60±14.24[5]
	Poor	34	3.53±3.72[5][6]	6.94±4.04[5]	4.24±3.64[5]	5.06±3.88[5]	25.18±12.01[5]
	Very poor	85	5.01±3.79[5]	6.59±3.39[5]	3.11±3.09	4.80±3.83[5]	27.69±12.05[5]
Health condition	Excellent	27	7.11±2.68	8.37±3.24	2.30±2.33	2.89±2.95	34.30±9.08
	Average	93	5.55±3.9	7.94±4.2	2.32±2.9	3.57±3.2	31.59±12

			9	7	7	0	.09
	Poor	48	3.63±3.73 [⑦⑧]	5.92±3.87 [⑦⑧]	5.50±3.66 [⑦⑧]	7.33±4.03 [⑦⑧]	20.71±11.72 [⑦⑧]
	Very poor	5	3.20±4.15 [⑦]	3.60±1.67 [⑦⑧]	4.80±3.63	6.80±4.15 [⑦⑧]	19.20±11.63 [⑦⑧]
Willingness toward institutional elderly care	Yes	157	5.44±3.84	7.69±4.07	3.18±3.34	4.56±3.80	29.39±12.68
	No	16	2.75±3.79 [⑨]	3.63±2.09 [⑨]	4.13±3.96	5.00±4.50	21.25±10.58 [⑨]

Note: ① Compared with "60-69 years old"; ② Compared with "Junior high school degree"; ③ Compared with "Divorce"; ④ Compared with "Childless"; ⑤ Compared with "Good" economic condition; ⑥ Compared with "Average" economically condition; ⑦ Compared with "Excellent" health condition; ⑧ Compared with "Average" health condition; ⑨ Compared with willing participants; all $p<0.05$.

3.3. Multivariate Analysis of Factors Affecting Subjective Well-being Among The Lonely Elderly in Nursing Institutions in Changsha

With the total scores of PA, PE, NA, NE, and SWB as dependent variables, statistically significant variables from one-way analysis were selected as independent variables to fit a multiple linear regression model, with all variables included in the model in a single step. The assignment of values to each variable is shown in Table 3.

Table 3 Variable Assignment of SWB and Its Secondary Dimension Influencing Factors among the Lonely Elderly in Nursing Institutions in Changsha (n=173)

Variable	Assignment
Y1:PA	Actual score
Y2:PE	Actual score
Y3:NA	Actual score
Y4:NE	Actual score
Y5:SWB	Actual score
X1:Age	60-69 years old=1 70-79 years old=2 80-89 years old=3
X2:Degree of education	Primary school degree and below=1 Junior high school degree=2 Senior high school degree=3 University degree or higher=4
X3:Marital status	Single=1;Divorce=2;Bereft of one's spouse=3
X4:Child status	Childless=1;Deceased children=2
X5:Economic condition	Good=1;Average=2;Poor=3;Very poor=4
X6:Health condition	Excellent=1;Average=2;Poor=3;Very poor=4
X7: Willingness toward institutional elderly care	Yes=1;No=2

Multiple linear regression analysis revealed that age, child status, economic condition, health condition, and willingness toward institutional elderly care were the primary factors influencing the

subjective well-being (SWB) of the lonely elderly (P<0.05). Specifically, willingness toward institutional elderly care had a positive effect on SWB, whereas poor economic condition, poor health condition, and deceased children significantly negatively impacted their subjective well-being (Table 4).

Table 4 Results of SWB Multivariate Linear Regression Analysis among the Lonely Elderly in Nursing Institutions in Changsha (Standardized Coefficient β)

Variable	PA	PE	NA	NE	SWB
Age(Reference group: 60-69 years old)					
70-79 years old		-0.146*			-0.099
80-89 years old		-0.026			-0.043
Degree of education(Reference group: Primary school degree and below)					
Junior high school degree				0.141	
Senior high school degree				0.113	
University degree or higher				-0.023	
Marital status(Reference group: Single)					
Divorce	0.060	0.065			0.077
Bereft of one's spouse	-0.082	-0.004			-0.053
Child status(Reference group: Childless)					
Deceased children	-0.096		0.187*	0.193**	-0.157*
Economic condition(Reference group: Good)					
Average	-0.089	-0.115	0.016	0.029	-0.050
Poor	-0.339**	-0.213*	0.094	0.067	-0.195
Very poor	-0.286*	-0.356**	-0.010	0.146	-0.195
Health condition(Reference group: Excellent)					
Average	-0.167	0.018	0.001	0.127	-0.064
Poor	-0.323**	-0.200*	0.364***	0.465***	-0.388***
Very poor	-0.156*	-0.164*	0.142	0.179*	-0.195**
Willingness toward institutional elderly care(Reference group: No)					
Yes	0.216**	0.353***			0.227**
R^2	0.235	0.275	0.227	0.277	0.317
Adjusted R^2	0.188	0.226	0.194	0.233	0.266
F	4.988***	5.553***	6.921***	6.222***	6.181***

Note: *p<0.05, **p<0.01, ***p<0.001

4. Discussion

4.1. Subjective Well-being Level of the Lonely Elderly in Nursing Institutions in Changsha

4.1.1. Comparison with Other Regions of China

The study found that the total score of subjective well-being among the lonely elderly in nursing institutions in Changsha (28.64±12.70 points) was at a moderate level, showing certain differences compared with related studies in other regions of China. The total score of subjective well-being among the lonely elderly living in Tibet region (38.33±7.31 points) was higher than that in this

study, which may be related to their spiritual belonging and social connections provided by religious activities and collective culture under the national "Five Guarantees" system[7]. Therefore, in the future, enhancing spiritual and cultural care for the lonely elderly and organizing collective activities can improve their spiritual belonging and social connections, thereby enhancing their subjective well-being.

4.1.2. Comparison with the General Elderly in Changsha

The study found that the total subjective well-being score of the lonely elderly (28.64 ± 12.70 points) was lower than the 32.73 ± 11.47 points recorded by Cao Xi et al[8]. Elderly residents of Changsha's senior apartments exhibit relatively weaker psychological experiences. Although the sample included the lonely elderly in nursing institutions, their well-being remained low, reflecting deficiencies in institutional services regarding psychological support and social integration. Notably, willingness toward institutional elderly care ($\beta=0.227$) significantly positively correlated with well-being, suggesting that institutional care as an alternative support system can alleviate loneliness caused by family absence. Therefore, future efforts should focus on enhancing emotional support and social connectivity in nursing institutions to improve the subjective well-being of the lonely elderly.

4.2. Factors Influencing Subjective Well-being of the Lonely Elderly in Nursing Institutions in Changsha

4.2.1. The Influence of Age on Subjective Well-being

Regarding age factors, the study demonstrates that age does not significantly affect the subjective well-being of the lonely elderly in nursing institutions in Changsha, which was consistent with previous research[9]. Notably, the PE scores of 60-69 years old lonely elderly individuals were significantly higher than those of 70-79 years old. This disparity may be attributed to age-related declines in physical function, psychological resilience, and social activity frequency. Therefore, caregivers should provide not only material support but also prioritize mental health care and enhance emotional support for these lonely elderly individuals.

4.2.2. The Influence of The Degree of education on Subjective Well-being

In this study, the degree of education did not significantly affect the subjective well-being of the lonely elderly in nursing institutions in Changsha, contradicting the common finding in previous research that happiness correlates positively with education levels[10,11]. This discrepancy may stem from the relatively low educational attainment and minimal variation among these elderly individuals. Nevertheless, it is crucial to recognize how education might influence well-being through indirect channels like economic and health benefits, while emphasizing lifelong learning and social engagement to enrich the spiritual lives of older adults.

4.2.3. The Influence of Marital Status on Subjective Well-being

In this study, marital status showed no significant impact on the subjective well-being dimensions of the lonely elderly in nursing institutions in Changsha, which differs from previous research findings[12]. This discrepancy may stem from the unique characteristics of the study subjects: elderly individuals living alone generally face structural challenges such as weak social support and limited access to economic and health resources, where more pressing factors may overshadow the effects of marital status[13]. Additionally, single, divorced, and widowed elderly

individuals share the common characteristic of being "unmarried." These results suggest that for this population, efforts should focus on systematically strengthening their social support networks, health, and economic security, transcending differences in marital status, to effectively enhance overall well-being levels.

4.2.4. The Influence of Child Status on Subjective Well-being

Regarding child status, the findings of this study align with previous research[14]. Compared to "childless," "deceased children" significantly increase NA and NE scores while markedly reducing SWB total scores. This may be attributed to the fact that childless elderly individuals tend to establish alternative support networks such as community-based elderly care and volunteer assistance earlier, resulting in a smaller "expectation gap" regarding actual support. In contrast, elderly individuals with deceased children experience unmet expectations for their children's actual support, leading to concerns about lack of care, uncertainty about the future, and even fears of being unmarked after death, which collectively contribute to a decline in overall well-being[15]. Additionally, "childlessness" represents a long-term living condition, whereas "deceased children" constitutes a traumatic event that is prone to causing deep psychological trauma and prolonged grief reactions[16]. Governments should prioritize the needs of elderly individuals who have lost children by establishing comprehensive medical security systems and long-term care insurance programs, classifying them as high-risk populations, and providing specialized grief counseling and long-term emotional support[17].

4.2.5. The Influence of Economic Condition on Subjective Well-being

The findings of this study are consistent with previous research[18]. Compared to "Good" economic condition, elderly individuals who self-rated as "average," "poor," or "very poor" experienced significantly negative impacts on PA, PE, and SWB, with the severity of these effects increasing as their economic conditions deteriorated. Previous studies have highlighted that the most notable distinction between elderly individuals living alone and their peers lies in their relatively limited financial resources and scarce disposable assets[19]. This resource scarcity undermines their confidence, thereby directly constraining multiple aspects of their development. Therefore, it is imperative to expand the coverage of welfare assistance for the lonely elderly and establish supportive policies for active aging.

4.2.6. The Influence of Health Condition on Subjective Well-being

This study confirms that health status is the strongest negative predictor of SWB among the lonely elderly in nursing institutions in Changsha. Those self-rated as having "poor" or "very poor" health demonstrated significantly lower SWB scores and lower scores across all positive dimensions, consistent with previous research findings[20]. However, the negative impact of health status was particularly pronounced in this study. This may stem from the extremely fragile support networks of these elderly individuals, who are more vulnerable to dual challenges of care deprivation and financial strain when their health deteriorates. Therefore, health interventions for the lonely elderly must be prioritized, with coordinated efforts from both community and institutional sectors to provide basic medical care, chronic disease management services, as well as rehabilitation and psychological support.

4.2.7. The Influence of Willingness toward Institutional Elderly Care on Subjective Well-being

The willingness toward institutional elderly care is a significant positive factor in enhancing the subjective well-being of the lonely elderly. Institutional care can meet the practical care needs of these seniors while providing social engagement, which helps alleviate the uncertainty and loneliness caused by family absence, thereby directly improving their positive emotional experiences—a finding consistent with previous research[21]. It is recommended to promote the transformation of elderly care institutions toward "family-like" and "open" models, and strengthen community collaboration to ensure care while promoting social participation.

5. Conclusion

In conclusion, to enhance the subjective well-being of the lonely elderly in nursing institutions, it is essential to establish a multidimensional intervention system grounded in economic security, centered on health support, and connected through social integration. Particular attention should be paid to the psychological support and long-term care needs of bereaved elderly individuals, while further promoting the development of nursing home services toward emotional, open, and community-oriented approaches.

This study also has certain limitations, such as the use of convenience sampling and incomplete sample sources, which restrict the generalizability of conclusions; the cross-sectional design makes it difficult to reveal causal relationships between variables; and the lack of integration with qualitative methods or other psychosocial indicators. Future research could expand sample sources, adopt longitudinal designs, incorporate more objective indicators and qualitative interviews, to more comprehensively and deeply explore the dynamic mechanisms influencing the subjective well-being of the lonely elderly.

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