The Factors Affecting on Elderly' Life Satisfaction in the Residential Environments

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Abstract This research is designed to identify factors that affect life satisfaction of the Korean elderly by studying residential environments and individual personalities as independent variables, and life satisfaction of the elderly as a dependent variable. It also includes emotional and instrumental support to describe relations between variables as mediating variables. It utilizes a questionnaire survey as its research method and studies those aged 65 and over living in urban, suburban and rural areas. In addition, regression and path analysis is used to identify casual links between different variables. The results are as follows: (1) Direct factors that impact emotional support are home ownership (direct effect= -.18) and transportation services (.15). That is, those who own their home and have easy access to public transpiration show increased levels of emotional support. (2) Direct factors that affect instrumental support are economic status (direct effect= .311) and living arrangement (.17). In other words, those who are financially stable and live with their children have more instrumental support. (3) Factors linked directly to life satisfaction of the elderly are their age (direct effect= -.10), health status (.19), economic status (.25), region of living (.22) and housing type (.19). (4) Among the mediating variables, emotional support has direct effect (.45) while instrumental support has indirect effect (.16)

Keywords: Elderly, Residential Environment, Life Satisfaction, Social Support

1. INTRODUCTION

The Korean population is aging at an unprecedented speed compared to other advanced countries. According to Statistics Korea of the National Statistics Office, those aged 65 and older accounted for 11.3% of the total population in 2010. Korea is expected to become an aged society (more than 14%) by 2018 and a post-aged society (more than 20%) by 2026. Meanwhile, urbanization and change in social values have resulted in an increasing number of the elderly living alone and a rapid drop in the number three generation families living together.

In the later years, people experience a change of roles, in that they are expected to play narrowing social relationship due to independence and marriage of their children, deteriorating physical strength and retirement. They feel isolated and lonely and suffer from low self esteem. Quality of life among the elderly is lower than any other periods of life. Therefore, we need to provide various

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social support systems so they can enjoy the latter part of their lives, and thus help them to get out of a negative and depressive thinking and feeling state. Research suggests that the quality of life among the elderly is more influenced by their residential setting than that of young people, as ageing leads to physical and emotional weakness. Not only type and location of one's residence but also the convenience of facilities in the neighborhood have an impact on quality of senior citizens' lives; as those factors create an environment where the elderly can get involved with people in the neighborhood and stay out of isolation. Furthermore, convenient public transportation enables the elderly visit their children, relatives and friends on a regular basis, which enhances their social support network. But, change of residence can cause emotional stress for the elderly as it leads to separation from with their friends and neighbors and involves a complicated relocation process. Even though a new residence may be better than a previous one, such a move would cause negative emotional impact to the elderly as they have a hard time adjusting to the new environment. Against this backdrop, residential environment is a critical component related to life satisfaction for the elderly.

Even though residential environment has a critical impact on daily lives of the elderly, relatively less attention has been paid to studying linkage between residential environments of the elderly and their quality of lives. Over the past few years, a majority of studies in gerontology studies have focused on quality of lives of senior citizens including their family, social relationship, social support, self-esteem and life satisfaction. In architectural studies, most researchers have concentrated on physical residential environment itself.

Altman and Rogoff (1987) point out that People and the environment sometimes affects each other and it becomes possible to obtain the result among these interactions. As the goal of studying the physical environment lies in improving quality of lives for the elderly, it is critical to validate impacts of residential environments on quality of lives of the elderly. If this study is able to verify important factors that impact lives of senior citizens, it will contribute to designing an optimal environment where the elderly can live with improved life satisfaction. In this context, a comprehensive assessment on internal and external factors that impact lives of the elderly and relationship between those factors is required to address various challenges and needs of the elderly in an aged society.
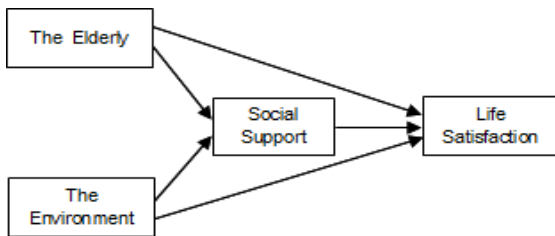

Figure 1. A conceptual model for research

The particular impact derived from residential environment appears in complicated ways. Conceptual model (Fig. 1) is suggested to identify complex links in more detailed ways; individual personalities and residential environments as independent variables, social support as mediating variable, and life satisfaction as dependent variable.

This study aims to identify direct and indirect factors of residence that impact life satisfaction of the elderly using mediating variables. By doing so, it expects to provide basic information to improve residential environments for the elderly so they can stay in comfortable and happy living conditions with enhanced life satisfaction.

2. LITERATURE REVIEW

(1) Social support

With proper social support, we can remedy physical, emotional and social challenges so that the elderly experience well-being at later part of their life. Social support consists of various kinds of help and assistance by family, friends and neighbors (Corole and Charles, 1987). Different experts provide different definitions of social support; however, mostly it encompasses emotional and instrumental support. Emotional support refers to affection and emotional stability the elderly feel and instrumental support means physical and material assistance to supplement physical weakness of the elderly. Accoding to Ahn (2005), those living alone in Korea require more social support than those living with family to compliment negative feelings the elderly mostly experience due to diminished social roles and feelings of isolation. Spouses mostly provide emotional support while children offer more instrumental support including physical and economical support. In addition, previous research (Hur, 2004a; Koh, 2003) suggests that the higher social support the elderly have, the more life satisfaction they get.

(2) Life Satisfaction

Life satisfaction is a useful benchmark to measure quality of one's life. Life satisfaction refers to a state at which one accepts whether his/her life has been meaningful and believes they have achieved his/her life's critical goals and have dealt with changes in surrounding environment, as well as satisfied their desires without experiencing emotional and social stresses (Kalish, 1975). In this context, life satisfaction of the elderly is directly linked to successful aging – one admits he/she is aging and gets accustomed to the fact he/she is aging. In other words, life satisfaction of the elderly is a subjective and comprehensive emotional state related to physiological personalities, environment and one's life history. Previous research has shown that life satisfaction is a dependent variable to study successful aging.

Park (2004) assumes that life satisfaction of female elderly is higher than that of male elderly. Kim et al. (1999) report those who live in healthy and good economic status are evaluated positively in their lives. On the contrary, Johnson and Krueger (2006) argue subjective factors have more of an impact on life satisfaction of the elderly than objective numbers, including one's wealth. Choi and Lee (2007) report that a subjective level of health in a big city and emotional support of family in a mid and small city and personal stability in a rural area have the most critical impact on life satisfaction of the elderly.

In terms of relations between residential environment and life satisfaction of the elderly, Won (1995) presumes that living with children has little impacts on life satisfaction of senior citizens if they already live with their spouse while it has critical impact on happiness of the elderly who live without spouses. Dunn (2002) argues that home ownership has positive impacts on mental health of the elderly. Jeong (2012) assumes that convenience of housing and security in the neighborhood has significant impacts on life satisfaction of the elderly in urban areas while convenience of housing, security in the neighborhood, ownership of a house and residence period are proven meaningful factors for life satisfaction of the elderly in rural areas. For senior citizen couples, Kim (2009) reports that those who own a house, live in a bigger and newer house and stay in a house longer are validated to have happier lives. Shin et al. (2005) studies impacts of housing types on life satisfaction of the elderly and proves that owners of an apartment show high satisfaction of their lives. Park (2011) and Bae (2012) also point out that high satisfaction with residence leads to high satisfaction with lives.

3. METHOD

(1) Procedures

This study surveys senior citizens aged 65 and over in cities, suburban and rural areas. Researchers visited nursing homes, community and senior centers from June and August 2012 and randomly chose research subjects. Researchers explained the goal of this research and asked for their participation on a voluntary basis. For those who were illiterate or required visual aids, researchers asked questions verbally and took note of their responses. Among a total of 230 survey responses, this research uses 223, which were completed in full.

Table 1. Research variables and operational definition

Variable	Content	Operational definition	Measure
Independent variables	Gender	Gender of elderly	1="man", 2="female"
	Age	Age of elderly	1="65-69 years", 2="70-74 years", 3="75-79 years, 4="80 years and over"
	Health status	Perceived health status of eldery	1=" bad", 2="so so", 3="good"
	Economic status	Perceived economic status of eldery	1=" bad", 2="so so", 3="good"
	Housing type	Housing type the elderly live in	1="house", 2="apartment", 3="nursing home"
	Home ownership	Rent or own?	1="own", 2="rent", 3="free"
	Living arrangement	Who elderly live with?	1="alone", 2="with a spouse", 3="with child(ren)"
	Region of living	Where elderly live in?	1="urban area", 2="suburban area", 3=" rural area"
	Period of residence	Period of staying in the current residence	1="less than 1 year", 2="2-3 year ", 3="4-5 year", 4="6 year and more"
	Transportation services	Access to public transportation	1=" bad", 2="so so", 3="good"
	Convenience services	Convenience services in neighborhood	1=" bad", 2="so so", 3="good"
Mediating variables	Emotional support	Is there someone with whom you talk to about your worries?	1="no", 2=" so so ", 3="yes"
		Is there someone who shows an interest in you?	1="no", 2=" so so ", 3="yes"
		Do you feel respected by others?	1="no", 2=" so so ", 3="yes"
	Instrumental support	Are there people who help you with house-work?	1="no", 2=" so so ", 3="yes"
		Are there people who take care of you when you are sick?	1="no", 2=" so so ", 3="yes"
		Are there people who help you when you need money?	1="no", 2=" so so ", 3="yes"
Dependent variable	Satisfaction	Overall satisfaction with life	1="unsatisfied", 2="so so", 3="satisfied"

(2) Measures

The questionnaire consists of four categories as follows: individual personalities of the elderly, residential environments, social support and life satisfaction. As Table 1 suggests, individual personalities of the elderly refers to age, gender, health status and economic status as defined in a previous study (Corole and Charles, 1987; Hur, 2004; Johnson and Krueger, 2006; Kwon and Cho, 2000; Nolan, et al, 2004), as well as residential environment variables including housing type, home ownership, living arrangement, region of living, period of residence, transportation services and other convenience services as defined in a former architecture study (Jeong, 2011; Kim and Kwon, 2005; Park, 2007). Detailed scores for each variable are given as below.

Individual personality: For gender, 1="male", 2="female", For age, 1="65-69", 2="70-74", 3="75-79", 4="80 and over" based on seniority. For health and economic status measured using the 3-point Likert scale (1= "bad", 2="so so", 3="good").

Residential environment: Each elderly self-reported on their residential environments for housing type (1="house", 2="apartment", 3="nursing home"), ownership of house (1="own", 2="rent", 3="free"), living arrangement (1="live alone", 2="live with a spouse", 3="live with child(ren)"), region of living (1="urban area", 2="suburban area", 3="rural area"), and period of staying in the current residence (1="less than 1 year", 2="2 to 3 year", 3="4 to 5 year", 4="more than 6 years"). The 3-point Likert scale was also used to measure the transportation services and convenience services in the neighborhood (1="bad", 2="so so", 3="good").

Social Support: consists of emotional and instrumental support and is used as a mediating variable to explain life satisfaction. As Ahn(2005) suggests ways to measure social support, this survey asks questions in three parts. To measure emotional support, the questionnaire includes "Is there someone with whom you

talk to about your worries?" "Is there someone who shows an interest in you?" "Do you feel respected by others?" To gauge instrumental support, we asked "Are there people who help you with housework?" "Are there people who take care of you when you are sick?" "Are there people who help you when you need money?" This study uses a 3-point Likert scale for each question (1="no", 2="so so", 3="yes"). The higher a score is, the more emotional and instrumental support the elderly get. Credibility of this research for social support is Cronbach's α = 0.703.

Life Satisfaction: refers to overall life satisfaction of the elderly, used as a dependent variable. Measured using a Likert scale (1="unsatisfied", 2= "so so", 3="satisfied"). A higher score means higher life satisfaction.

4. RESULTS

(1) Descriptive Statistics

Among 223 surveys, males account for 42% while females are 58%; generally the female population is higher than the male population among the elderly. Those aged 65-69, 70-74, 75-79 and 80 and over accounted for 9%, 16%, 31% and 44%, respectively. In terms of type of house, house accounted for 29%, apartment 53% and nursing home setting was 14%; apartment is the most popular type of house in Korea.[1] Among research subjects, 53% own their own house, 30% are tenants and 15% were provided with a free residence. 61% of the surveyed senior citizens are single elderly household who live alone and with a spouse, whereas 34% of those live with their children. Urban residents account for 44% while 35% and 21% live in suburban and rural areas respectively.

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[1] According to 2010 official statics on housing type from Korean National Statistics Office, houses accounted for 40.4%; apartment 48.1%; and others 11.6%.

(2) Regression Analysis

This research uses regression analysis on three variables to study the impact of various residential environments on emotional, instrumental and life satisfaction of the elderly.

As Table 2 suggests, home ownership (β=-.30, p<.01) and transportation services (β=.25, p<.001) suggest a meaningful impact on emotional support. That is, if one owns a house with easy public transportation access, he/she has more emotional

Table 2. Regression of emotional support of the predictor (N=223)

Predictor	β	T	p
Gender	0.12	1.82	0.07
Age	-0.11	-1.60	0.11
Health status	0.04	0.63	0.53
Economic status	0.09	1.35	0.18
Housing type	-0.08	-0.92	0.36
Home ownership	-0.30	-3.24	<0.01
Living arrangement	0.05	0.72	0.47
Region of living	-0.06	-0.76	0.45
Period of residence	-0.02	-0.34	0.74
Transportation services	0.25	3.73	<0.001
Convenience services	-0.04	-0.54	0.59

R^2 =.24, F =5.72, p<0.001

Note: β is the standard regression weight

Table 3. Regression of instrumental support of the predictor

Predictor	β	T	p
Gender	-0.12	-1.81	0.07
Age	-0.03	-0.45	0.65
Health status	0.01	0.09	0.93
Economic status	0.26	3.87	<0.001
Housing type	-0.02	-0.20	0.85
Home ownership	-0.09	-1.04	0.30
Living arrangement	0.31	4.49	<0.001
Region of living	-0.15	-1.90	0.06
Period of residence	-0.09	-1.36	0.18
Transportation services	0.11	1.63	0.11
Convenience services	0.03	0.42	0.67

R^2 =.27, F =6.66, p<0.001

support. As Table 3 shows, economic status (β=.26, p<.001) and living arrangement (β=.31, p<.001) are analyzed to have meaningful effects on instrumental support. In other words, if one has economic means living with children, he/she has more instrumental support.

Based on a regression analysis on life satisfaction shown in Table 4, age (β=-.12, p<.05), health status (β=.20, p<.01), economic status (β=.17, p<.01), housing type (β=.16, p<.05), and region of living (β=.26, p<.001) are variables that impact life satisfaction of the elderly. Emotional support (β=.28, p<.001) and instrumental support (β=.17, p<.05) have meaningful impacts on life satisfaction. The younger, healthier and more affluent one is, the higher his/her life satisfaction becomes. In terms of neighborhood, those living in rural areas are happier than their counterparts in urban settings. In terms of housing type, those living in apartment settings are more

satisfied with their lives than those living in a house. This finding suggests that senior citizens experience more inconvenience in housing management than those living in apartments, as the latter is provided with professional management services. Furthermore, with more emotional and instrumental support, the elderly have higher life satisfaction.

Table 4. Regression of life satisfaction of the predictor

Predictor	β	T	p
Gender	0.06	0.99	0.33
Age	-0.12	-2.03	<0.05
Health status	0.20	3.38	<0.01
Economic status	0.17	2.67	<0.01
Housing type	0.16	2.20	<0.05
Home ownership	0.04	0.42	0.68
Living arrangement	0.11	1.59	0.11
Region of living	0.26	3.65	<0.001
Period of residence	0.07	1.19	0.24
Transportation services	0.01	0.19	0.85
Convenience services	0.08	1.28	0.20
Emotional support	0.28	4.11	<0.001
Instrumental support	0.17	2.35	<0.05

R^2 =.40, F =10.03, p<0.001

(3) Pass Analysis

Based on results of regression analysis, this research conducts pass analysis only with meaningful variables. Pass analysis is used to identify relations between different variables and calculate linear structural models and regression coefficients. One of the benefits of pass analysis is to help researchers determine not only direct but also indirect links between variables that is hard to identify using regression analysis alone. Using covariance, direct and indirect relation between variables can be mapped out.

First, as Table 5 suggests, home ownership (direct effects=-.18), transportation services (.15) and instrumental support (.35) as mediating variables turn out to effect emotional support differently. That is, if a senior citizen owns a house, living in a neighborhood with easy public transportation access and higher levels

Table 5. Direct effect and indirect effect of emotional support on the predictor

Predictor	Direct effect	Indirect effect	Total effect
Home ownership	-0.18	0.00	-0.18
Transportation services	0.15	0.00	0.15
Economic status	0.00	0.11	0.11
Living arrangement	0.00	0.06	0.06
Instrumental support	0.35	0.00	0.35

of instrument support, he/she may be happier than those who do not have the same conditions. In addition, indirect factors turned out to be economic status (indirect effect=.11) and living arrangement (.06).

Second, direct factors that impact instrumental support turned out to be economic factors (direct effect=.31) and living arrangement (.17) (see Table 6). Those with healthy financial conditions and living with a spouse or grown-up children have more instrumental support.

Table 6. Direct effect and indirect effect of instrumental support on the predictor

Predictor	Direct effect	Indirect effect	Total effect
Economic status	0.31	0.00	0.31
Living arrangement	0.17	0.00	0.17

Third, as Table 7 suggests, direct factors that have impacts on life satisfaction of the elderly are identified: economic status (direct effect =.25), region of living (.22), health status (.19), housing type (.19), age (-.1) and emotional support (.45). Indirect factors include home ownership (indirect effect=-.0.8), transportation services (.07), economic status (.05), living arrangement (.03) and

Table 7. Direct effect and indirect effect of life satisfaction on the predictor

Predictor	Direct effect	Indirect effect	Total effect
Age	-0.10	0.00	-0.10
Health status	0.19	0.00	0.19
Home ownership	0.00	-0.08	-0.08
Transportation services	0.00	0.07	0.07
Economic status	0.25	0.05	0.30
Living arrangement	0.00	0.03	0.03
Region of living	0.22	0.00	0.22
Housing type	0.19	0.00	0.19
Instrumental support	0.00	0.16	0.16
Emotional support	0.45	0.00	0.45

Based on the analysis results, pass model is designed as indicated in Fig. 2. The casual model explains 56% of variables that have effects on life satisfaction of the elderly. The antecedent variables can explain 48% of emotional support and 24% of instrumental support.

5. CONCLUSION

This study is designed to identify factors that impact life satisfaction among the elderly. To that end, it studies traits of residential environments and individual personalities as independent variables and life satisfaction of the elderly as a dependent variable. It also includes emotional and instrumental support to describe relations between variables as mediating variables. It adopts regression and path analysis to identify casual links between different variables (see Fig. 2). The following is a summary of the research findings in this study.

First, among residential variables, home ownership (direct effect=-.18) and transportation services (direct effect=.15) have a major impact on emotional support among the elderly.

For the elderly who spend most time at home, home ownership is proven to provide positive effects on their mental health, which supports the study result of Dunn (2002) that specifies home ownership have positive psychological impacts of lives of the elderly. If a senior citizen does not own a house and lives as a tenant, he/she has to pay rents regularly and may be forced to move from his/her house even though he/she does not want to leave. This constant sense of instability due to lack of home ownership is proven to threaten emotional stability of the elderly. Change of residence would deal a blow to his/her well-established social network. As the elderly are less adaptable, change of residence puts significant stress on their lives

Transportation service is interpreted as a helpful factor that has positive impacts on emotional stability of the elderly as it helps to improve accessibility to children, relatives and friends. That is, convenient transportation services enable the elderly with narrow social activity area to maintain or expand their social relationship network so that they can earn psychological stability, which eventually impacts life satisfaction of the elderly.
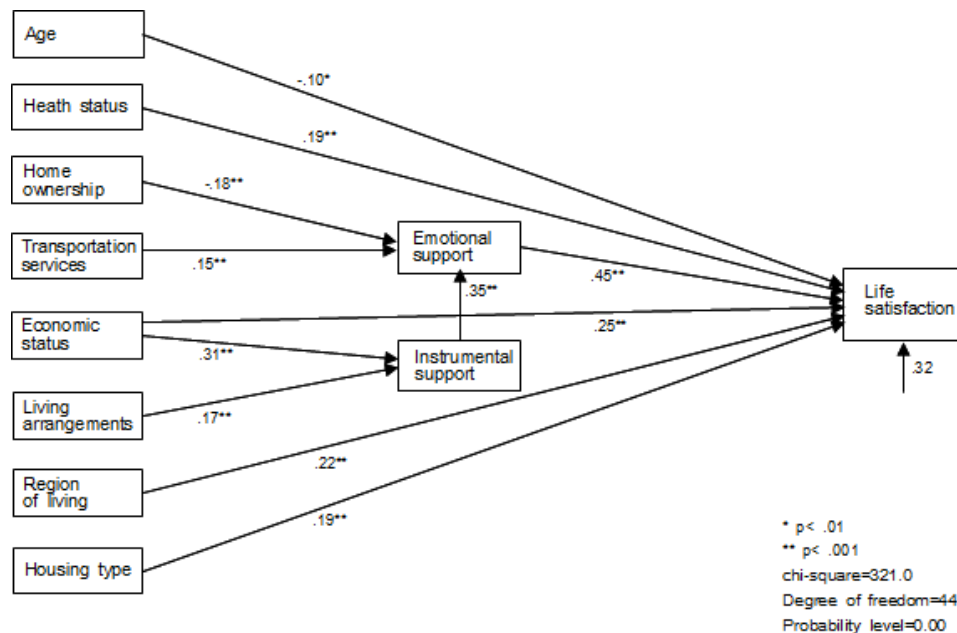

Figure 2. A path model

Second, economic status (direct effect=.31) and living arrangement (direct effect=.17) have a major impact on instrumental support for the elderly. To be specific, the more affluent a senior citizen is, the more instrumental support he/she can get. Those living with a spouse or their children have more instrumental support than those living alone as they can get physical assistance or help in dealing household chores and economical support from family members and others.

Third, factors that impact live satisfaction of the elderly are analyzed to include age, health status, economic status in personal traits and region of living, housing type, home ownership, transportation services, living arrangement in residential environment traits.

At a personal level, the younger the elderly is, the better their life satisfaction becomes. This finding supports the arguments of the previous studies that the richer a senior citizen is, the higher life satisfaction is (Lee, 2005; Ball et al., 2008; Yoon and Lee, 2012) and the more healthful is and the higher happiness is (Bowling et al., 1996; Asakawa et al., 2000; Choi and Lee, 2007).

In terms of residential environmental factors, life satisfaction is proven higher in suburb areas in countryside than in urban areas and it is higher in an apartment than a house. What is interesting is the finding that the elderly prefer to live in countryside but prefer to reside in an apartment instead of a house. Generally, it has been know that the elderly prefer a house. But it can be interpreted that residential environments of houses fail to properly support daily needs of the elderly.

In Korea, apartment complexes have been developed in a large scale and many efforts have been made to improve residential environment. On the other hand, however, less effort has been made to improve residential environment for houses. Therefore, it is critical time to improve residential environment for houses so that the elderly who start to experience deteriorated physical conditions with aging can lead an independent live at home where they have continue to live. In addition, home ownership is critical for psychological stability for the elderly and convenient transportation services enhance their accessibility to friends and family, thus improving life satisfaction. In terms of housing type, senior citizens living with their children and those living at nursing home are provided with instrumental supports from children and employees of nursing home respectively while those living alone do not get support from family or society, thus experiencing low life satisfaction.

Finally, among mediating variables, emotional support has a direct effect (=.45) while instrumental support has an indirect effect (=.16). In the case of Korea, emotional support shows greater effects on the elderly than physical support.

Based on the above research findings, policies for the elderly should be devised considering their specific needs for housing and living arrangement and the government should provide the elderly with proper economic and health support so that they feel happy and satisfied with their lives. First of all, welfare for the elderly, including public health insurance and pension programs, should be strengthened to address their vulnerabilities in health and financial conditions. In addition, location of residence for the elderly should be carefully chosen close to nature and residential design should factor in their needs for community life and services. Furthermore, their residence should have easy access to public transportation to

help them to maintain stable social relationships with family and friends, thus avoiding social isolation.

Based on the analysis, this paper suggests the following to improve residential environment of the elderly.

First, to ensure the elderly to have sufficient life satisfaction and to have better live, policy support for their health and economic condition as well as policy consideration for region of living, transportation service, housing type and living arrangement. Policy support for the elderly with less favorable health and economic conditions such as medical and pension supports for seniors is needed. When devising policy for medical support for senior citizens, quality of the case as well as accessibility to clinics including method of transportation should be considered.

Region of living as part of residential environment for the senior citizens should be chosen in a place where they can enjoy the nature and accessibility by transportation should be considered. Accessibility by transportation is critical as it enables the elderly to contact with children, relatives and friends and reduce a sense of isolation and to visit hospital when they are not well.

Residential stability is significant not only for psychological stability for the elderly but also for government policies. Because the elderly with monthly rent or Jeonse, are generally financially underprivileged, social and policy support for them to stabilize their lives should be strengthened. In particular, senior citizens living alone experience poor residential conditions. Therefore, the government support for improving their financial stability and residential condition is needed.

Housing renovation to meet changing needs for aging is a proper approach to address needs of the elder who are reluctant to want to leave their current homes. If the elderly is able to enjoy aging-in-place, the government is expected to reduce long-term welfare costs for the elderly.

In terms of housing type, the elderly prefers house. However, as this study mentions above, satisfaction level for an apartment is high among the elderly because an apartment is more convenient to manage, provides better safety and community life. Therefore, in housing market, there is an increasing need to accommodate growing demand of the elderly household; providing houses for the elderly at lower floors of apartment buildings. Since most apartments or houses are designed with focus on households with young children, its space utilization and design cause inconvenience for a single senior citizen household.

In terms of living arrangement, the elderly think positively to live with their children. Still there is limitation in causal relationship between living with children itself and improve life satisfaction and psychological stability. Other practical issues such as motivation to live together have greater impacts. For example, if the elderly chose to live with their children due to deteriorating health and financial conditions, it rather reduces their live satisfaction. Kim et al. (1998) argues that among the elderly who live with their children, those who have power to make a choice with regarding to living with children have higher life satisfaction. Recently, various practical factors such as change in life values, a need to live in a different city due to job, social atmosphere does not force grown-up and married children to live with their parents anymore. In the same context, fewer parents want to live with their children. Life satisfaction of those residing at nursing home is on the rise. Therefore, the elderly seem to accept the changes.

In the future, the number of elderly living alone continues to grow. Therefore, it is critical to find ways to improving residential conditions for the elderly to live alone without support from their children and strengthen qualitative improvement of relationship between the elderly and their children regardless of who they are living with.

This study is researched with a group of the elderly residing in a particular region. Therefore, it is hard to generalize the findings of this study to all senior citizens. Despite its limitation, it is meaningful to provide an explanation of factors that could impact life satisfaction of the elderly. Moreover, further study is needed to identify relation between psychological factors with segmented residential environmental factors to improve residential environment for the elderly because physical conditions such as residential environment and psychological factors of individual senior citizens interacted with each other in a complex way.

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