

Association of Perceived Life Satisfaction with Attitudes toward Life-Sustaining Treatment Among the Elderly in South Korea

Il Yun

Yonsei University

Hyunhyu Kim

Yonsei University College of Medicine

Eun-Cheol Park

Yonsei University College of Medicine

Suk-Yong Jang (✉ sukyong@yuhs.ac)

Yonsei University

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Abstract

Background

Amidst rapid population aging, South Korea enacted the Well-dying Act, late among advanced countries, but public opinion on the act is not still clear. Against this background, this study aims to: 1) investigate factors affecting elderly individuals' attitude toward life-sustaining treatment, and 2) examine whether attitude toward life-sustaining treatment is related to their perceived life satisfaction.

Methods

Data from the 2020 Survey of Living Conditions and Welfare Needs of Korean Older Persons were used. There were 9,916 participants (3,971 males; 5,945 females). We used multivariable-adjusted Poisson regression models with robust variance to examine the association between perceived life satisfaction and attitude toward life-sustaining treatment and calculate prevalence ratios (PR) and 95% confidence intervals (CI).

Results

After adjusting potential confounders, the probabilities that the elderly who were dissatisfied with their current life would favor life-sustaining treatment were 1.52 times (95% CI: 1.15–1.64) and 1.28 times (95% CI: 1.09–1.51) higher for men and women, respectively, than the elderly who were satisfied. In addition, attitudes in favor of life-sustaining treatment were observed prominently among the elderly with long schooling years or high household income, when they were dissatisfied with their life.

Conclusions

Our results suggested that for the elderly, life satisfaction is an important factor influencing how they exercise their autonomy and rights regarding dying well and receiving life-sustaining treatment. It is necessary to introduce interventions that would enhance the life satisfaction of the elderly and terminally ill patients and enable them to make their own decisions according to the values of life.

Introduction

The increase in discussions on end-of-life care, including hospice palliative care and withdrawal of life-sustaining treatment (LST), is closely linked to population aging [1]. In particular, Korea is the fastest aging country in the world, and as of January 2022, the proportion of the elderly population is close to 17.5% [2], which falls within the classification of an aged society.

Rapid population aging has caused many problems, such as making elderly patients and their families suffer pain and disability for a long time until death, and greatly increasing the economic burden of LST [3]. In this situation, there has been growing interest in well-dying, as well as human rights and dignity of the elderly worldwide [4]. Similarly, in Korea, a new turning point in end-of-life care has arrived with the 'Hospice/Palliative Care Act' and the so-called 'Well-dying Act' which came into force in 2018 [1, 5, 6].

LST is defined as any treatment that serves to prolong life without reversing the underlying medical condition and includes processes such as mechanical ventilation, renal dialysis, chemotherapy, antibiotics, and artificial nutrition and hydration [7, 8]. The relevant Acts aim to protect the best interests of the patients and respect their self-determinants rights [9]. In countries where well-dying related legislation was implemented earlier, there have been numerous studies and interventions on LST. Patients' perceptions of end-of-life care [10, 11], as well as related physicians' orders [12, 13], and ethical considerations [14, 15] were discussed.

However, in Korea, not long after the Well-dying Act was enacted, social consensus is still in the process of developing, so there are not many preceding studies examining the perceptions of seriously ill patients and the elderly toward preparation for death or receiving LST [1, 9]. Therefore, this study aimed to investigate factors affecting decision making about LST among the Korean elderly and, in particular, examine the association between perceived life satisfaction and attitudes toward LST.

Methods

Data and study population

The data analysed in this study was taken from the 2020 Survey of Living Conditions and Welfare Needs of Korean Older Persons, a nationwide time-series survey of non-institutionalized older adults aged 65 or over residing in South Korea [16]. In accordance with the Elderly Welfare Act, the Korea Institute for Health and Social Affairs has been conducting this survey every three years since 2008 [17].

To inform welfare policies and respond to an aging society, this survey included questionnaire items regarding elderly individuals' living arrangements, physical and mental health, healthcare use, and attitude toward death and LST [16]. No further ethical approval was required as informed consent was obtained from all participants and the data was publicly accessible [17].

The total survey population from the 2020 survey included 10,097 individuals. After excluding missing data ($N=181$), responses from 9,916 participants (3,971 males; 5,945 females) comprised the study sample.

Variables

The dependent variable was the attitude toward LST, which was asked through the question, 'Would you prefer to receive life-sustaining treatment when you are unconscious or when staying alive is very difficult?' It was a 5-point scale item, with 1 indicating 'strongly agree' and 5 indicating 'strongly disagree'. Analyses were performed by categorizing 1 to 3 points as 'agree' and 4 to 5 points as 'disagree'.

The main variable of interest in this study was the perceived life satisfaction of the elderly. Each participant was asked: 'How satisfied are you with your current life in general?' with the responses on a 5-point scale where 1 meant 'very satisfied' and 5 meant 'very dissatisfied'. The responses were classified into two categories: 1 to 3 points meant 'satisfied' and 4 to 5 points indicated 'dissatisfied'.

We controlled for covariates such as socioeconomic and health-related factors as potential confounders. Socioeconomic factors included sex, age, marital status, region, schooling years, and household income. Additionally, variables regarding health behavioural patterns included smoking, drinking, and physical exercise. The presence of the big five chronic diseases such as diabetes mellitus, cardiovascular disease, chronic respiratory disease, cancer, and stroke [18] and subjective health status was also corrected.

Statistical Analysis

Descriptive statistics were shown as frequencies (N) and percentages (%), and chi-squared test was conducted to investigate and compare the general characteristics of the study population. Subsequently, multivariable-adjusted Poisson regression models with robust variance were used to examine factors associated with attitude toward LST and calculate prevalence ratios (PR) and 95% confidence intervals (CI) [19–22]. For all analyses, we used SAS software, version 9.4 (SAS Institute Inc., Cary, NC, USA); p -values less than .05 were deemed statistically significant.

Results

Table 1 shows the general characteristics of the population divided between those who were satisfied or dissatisfied with their current life. Of the 9,916 individuals included in this study, 3,971 (40.0%) were men and 5,945 (60.0%) were women. Among all participants, those who answered that they were satisfied with their current life accounted for 51.8% ($N=5,140$), and those who answered that they were dissatisfied accounted for 48.2% ($N=4,776$).

Table 1
General characteristics of the study population.

	Life satisfaction						P-value
	Total		Satisfied ^a		Dissatisfied ^b		
	N	%	N	%	N	%	
Characteristics	9,916	100.0	5,140	51.8	4,776	48.2	
Sex							< .0001
Men	3,971	40.0	2,208	43.0	1,763	36.9	
Women	5,945	60.0	2,932	57.0	3,013	63.1	
Age							< .0001
65 ~ 69	3,509	35.4	2,200	42.8	1,309	27.4	
70 ~ 74	2,465	24.9	1,283	25.0	1,182	24.7	
75 ~ 79	1,956	19.7	877	17.1	1,079	22.6	
80 or over	1,986	20.0	780	15.2	1,206	25.3	
Marital status							< .0001
Married	5,849	59.0	3,308	64.4	2,541	53.2	
Unmarried or Being seperately	4,067	41.0	1,832	35.6	2,235	46.8	
Region							< .0001
Urban	4,308	43.4	2,346	45.6	1,962	41.1	
Rural	5,608	56.6	2,794	54.4	2,814	58.9	
Schooling years							< .0001
0 ~ 6	4,429	44.7	1,844	35.9	2,585	54.1	
7 ~ 12	4,982	50.2	2,917	56.8	2,065	43.2	
13 or over	505	5.1	379	7.4	126	2.6	
Household income							< .0001
Tertile 1	3,300	33.3	1,482	28.8	1,818	38.1	
Tertile 2	3,307	33.4	1,666	32.4	1,641	34.4	
Tertile 3	3,309	33.4	1,992	38.8	1,317	27.6	
Smoking							0.478
Yes	1,088	11.0	575	11.2	513	10.7	
No	8,828	89.0	4,565	88.8	4,263	89.3	
Drinking							< .0001
Seldom	6,760	68.2	3,291	64.0	3,469	72.6	
Occasionally	2,509	25.3	1,515	29.5	994	20.8	
Frequently	647	6.5	334	6.5	313	6.6	
Physical exercise							< .0001
Yes	5,186	52.3	2,927	56.9	2,259	47.3	
No	4,730	47.7	2,213	43.1	2,517	52.7	
Big 5 chronic diseases^c							< .0001
Yes	3,169	32.0	1,364	26.5	1,805	37.8	
No	6,747	68.0	3,776	73.5	2,971	62.2	
Subjevtive health status							
Good	4,939	49.8	3,316	64.5	1,623	34.0	
Bad	4,977	50.2	1,824	35.5	3,153	66.0	

^a Those who answered 1 to 3 points on a 5-point scale question, 'How satisfied are you with your current life in general?'
^b Those who answered 4 to 5 points to the same question as above
^c Diabetes mellitus, cardiovascular disease, chronic respiratory disease, cancer, and stroke

Table 2 presents the results of the multivariate Poisson regression models with robust variance, with attitudes in favour of LST as the outcome. As a result, the association between perceived life satisfaction and attitude toward LST among Korean older adults was identified. When all potential confounding variables were adjusted, the participants dissatisfied with their lives were more likely to agree to LST than the satisfied elderly, and the adjusted PR for men and women was found to be 1.52 (95% CI: 1.15–1.64) and 1.28 (95% CI: 1.09–1.51), respectively.

Table 2
Results of factors associated with attitudes in favor of life-sustaining treatment

Variables	Men						Women						
	Attitudes in favor of life-sustaining treatment						Attitudes in favor of life-sustaining treatment						
	N ^a	% ^b	Crude PR	95% CI		Adjusted PR	95% CI		N ^a	% ^b	Crude PR	95% CI	
Life satisfaction													
Satisfied	253	46.2	1.00			1.00			354	43.9	1.00		
Dissatisfied	295	53.8	1.38	(1.15 - 1.64)		1.52	(1.26 - 1.83)		452	56.1	1.27	(1.09 - 1.47)	
Age													
65 ~ 69	211	38.5	1.53	(1.14 - 2.05)		1.48	(1.06 - 2.05)		298	37.0	1.14	(0.93 - 1.40)	
70 ~ 74	150	27.4	1.54	(1.14 - 2.08)		1.51	(1.09 - 2.08)		184	22.8	1.00	(0.80 - 1.26)	
75 ~ 79	115	21.0	1.49	(1.07 - 2.07)		1.46	(1.05 - 2.02)		151	18.7	1.02	(0.79 - 1.31)	
80 or over	72	13.1	1.00			1.00			173	21.5	1.00		
Marital status													
Married	444	81.0	1.00			1.00			359	44.5	1.00		
Unmarried or Being seperately	104	19.0	0.83	(0.65 - 1.04)		0.84	(0.66 - 1.08)		447	55.5	0.93	(0.80 - 1.08)	
Region													
Urban	276	50.4	1.00			1.00			411	51.0	1.00		
Rural	272	49.6	0.72	(0.61 - 0.86)		0.72	(0.60 - 0.85)		395	49.0	0.68	(0.59 - 0.79)	
Schooling years													
0 ~ 6	167	30.5	1.78	(1.17 - 2.71)		1.85	(1.19 - 2.89)		461	57.2	1.48	(0.82 - 2.65)	
7 ~ 12	354	64.6	1.92	(1.29 - 2.86)		1.72	(1.15 - 2.57)		333	41.3	1.48	(0.83 - 2.67)	
13 or over	27	4.9	1.00			1.00			12	1.5	1.00		
Household income													
Tertile 1	118	21.5	0.80	(0.63 - 1.02)		0.85	(0.65 - 1.09)		356	44.2	1.03	(0.86 - 1.22)	
Tertile 2	213	38.9	0.95	(0.78 - 1.16)		0.98	(0.80 - 1.20)		221	27.4	0.88	(0.73 - 1.07)	
Tertile 3	217	39.6	1.00			1.00			229	28.4	1.00		
Smoking													
Yes	137	25.0	1.10	(0.90 - 1.34)		0.93	(0.76 - 1.15)		14	1.7	0.77	(0.44 - 1.35)	
No	411	75.0	1.00			1.00			792	98.3	1.00		
Drinking													
Seldom	213	38.9	1.00			1.00			628	77.9	1.00		
Occasionally	266	48.5	1.59	(1.32 - 1.93)		1.52	(1.25 - 1.85)		167	20.7	1.44	(1.21 - 1.72)	
Frequently	69	12.6	1.23	(0.92 - 1.64)		1.10	(0.82 - 1.48)		11	1.4	0.74	(0.41 - 1.37)	
Physical exercise													
Yes	292	53.3	1.00			1.00			372	46.2	1.00		
No	256	46.7	1.18	(0.99 - 1.40)		1.18	(0.99 - 1.40)		434	53.9	1.27	(1.09 - 1.47)	
Big 5 chronic diseases													
Yes	162	29.6	0.88	(0.72 - 1.06)		0.91	(0.74 - 1.11)		251	31.1	1.02	(0.87 - 1.20)	
No	386	70.4	1.00			1.00			555	68.9	1.00		
Subjective health status													

Variables	Men						Women						
	Attitudes in favor of life-sustaining treatment						Attitudes in favor of life-sustaining treatment						
	N ^a	% ^b	Crude PR	95% CI		Adjusted PR	95% CI		N ^a	% ^b	Crude PR	95% CI	
Good	313	57.1	1.00			1.00			345	42.8	1.00		
Bad	235	42.9	0.91	(0.76 - 1.09)		0.91	(0.74 - 1.11)		461	57.2	1.11	(0.96 - 1.29)	

^aThe number of respondents who answered 1 to 3 points on a 5-point scale question, 'What do you think about life-sustaining treatment even though you are ill'

^bIn the column, the percentage of the answer 1 to 3 points to the question of attitudes toward life-sustaining treatment

* : p-value < 0.05

Additionally, we conducted subgroup analysis stratified by schooling years and household income, because it was expected that education and economic level would affect the perception of LST among the elderly. As noted in Table 3, the variable of schooling years was reclassified into two groups (0 ~ 6 and 7 or over), and the household income variable was divided into tertiles, where tertile 3 was the highest earner. In the case of the elderly with a long schooling period of more than 7 years, it was confirmed that the probability of favouring LST was statistically significantly higher when they were dissatisfied with their life (Men, Adjusted PR: 1.78, 95% CI: 1.44–2.20; Women, Adjusted PR: 1.42, 95% CI: 1.13–1.80). Similarly, the elderly with the highest income level were found to be more likely to agree to LST when they felt dissatisfied with their life. The statistical significance of the tertile 3 group was found to be common in all sexes (Men, Adjusted PR: 1.99, 95% CI: 1.49–2.66; Women, Adjusted PR: 1.72, 95% CI: 1.30–2.27).

Table 3. Results of subgroup analysis stratified by schooling years and household income

Variables	Men			Women		
	Attitudes in favor of life-sustaining treatment			Attitudes in favor of life-sustaining treatment		
	Life Satisfaction			Life Satisfaction		
	Satisfied	Dissatisfied		Satisfied	Dissatisfied	
	APR ^a	APR ^a	95% CI	APR ^a	APR ^a	95% CI
Schooling years						
0 ~ 6	1.00	1.08	(0.76 - 1.54)	1.00	1.15	(0.92 - 1.43)
7 or over	1.00	1.78	(1.44 - 2.20)	1.00	1.42	(1.13 - 1.80)
Household income						
Tertile 1	1.00	1.32	(0.85 - 2.05)	1.00	1.09	(0.88 - 1.38)
Tertile 2	1.00	1.24	(0.93 - 1.64)	1.00	1.09	(0.80 - 1.49)
Tertile 3	1.00	1.99	(1.49 - 2.66)	1.00	1.72	(1.30 - 2.27)
^a APRs (Adjusted prevalence ratios) were adjusted for other covariates, respectively						
* : p-value < 0.05						

Discussion

Although the Well-dying Act that allows patients with no possibility of rehabilitation to withhold or withdraw LST with their own decision or family consent has been enforced in Korea since 2018 [5, 6], and is still in a transitional period, 86.4% of the participants expressed opposition to LST, and only 13.6% were in favour of it. After adjusting several covariates such as socioeconomic and health-related factors, it was found that elderly people's satisfaction with life was related to their attitude toward LST.

For patients on the verge of death, LST is a self-determinant right, so it is difficult to say which decision is more correct, and it must be interpreted carefully. In this context, this study focused on examining factors affecting elderly individuals' attitude toward LST at the time of end-of-life. Summarizing the key findings of our study, the elderly who feel satisfied with life are more likely to withhold or withdraw LST by themselves according to the purpose of the Life-Sustaining Treatment Decisions Act. In addition, if the elderly with long schooling years or high household income were dissatisfied with their life, they were more likely to approve of LST. Therefore, our results suggest that life satisfaction is an important factor in exercising the right to decide whether to maintain one's life in the face of an incurable illness and when receiving end-of-life care. Interventions will be needed to increase life satisfaction so that elderly patients on the verge of death can make their own decisions according to their values of life.

There have been several previous studies and interventions on the attitude toward end-of-life care [23] and LST [11, 15, 24, 25] in general patients and the elderly. Similar to this study, some studies investigated the effects of depression [26] and perceived quality of life [27] on the decision regarding LST in the elderly. The attitudes and roles of physicians influencing LST were also discussed [28–30]. However, in South Korea, as the Well-Dying Act and Life-Sustaining Treatment Decision Act were implemented fairly recently, most of the preceding studies discussed the implication [31] and current status of the Act [1, 5, 6], so there was an insufficient number of prior studies to which we could refer. Therefore, our study is meaningful in that it dealt with key issues in the Korean aging society using the latest nationwide data and identified the related factors affecting attitude toward LST.

This study had certain limitations. First, issues related to LST may be more focused on patients with severe diseases or the elderly who are on the verge of death, but it was not possible to separate these subjects and conduct additional analysis. To compensate for this limitation, the prevalence of the big five chronic diseases defined by the World Health Organization [18] was corrected as a covariate. Second, since this study was a cross-sectional study based on the latest 2020 data, the association was confirmed, but causality was not confirmed. Therefore, an additional longitudinal study on changes in participants' attitudes towards LST should be conducted in severely ill patients or the elderly. Third, even after adjusting for numerous covariates that may affect the dependent variable, there will still be potential confounding effects from the unmeasurable variables.

Conclusion

This study demonstrated that elderly people's satisfaction with their current lives was connected to their attitude toward LST. In other words, it suggested that life satisfaction is a very important factor that empowers the elderly to exercise their autonomy and right to die with dignity on their own, and interventions to increase the quality of life and life satisfaction in the elderly are needed.

Declarations

Ethics approval and consent to participate: This study was conducted in accordance with the Declaration of Helsinki and the data used were approved by the Institutional Review Board installed in Korea Institute for Health and Social Affairs (IRB No. 2020-36). There are no further ethical requirements as participants obtained written informed consent prior to conducting the survey.

Consent for publication: Not applicable.

Availability of data and materials: The data is publicly accessible on the website of Korea Institute for Health and Social Affairs (<https://www.kihasa.re.kr/>).

Competing interests: No competing interests to declare.

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