

The Dual Mediation Effect of Satisfaction with the Quality of Service and Satisfaction with Resident in the Relationship between Subjective Health and Depression among the Elderly in Long-Term Care Facilities

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ABSTRACT

This study aimed to investigate whether satisfaction with the quality of service and satisfaction with resident mediate the relationship between subjective health and depression. Toward this end, the following research questions were set. First, what is the correlation between satisfaction with the quality of service, satisfaction with resident, subjective health, and depression? Second, does satisfaction with the quality of service and satisfaction with resident mediate the relationship between subjective health and depression? The survey was conducted by visiting the nursing homes that allowed this study after a phone call request. Face-to-face interviews with the elderly people in the institutions were done by the investigator and trained graduate students. The survey was completed with 381 elderly people in long-term care facilities (Jan ~ Feb 2017). The analysis of frequency, reliability, and correlation was done using the SPSS PC+ Win. 23.0 programs. The mediation analysis and bootstrapping were done using the SPSS PROCESS macro program (model 6). This study found out that, in the effect of physical health on depression, satisfaction with the quality of service and satisfaction with resident have dual mediating effects. These findings were, first, the worse subjective health is, the higher depression is. Second, raising their satisfaction with the quality service provided by facilities can reduce their depression. Third, because satisfaction with resident can also reduce depression, it is necessary to lead the elderly to adjust themselves to the facilities, and to increase their residential satisfaction, which will reduce depression. First, by encouraging those in facilities to participate in various health programs and take care of their diets and by giving proper treatment, it is necessary to improve their health, which will reduce their depression. Second, by providing various environmental, physical, and social services which fit the demands of the elderly, it is possible to reduce their depression.

Keywords: *Long-term care facilities, Dual mediation effect, Depression, Service quality, Resident satisfaction*

Introduction

According to Statistics Korea¹, 4.5 persons of the economically productive population (from 15 to 64 years old) will take care of one old person by 2020, 1.7 persons by 2040, and 1.2 by 2060. The growth rate of the elderly population in Korea is higher than in other countries, and the ratio of senior citizens to the economically productive

population is expected to be higher in Korea than in advanced countries by 2030. In such a situation, under the long-term care insurance scheme that started in 2008 to reduce the burden of care of the elderly, the number of nursing homes and those recognized as requiring long-term care is increasing rapidly. The possibility of being put in such facilities among those 65 years old and above is over 43%, with females 52% and males 33%². Thus, it is necessary to establish various measures for those old people who need intensive and long-term care in such facilities.

As the elderly are less likely to voluntarily enter such facilities than to be passively put there, they can feel hopeless and lost, and will very likely be vulnerable to depression. In a foreign study, whereas 0.9 to 9.4%

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of old people residing in local communities suffer from depression, 14 to 42% of those in such facilities do³. Studies of the Korean elderly are not very different. Whereas 29.2% of those living in local communities suffer from depression⁴, 30 to 40% of those in facilities do⁵⁻⁹. Among those elderly using medical welfare facilities for the elderly, 60% of them experience depression, especially if they suffer from chronic diseases¹⁰. Considering that depression among such patients can be ignored, because many of them suffer from mental diseases such as cognitive dysfunction or dementia⁷, the proportion of those who suffer from depression may be very high. Because depression of the elderly can accompany physical and social dysfunction and, in some cases, cause suicide, it is an important public-health problem¹¹ that should not be ignored or left alone. However, because of insufficient understanding of the mental health of the elderly in nursing facilities, they are not properly treated for depression.

There are three models explaining depression of the elderly: a single deterministic factor model, a multiple condition deterministic model, and a multiple interactive causative model, also known as a psychological-social model, which is the most frequently used one⁹. That is, there are very complex and various factors causing depression of the elderly.

It was found out that there is a positive relationship between subjective health and depression⁷⁻⁹. In particular, the variables affecting depression are subjective health, economic condition, and social support of workers in facilities in descending order⁸. Also, the more satisfied one is with the quality of service in the facility, the higher is one's satisfaction with staying there and the quality of life¹²⁻¹⁶. Specifically, the higher the quality of service is, the higher is the satisfaction of users with the facility¹² and with the quality of life¹³. More specifically, according to Jung¹⁶, what most affects satisfaction with life is quality of the service in such facilities. Satisfaction with living arrangements is also related. It was found that the higher is the satisfaction of users of facilities, the higher their satisfaction with life is¹⁵, and the higher their satisfaction with staying there is, the lower their depression is¹⁷⁻¹⁸.

In summary, the above research shows that, among the elderly residing in facilities, health, satisfaction with service quality, satisfaction with staying there, and quality of life are all related to each other. And we can assume

that, in the relationship between health and quality of life among the elderly in facilities, satisfaction with the quality of service or with living arrangements can serve as a mediating variable. However, since the research mentioned above tends to focus on two variables, they fail to grasp the comprehensive relationship among various variables. Thus, they are not very effective in differentiating variables that affect depression of the elderly in facilities nor in finding out measures to reduce it.

Therefore, this study aimed to investigate whether satisfaction with the quality of service and satisfaction with living arrangements mediate the relationship between subjective health and depression. Toward this end, the following research questions were set. First, what is the correlation between satisfaction with the quality of service, satisfaction with living arrangements, subjective health, and depression? Second, does satisfaction with the quality of service and satisfaction with living arrangements mediate the relationship between subjective health and depression?

Method

Research Model: Based on previous studies, I set up a research model as shown in Figure 1, in other words, research model in which satisfaction with the quality of service and satisfaction with living arrangements mediate the relationship between subjective health and depression.

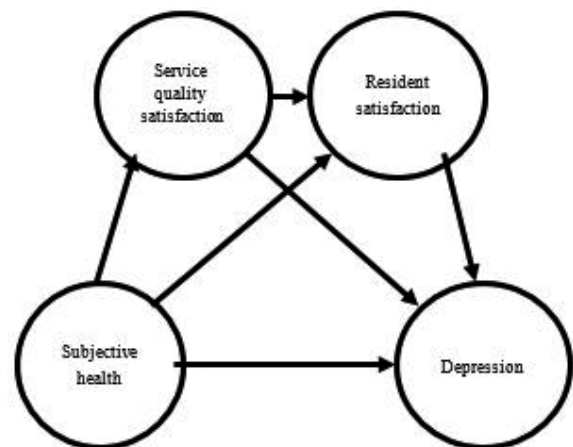


Figure 1: Research model

Research Subject: The survey was conducted by visiting the nursing homes that allowed the study after a phone call request. Face-to-face interviews were done with the elderly people in the institutions by myself and trained graduate students. The survey was completed by 381 elderly people in the long-term care facilities.

Of the elderly in the nursing homes, females were 71.7% and males were 28.3%, that is, about three times as many females as males. For their ages, the group over 80 years old was the biggest, with 61.6%, and their mean age was 79.54 years old, which was fairly old. In marital status, 79.8% had no spouses. For the educational level of the elderly in the institutions, 70.3% had the experience with schools, but 29.7% had no such experience. In economic status, 74.8% belonged to the ordinary families.

Research Tools

Depression: I used the 10-item, 5-point Likert-type scales related to depression among the SCL-90-R¹⁹ measurement tools. In this study, the reliability of the scale in terms of Cronbach’s α was .921.

Subjective Health: The subjective health status was as follows: 1 question, 5 point Likert-type question asked, “How is your health compared to your peers?”

Service Quality Satisfaction: SERVPERF index²⁰ with 22 questionnaires and 5-point Likert-type scale (originally 7-point scale). Meaning the scores of 22 questionnaires. The higher the score, the higher the service quality. Cronbach’s α =.953.

Resident Satisfaction: Resident Satisfaction Questionnaire (RSQ)²¹ was used. There were 13 questions, on a 5-point Likert-type scale. The higher was the total score, the higher was the satisfaction with living arrangements. The reliability of the scale was a Cronbach’s α of .928.

Other Variables: The other variables included sex, age, marital status, education, economic status.

Results and Discussion

Correlation between Main Variables: As shown in Table 1, a significant correlation was found between all variables. The variables of satisfaction with the quality of service and satisfaction with the living arrangements showed the highest correlation coefficient ($r = .645, p < .001$), followed by the correlation between satisfaction with the living arrangements and depression ($r = -.371, p < .001$). The overall correlation coefficients ranged from .200 to .645, which suggests the absence of multicollinearity. On the other hand, the highest degree was observed for satisfaction with the living arrangements ($4.11 \pm .52$), and depression was the lowest ($2.30 \pm .68$).

Table 1: Correlation coefficients between major variables

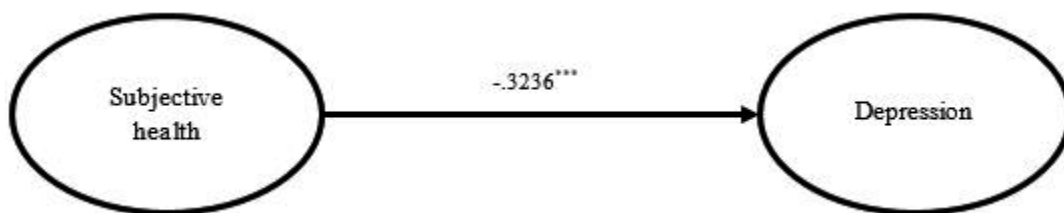
	1	2	3	4
1. Health	1			
2. Service quality satisfaction	.237***	1		
3. Resident satisfaction	.200***	.645***	1	
4. Depression	-.327***	-.347***	-.371**	1
M	3.31	4.07	4.11	2.30
SD	.68	.56	.52	.68

** P<.01, *** P<.001

Path Coefficients: As shown in Figure 1, the magnitude of the total effect of subjective health on the depression of the elderly living in nursing homes. Figure 3 shows the coefficients of each path for verification of the dual-mediated effect. Analysis of the coefficients of each path reveals statistical significance. However, the direct influence of subjective health on satisfaction with living arrangements (.0527, $p = .1053$) was not significant. The subjective health of the elderly had a statistically significant positive effect on satisfaction with the quality of service (.2045, $p < .001$) and a negative effect on

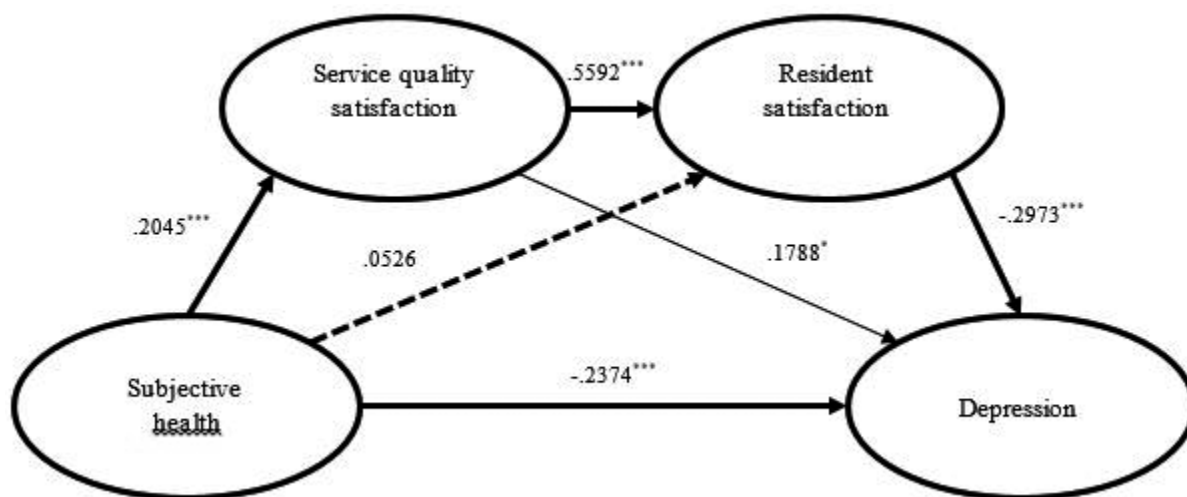
depression (-.2374, $p < .001$). The satisfaction with the quality of service had a statistically significant positive effect on satisfaction with the living arrangements (.5592, $p < .001$), which in turn exerted a statistically significant negative effect on depression (-.2973, $p < .05$).

Although the total effect of subjective health on depression was $\beta = -.3236 (p < .001)$, the effect of subjective health on depression was $\beta = -.2374 (p < .001)$, smaller than the former. That is, satisfaction with the quality of service and satisfaction with living arrangements have significant mediating effects on depression.



*** P<.001

Figure 2: The total effect of subjective health on depression



* P<.05 *** P<.001

Figure 3: The dual mediation effect of satisfaction with the quality of service and resident satisfaction

Verification of dual mediation effect: This study used the SPSS PROCESS macro to verify the dual mediation effects in the relationship between subjective health and depression, and verified the mediation effect through bootstrapping²². Therefore, a bootstrap procedure with 5,000 iterations was done, and the confidence interval was set to 95%. As shown in Table 2, the total size of the mediation effect was -.0862 (-.1439 to -.0397), indicating absence of 0 in the 95.0% confidence interval. Therefore, the total mediation effect was significant. The expected performance of the simple mediation effect of subjective health -> satisfaction with the quality of service ->depression was -.0366 (-.0707 to .0001),

indicating the absence of 0 in the 95.0% confidence interval, which indicates a significant effect. But the expected performance of the simple mediation effect of subjective health -> satisfaction with living arrangements -> depression was -.0156 (-.0544 to .0034), suggesting the presence of 0 in the 95.0% confidence interval, and an insignificant effect.

However, the expected performance of the dual mediation effect of subjective health -> satisfaction with the quality of service -> satisfaction with living arrangements -> depression was -.034 (-.0749 to -.0123), and without a 0 in the confidence interval of 95.0%. Therefore, the dual mediation effect was proved to be significant.

Table 2: Dual mediating effect of Service quality satisfaction and Living satisfaction

Classification	Mediating effects			
	B	S. E.	BC 95% CI	
Subjective health -> Service quality satisfaction ->Depression	-.0366	.0175	-.0707	-.0001
Subjective health -> Resident satisfaction -> Depression	-.0156	.0172	-.0544	.0134
Subjective health -> Service quality satisfaction-> Resident satisfaction ->Depression	-.034	.0165	-.0749	-.0123
Total Indirect Effect	-.0862	.0265	-.1439	-.0397

Conclusion

This study aimed to investigate whether satisfaction with the quality of service and resident satisfaction mediate the relationship between subjective health and depression. Toward this end, the following research questions were set. First, what is the correlation between satisfaction with the quality of service, resident satisfaction, subjective health, and depression? Second, does satisfaction with the quality of service and resident mediate the relationship between subjective health and depression? The survey was completed with 381 elderly people in the long-term care facilities in Jan. to Feb, 2017. This study found out that, in the effect of physical health on depression, satisfaction with the quality of service and residential satisfaction have dual mediating effects.

These findings suggest the followings. First, the worse subjective health condition is, the higher depression is. Considering that over 40% of the Korean elderly perceive that their general health conditions are bad or very bad, it is very important to improve their health conditions in order to reduce depression among them. Accordingly, by encouraging those in facilities to participate in various health programs, take care of their diets, and be given proper treatment, it is necessary to improve their health, which will reduce depression of them.

Second, raising their satisfaction with the quality of service provided by facilities can reduce their depression. As of 2017, there are 20,377 nursing homes in Korea. The number of old people recognized as needing long-term care is 840,000. However, quality management and guidance and monitoring by the government on such facilities are not enough. So, it seems necessary to more thoroughly manage service quality. That is, by providing various environmental, physical, and social services which fit the demands of the elderly, it is possible to reduce their depression of them.

Third, as residential satisfaction can also reduce depression, it is necessary to lead the elderly to adjust themselves to facilities, and increase their residential satisfaction, which will reduce depression. Above all, as satisfaction with service quality has positive effects on residential satisfaction, it is necessary to find ways to raise their satisfaction with service quality.

Ethical Clearance: Not required

Source of Funding: Self

Conflict of Interest: Nil

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