



Developmental Trajectories and Predictors of Social Exclusion Among Older Koreans: Exploring the Multidimensional Nature of Social Exclusion

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Accepted: 29 November 2018 / Published online: 5 December 2018
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Abstract

The purpose of this paper was to investigate the developmental patterns of social exclusion among older Koreans over time. In addition, we identified the significant determinants that may increase the risk of social exclusion among older Koreans. The analyses were based on the panel data from the Korean Longitudinal Study of Ageing and included older adults from 2008 to 2012 (N = 24,074) for the final analysis. Social exclusion was categorized into four different sub-dimensions: financial, social relational, social cultural, and emotional. The analysis was based on a semi-parametric group-based approach followed by multinomial logistic regression. The results showed considerable variations and different developmental trajectories by the social exclusion sub-dimensions among older Koreans; in particular, the results showed that being older, male, and less educated were significant indicators of social exclusion. This study adds to the limited body of literature on longitudinal studies of social exclusion among older Koreans, and the results will help develop interventions for older Koreans who are socially isolated.

Keywords Social exclusion · Korean older people · Korean Longitudinal Study of Ageing (KLoSA)

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1 Introduction

Social exclusion is a useful tool for exploring the variety of disadvantages in later life that reach beyond the traditional focus on poverty (Scharf et al. 2005; Tong et al. 2011). Poverty in the traditional debate is discussed around employment (Scharf et al. 2005), which does not apply to the majority of older adults who have been permanently withdrawn from their occupational roles. Moreover, older adults face ageism from economic and social policies that may contribute to various forms of exclusion and that require a multidimensional approach (Anderson et al. 2013). Social exclusion could provide critical views on the layers of embedded structural and emotional disadvantages such as exclusion from services, community activities, and social isolation and discrimination in later life among older adults (Park and Chung 2012).

Social exclusion among older adults has become a prevalent social issue in South Korea. Evidence has consistently shown that older Koreans are likely to be excluded in various social aspects. The very recent statistics from the Organization for Economic Cooperation and Development (2015) showed that South Korea had the highest rate of poverty among older adults of any of the OECD countries. In addition, mental health disorders among older adults, including high suicide rates has increased sharply over the past decade (Park et al. 2016). More importantly, Korean older adults are less involved in social relationships and social engagements, which alert us the marginalization of this generation in Korea (Kang and Kim 2011; Park et al. 2014). Despite the importance of the issue, studies that explored Korean older adults have mainly focused on economic deprivation, but other dimensions have received limited attention. Furthermore, much of research had used cross sectional data, and failed to capture the longitudinal trends in social exclusion and the growing inequality over time between older Korean subgroups, a possible contributor to the absence of adequate data on the nature of exclusion among this cohort. To address this research gap, this study draws upon a population-based panel data which allow us to analyze the developmental patterns of social exclusion among older Koreans over time. Using the life course perspective, the current study examined how each older Korean subgroup's degree of social exclusion change or remains stable over time, and the significant determinants that may increase the risk of belonging to a more socially excluded subgroups.

2 Life-Course Perspective

Life-course theory offers a compelling framework to understand how social and material constraints influence individual's life course over time. According to the theory, individuals may build their own life course by making choices and actions; however these choices are made within constraints of historical and social circumstances (Elder et al. 2003). This is in line with the cumulative disadvantage framework, where individuals' social and material inequalities accumulate and exert greater influence on life course trajectories (Nurius et al. 2015). For instance, poverty during childhood may limit the educational attainment and access to health care at youth, which could result in social exclusion in adulthood (Bäckman and Nilsson 2010). Moreover, Bäckman and colleague argue that cumulative disadvantage framework is a useful tool to understand how one's resource deficiency leads to additional consequences and could help us predict growing inequality over time in a cohort or in and between cohort subgroups. Life-course theory has been widely used in

research that emphasized the effect of childhood events or life conditions in youth on adulthood (Hirvensalo and Lintunen 2011). However, this theory could also be applied to older population, as the transitions and events such as retirement at later stages in life can also shape the direction of trajectories of one's life course (Devine et al. 2000).

3 Definition of Social Exclusion

Although social exclusion has a prominent place in policy and research, there is no general agreement on its definition. For this reason, definitions and factors that correlate with social exclusion have varied across studies (Kang and Kim 2011; Park and Chung 2012; Scharf et al. 2001; Tong et al. 2011). In general, social exclusion is composed of distributional dimensions of poverty such as lack of material goods and the relational dimensions of social ties (Scharf et al. 2001). Similarly, Duffy (1995) described social exclusion as a state in which individuals are unable to participate effectively in economic, social, political, and cultural life and are distanced from the mainstream society. Referenced by previous studies and the availability of indicators in the Korean Longitudinal Study of Ageing (KLoSA), this study identified four dimensions of social exclusion: financial, relational, cultural, and emotional.

Financial exclusion refers to how older adults manage their finances in everyday living. According to the Barnes et al. (2006), older adults who are excluded from financial products are generally unable to access resources to help them manage their finances, either on a day-to-day basis or longer term. Financial exclusion is also closely associated with and often the cause of other forms of exclusion (Park and Chung 2012); for instance, having little access to financial resources may contribute to difficulties taking part in cultural and social activities. In addition, older adults with financial difficulties reported more health problems and lower quality of life (Park and Chung 2012).

The importance of financial exclusion has been identified in Western studies because poverty continues to be a key risk factor among older adults (Scharf et al. 2005). Similarly, studies on older Korean adults have shown that compared with younger generations, older adults are at higher risk of financial exclusion, and the risk continues to rise with age (Bae et al. 2006). Despite the high percentage of labor participation among older Koreans, accounting for 30% compared with an OECD average of 13%, the majority of them are self-employed and receive low wages, which leads to financial exclusion (Yoon 2013).

Among older Korean adults, females and residents of suburbs were more likely to become financially excluded (Kim et al. 2008). The traditional Korean filial practice may have contributed to financial risk among older Koreans. The current generations of older Koreans tend to be unprepared for post-retirement because they sacrifice personal savings for the betterment of their families (Ku and Sohn 2005). In fact, according to Ku and Sohn (2005), the majority of older Korean adults do not have separate retirement plans and assume that their older children will care for them, while their adult children may not perceive any such obligation.

Relational exclusion captures the social bonds through individuals' personal relationships with others. A considerable amount of research has demonstrated that there are particular benefits from being involved in loose vertical and horizontal social networks because these provide alternative routes to valuable resources (Abbott and Sapsford 2005; Fiori et al. 2006). In addition, social networks are especially important to older adults because they are more exposed to social losses compared with younger

generations and are consequently more likely to suffer from depression (Lubben et al. 2006; Pachana et al. 2008). Social networks in general have been most frequently examined in relation to health. Studies with community-dwelling older adults confirmed that social networks affected elders' moods, well-being (Golden et al. 2009), memory loss (Ertel et al. 2008), perceived general health (Kasser and Ryan 1999), and depression (Alpass and Neville 2003). For instance, elderly women with larger social networks had less chance of having dementia compared with those with fewer or less extensive social networks (Crooks et al. 2008). Similarly, a study among older Chinese demonstrated that those with larger social networks had fewer depressive symptoms compared with those who were socially isolated (Chao 2011).

Personal networks are especially important in Korea because they provide valuable emotional and instrumental support for those who were excluded from social welfare policy during the rapid economic industrialization (Kang et al. 2005). Thus, as Kang et al. (2005) stated, the significance of personal relationships is expected to increase as the number of older adults who do not live with younger family members also increases. According to Park and colleagues (2014), the most prevailing personal network among older Koreans was family ties; specifically, older Koreans' personal networks revolved mostly around their co-resident adult children, and the majority of older Koreans failed to build close-knit ties to their communities. These trends have not changed in Korea over the last decade (Park et al. 2014).

Cultural exclusion captures social and cultural activities outside of one's family. A body of research has consistently shown that older adults' engaging in social activities led to improved quality of life (Aartsen et al. 2002; Cohen et al. 2006; Cuyppers et al. 2010). Older adults who participated in creative cultural activities were more likely to report good health, satisfaction with life, low anxiety, and less depression (Cuyppers et al. 2010), and similar results were observed among older adults who traveled frequently. They were more likely to be satisfied with their lives (Griffin and McKenna 1999; Kelly et al. 1987). Engaging in music activities also helps older adults to improve their health (Coffman 2002).

Participating in cultural activities is also important for older adults in South Korea. Older adults who participated in leisure activities were reported more life satisfaction than did those who did not (Na 2004). Na (2004) asserted that cultural and leisure activities among older adults should be encouraged to improve their quality of life. However, older Koreans' involvement in cultural activities was reported to be relatively low, 27.1% (Kang and Kim 2011). More specifically, Kang and Kim (2011) reported that the possibility of older Koreans' being excluded from cultural activities was higher among females, adults of older age, and the economically deprived.

Emotional exclusion in this study was conceptualized using loneliness. Leary (1990) described loneliness as a form of social exclusion that causes feelings of exclusion from important others. For older adults, loneliness is particularly important because it usually leads to poorer psychological well-being. For example, loneliness may cause depression in these adults (Alpass and Neville 2003; Luanaigh and Lawlor 2008). In addition, loneliness may increase the risks of physical health problems such as high blood pressure and poor immune system response (Luanaigh and Lawlor 2008), and it has also been associated with poor self-reported physical health (Cornwell and Waite 2009). Similar results have been observed with older adults in South Korea. A body of previous studies showed that loneliness in older people in South Korea was associated with quality of life (Kang 2005) and depression (Oh et al. 2009).

4 Methods

4.1 Data

The data for the current study were obtained from the Korean Longitudinal Study of Ageing (KLoSA). Based on the ELSA from Great Britain, the KLoSA was originally developed for cross-cultural comparisons (Korea Labor Institute 2006). The KLoSA is a panel data survey that covers various aspects of later life among community-dwelling older Korean adults, and the data are based on a multistage area probability design to represent the entire population of South Korea. The survey was approved by the Statistics Korea and the researchers followed the protocols to protect the research participants.

4.1.1 Procedure

The sampling process first began by developing sampling frame based on the 2005 National Census. Next, the 1000 households were selected and stratified by location, housing type, and age. The data collection began in 2006 and takes place every other year; approximately 10,000 community-dwelling Koreans age 45 or older were included for the initial data set. The data were obtained by trained interviewers who completed the 4 day training course prior to visiting each household. The response rates varied from 70.7% to 89.2%. This study included older adults from 2008 ($n = 8688$), 2010 ($n = 7920$), and 2012 ($n = 7486$).

4.2 Measures

4.2.1 Financial Exclusion

Financial exclusion was measured using older adults' access to financial products. This is in line with the Barnes et al. (2006) definition of financial exclusion among older adults, since those with limited access to financial services recognized daily money management and long-term financial security as the most important area of unmet financial need. The questions asked whether older adults had access to day-to-day money management services along with medium- and long-term investments, including checking accounts, funds, bonds, private insurance, and life insurance. The responses were coded 1 for having a financial product and 0 for otherwise. The scores for each question were added and reverse coded. The final score ranged from 0 to 5 with higher scores indicating more financial exclusion.

4.2.2 Relational Exclusion

Exclusion from social relationships reflected whether the respondents reported relationships with friends and children and was measured using three items, times to meet friends, times to meet children face to face, and times to talk to children by phone. The scores for the three items ranged from 1 (almost always, more than 4 times a week) to

10 (not at all). The scores for the three items were summed, and higher scores reflected more relational exclusion.

4.2.3 Cultural Exclusion

Cultural exclusion in this study was measured by assessing the older adults' social and cultural activities in the last year, and the cultural exclusion domain comprised travel, the theater, hobbies, and volunteering. All activities were coded as 1 (at least one time) or 0 (not at all). Cultural exclusion was measured for each of the four social and cultural activities and summed; the maximum score was 4 and the minimum was 0. The total scores were reversed, and higher scores reflected more cultural exclusion.

4.2.4 Emotional Exclusion

Emotional exclusion in this study was measured with one question: "Did you feel loneliness or feeling all alone in the world in the last week?" Respondents were asked to answer between 1 (rarely: less than 1 day) and 4 (always: 5–7 days per week), and higher scores mean more emotional exclusion.

4.2.5 Social Exclusion Influential Factors

We selected potential covariates of social exclusion among older Korean adults guided by previous studies, and the variables were age, gender, marital status, health status, total income, job, and family relations. Specifically, gender was dichotomized as female (coded as 1) or male (coded as 0). Marital status was also dichotomized as married (coded as 1) or other (coded as 0). Education was measured as a five-level ordered variable coded as 1 for none, 2 for 0–6 years, 3 for 7–9 years, 4 for 10–12 years, and 5 for more than 12 years. Health was measured by asking the respondents to rate their perceived general health, and the answer was coded on a five-point scale ranging from 1 (poor) to 5 (excellent). The total income score ranged from 1 to 7, with a higher score representing more income. Job was coded as 1 if the participant remained unemployed from 2008 to 2012 and 0 for older adults who were employed at least once from 2008 to 2012. Older adults living with their adult children were coded 1, and everything else was coded 0. Satisfaction with relationship with the spouse were measured among older adults who were currently married with one item: "How satisfied are you with your relationship with your spouse?" The score ranged from 0 (not at all) to 100 (fully satisfied). Satisfaction with relationship with children were also measured with one item, and that score ranged from 0 to 100.

4.3 Analysis

For this study, we applied Nagin's (1999) semi-parametric group-based approach to understand the developmental trajectories of older Korean adults' social exclusion beginning in 2006 and identify key characteristics between different trajectory groups. One of the principle advantages of this approach is that it allows researchers to identify distinctive clusters of individual trajectories within populations over time and to profile the characteristics of individuals within the clusters (Jones and Nagin 2013). Because the semi-parametric group-based approach is a relatively new technique that continues to evolve, there is no consensus on how to determine the number of trajectory groups. For this analysis, we used

the Bayesian information criterion (BIC), which is widely utilized in this context. According to Nagin (1999), the model with the highest BIC reflected the optimal number of trajectory groups. For the next step, we used multinomial logistic regression to explore the significant determinants of trajectories among variables. This analysis allowed us to understand the relationships between trajectory groups and the likelihood of being a member of different groups. All analysis was performed using STATA version 14.

5 Results

5.1 Summary Statistics

Demographic and social exclusion information for the sample is presented in Table 1. The findings indicated that the older Korean adults in this study did not have very high socioeconomic status in 2008. The average age of the sample was 70.6 (SD=10.9), and approximately half of the participants were female (57%); the majority of participants were married at the time of the survey (77%). More than half of participants rated their health between normal and very bad. Over half of the participants reported overall assets of less than 160,000 Korean won (\$1US=1200 won), and nearly half were retired. The majority of respondents reported low education levels, with nearly half having only primary education. In terms of family relations, just about half of participants reported living with their children. About 68% of older adults were satisfied with their relationships with their spouses and about 70% of older adults were satisfied with their relationship with children. In relation to social exclusion, on average, older adults' financial exclusion and social cultural exclusion remained fairly high, whereas relational and emotional exclusion remained moderate. The characteristics of the sample are similar to those reported in the 2016 Statistical Abstract of the Korean aging population as a whole (Statistics Korea 2016).

5.2 Trajectories of Social Exclusion

Figure 1 through 4 display the models for social exclusion trajectories at each site. For all sites, the best-fitting model was determined on the BIC as described earlier. For the financial exclusion model, the BIC values improved when more than two trajectory groups were used, and there was a sharp increase between the two- and three-group models before leveling off. For this reason, we identified the three-group trajectory model (BIC=9987) as the most appropriate one among all the models. The proportions of the population in each group and the group trajectories for the three financial exclusion groups are depicted in Fig. 1. The bulk of the sample fell into group 3 (83.8%), which showed the most financial exclusion both early on and over time, and group 2, accounting for 14.5%, showed marginal improvement in financial exclusion over time. Meanwhile, group 3 accounted for 1.7% of the population and comprised older adults who showed the least financial exclusion in the beginning and showed sharp improvement over time.

The relational exclusion results showed that the three-group model had the best fit because it had the largest BIC (-81500.55). The change patterns of the relational exclusion trajectories are presented in Fig. 2. Unlike financial and cultural exclusion, older Koreans fared better with relational exclusion. The results show that group 1, consisting of 30.4% of the older adults, had the lowest social relational exclusion scores from the beginning and their scores continued to improve over time. More than half of the older adult

Table 1 Summary statistics for Korean older adults from KLSA 2008

	M(SD) or percentage
Demographic characteristics	
Age	70.6 (10.9)
Gender	
Female	57%
Marital status	
Married	77%
Health	
Excellent	3%
Good	31
Normal	36
Bad	24
Very bad	6
Income ^a	
Less than 8000	34%
8001–16,000	25
More than 16,001	41
Job	
Retired	42%
Education	
Primary	48%
Junior high	16
Senior high	26
Post-secondary and above	10
Family relation	
Living with children	50%
Satisfaction with relationship with spouse	68.2 (17.5)
Satisfaction with relationship with children	69.7 (18.5)
Social exclusion	
Financial exclusion 1st year	4.45 (.70)
2nd year	4.44 (.71)
3rd year	4.39 (.73)
Social relational exclusion 1st year	11.65 (6.21)
2nd year	10.73 (6.41)
3rd year	10.33 (6.80)
Social cultural exclusion 1st year	3.38 (.91)
2nd year	3.01 (1.29)
3rd year	2.90 (1.44)
Emotional exclusion 1st year	1.51 (.75)
2nd year	1.53 (.76)
3rd year	1.48 (.73)

^aCurrency in South Korean Won(KRW)

participants fell into group 2 (64.3%), and their exclusion remained fixed over time. Lastly, group 3, accounting for 5.3% of participants, had the highest social relation exclusion in the earlier years and showed a continuous increase in exclusion over time.

Fig. 1 Financial exclusion trajectory

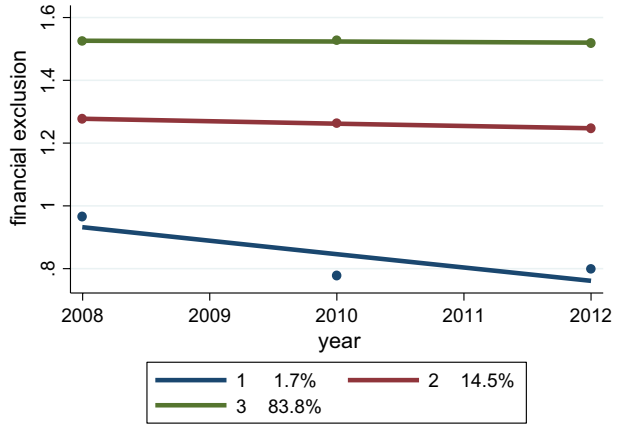


Fig. 2 Relational exclusion trajectory

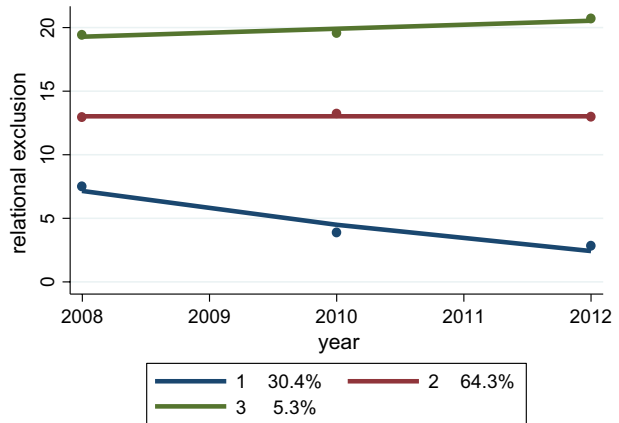
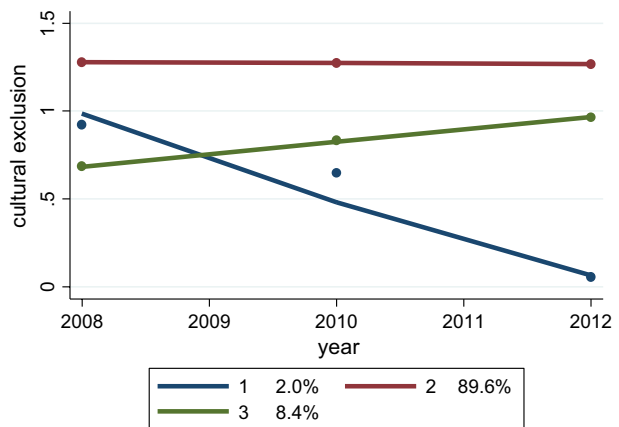


Fig. 3 Cultural exclusion trajectory



We identified the three-group cultural exclusion model (BIC = 1530.59) as the most appropriate model for the analysis, and the cultural exclusion trajectory is presented in Fig. 3. Similar to financial exclusion, the majority of older Koreans were at high risk of

cultural exclusion (group 2 = 89.6%) and remained highly excluded over the course of years. Older Koreans who were relatively better off at the beginning (group 3 = 8.4%) also showed sharp increases in cultural exclusion, whereas only a fraction of older adults showed improvements (group 1 = 2.0%).

Lastly, unlike other exclusion trajectories, the results here showed that the two-group emotional exclusion model had the best fit in that it had the largest BIC (24805.20). The emotional exclusion trajectory results given in Fig. 4 show that group 1, which comprised 83.1% of the population, reported moderate loneliness in the beginning and showed marginal improvement over time. The second group, 16.9% of the sample, showed the least exclusion from early on and remained only marginally excluded.

5.3 The Influential Factors

The significant determinants of the social exclusion models among the variables are presented in Tables 2 and 3. For each type of social exclusion, group 1, who showed the lowest exclusion score, was selected as the reference group. In relation to financial exclusion, the result indicated that those who were older, with less income, unemployed, less educated, and less satisfied with their relationship with spouse had a greater possibility of being financially excluded (groups 2 and 3). Male had a higher chance of belonging to group 2, which showed moderate financial exclusion. For social relational exclusion, being female, with more income, less educated, and satisfied with relationships with their spouse and children had a greater possibility of belonging to group 2, which showed moderate relational exclusion. Among other indicators, who are older, female, less educated, living alone, and less satisfied with their relationship with children had a greater chance of belonging to group 3, which had the highest exclusion scores. In relation to cultural exclusion, older, male, employed participants with less income and education who live with children had a greater possibility of cultural exclusion. The multinomial logit model for emotional exclusion is presented in Table 3. The result showed that Koreans who were older and healthy, has less income and education, and were less satisfied with their relationships with their children were more likely to be emotionally excluded.

Fig. 4 Emotional exclusion trajectory

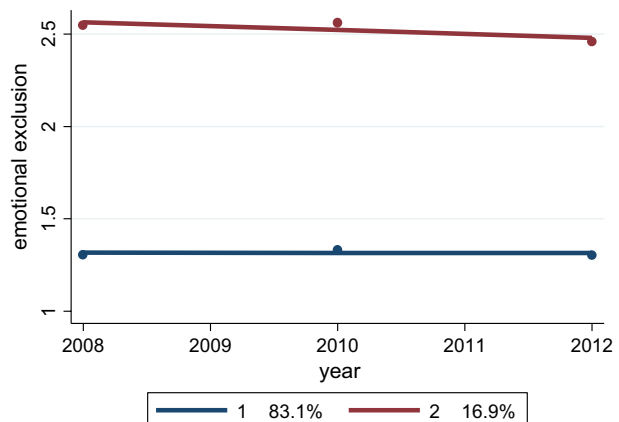


Table 2 Association of independent variables between the different social exclusion groups: results from multinomial regression

	Financial exclusion			Relational exclusion			Cultural exclusion					
	Group 2		Group 3	Group 2		Group 3	Group 2		Group 3			
	B	SE	B	SE	B	SE	B	SE	B	SE		
Demographic characteristics												
Age	.16***	.03	.10***	.03	.01	.00	.08***	.01	.04	.02	.11***	.02
Female	-.15**	.07	-.11	.07	.07*	.04	.08**	.03	.01	.08	-.20**	.07
Health	.06	.16	-.04	.17	-.01	.08	.01	.07	-.31	.16	-.18	.15
Income	-1.24***	.21	-.55**	.21	.39***	.08	-.01	.08	.04	.19	-.76***	.18
Unemployed	1.20***	.30	.75*	.30	-.14	.14	-.13	.13	-.39	.28	-.80**	.26
Education	-.84***	.17	-.64***	.17	-.33**	.07	-.38***	.06	-.15	.17	-1.04***	.15
Family relation												
Living with children	.13	.31	-.29	.01	-.45	.35	-1.91***	.14	.32	.28	.62*	.26
Satisfaction with relationship with spouse	-.04***	.02	-.03*	.01	.01*	.00	.00	.00	.01	.01	-.02	.01
Satisfaction with relationship with children	-.01	.01	-.29	.01	.02***	.01	-.01*	.01	-.01	.01	-.01	.01

Significance levels are denoted as * $p < .05$, ** $p < .01$, *** $p < .001$

Table 3 Association of independent variables between the different emotional exclusion groups: results from multinomial regression

	Group 2	
	b	SE
Demographic characteristics		
Age	.03***	.01
Female	.06	.03
Health	.78***	.08
Income	-.24***	.07
Unemployed	.49***	.13
Education	-.19**	.06
Family relation		
Living with children	.10	.13
Satisfaction with relationship with spouse	-.02	.00
Satisfaction with relationship with children	-.02***	.00

Significance levels are denoted as * $p < .05$, ** $p < .01$, *** $p < .00$

6 Discussion

Social exclusion is clearly a useful tool for exploring different types of disadvantage in later life (Scharf et al. 2005). With this understanding, this study attempted to capture the developmental trajectory of multidimensional social exclusion over time, and the significant determinants that may exert the risk of belonging to a more socially excluded group among older Koreans. A number of salient findings emerged from this study.

A first key finding is that each social exclusion group showed different developmental trajectories over time. It is significant to note the continuous and often widening gap between Korean elders with relatively high versus low social exclusion. For instance, the results showed that participants who were at relatively high risk of social exclusion remained highly excluded, whereas those who were relatively better off in early stages improved marginally over the years with the exception of emotional exclusion trajectory. This finding informs us that it is difficult to avoid social exclusion when a person begins in a high-risk condition, and the gap worsens with age. Therefore, early interventions to prevent social exclusion for older adults who are at high risk of exclusion should be provided. For example, older people who have financial problems should have given opportunities to continue to participate in the labor market after they retire if they can still work continuously. To help keep this population from falling below poverty level, they should receive education to prepare them for later life before they stop working.

Second, the research presented here suggests that a significant proportion of older experience social exclusion. In particular, more than two-thirds of respondents were at relatively high risk of financial exclusion. According to 2014 OECD statistics, older Koreans were more likely to experience poverty than were older adults in any other OECD countries. Although Korea has instituted a National Pension System and Basic Pension for older adults, the benefits are not sufficient for older Koreans to live on. Among Koreans over 65 years old, only 37.3% receive benefits from the National Pension (Chun and Kim 2017). Considering the low replacement rate of the National Pension (11.8%), it does not appear that the system effectively secures financial health for older Koreans (Won et al. 2014). Given this result, it is difficult to conclude that the National Pension system effectively

protects older Koreans from being financially excluded. Therefore, action should be taken to reduce social exclusion through policies and equity of access to social services among older Koreans who live in economic hardship. The low replacement rates by the National Pension System should be adjusted to resolve the high rates of poverty among older Koreans; for example, improving the benefits from the Public Assistance system might help. Another way to resolve economic hardships among older Koreans is to improve the quantity and quality of their employment. According to Statistics Korea (2016), older adults' employment rate is relatively high reporting 28.9%; however, the majority of them are self-employed or participating at a minimum-wage labor. Thus, creating quality workforce and continuing education programs at work for older Korean is needed to resolve financial difficulties in later years. Moreover, because the majority of older Koreans enter their later years without proper financial preparation (Ku and Sohn 2005), programs to educate people about the importance of financial management and early planning should be developed.

Adding to this, the majority of Korean older adults were at high risk of cultural exclusion. Compared to European older adults (Park and Chung 2012), many Korean older adults appear to be underrepresented in cultural activities. Older Koreans leisure activities were limited to spending their time watching TV, taking walks around their communities, and listening to music and spend little time engaging in cultural and leisure activities such as watching movies or participating in outdoor or other social activities (Hwang 2014). This indicates that national and community efforts to encourage cultural activities among older adults are required. For example, using services that older people can easily access such as community welfare centers, leisure and cultural programs can be delivered. Additionally, vouchers for participating in these activities might also help to encourage older Koreans to engage in cultural activities.

The findings for the determinants of social trajectories revealed a number of practical implications. This step of the analysis focused on family relationships with spouse and adult children which have been a salient factor in life after retirement among senior Korean citizens (Park et al. 2014). The family still plays a pivotal role in Korean older adult's daily living as the Korean tradition revolves around caring for aging parents at home by their offsprings or other family members (Lee 2008). Likewise, previous studies have consistently shown that supports from spouse and offsprings, and co-residing with family members have a positive influence on older adults' overall health and reduce social exclusion (Kim and Hwang 2016; Kang and Kim 2011). In line with the previous studies, findings from this study highlight the significant association between family ties and social exclusion. In relation to financial exclusion, the exclusion worsened for older Koreans who were less satisfied with their relationship with a spouse. For social relation exclusion, older Korean who have less satisfied the relationship with their spouse and children were excluded from social relationships. Interestingly, in contrary to the previous literatures, our results indicated that older adults who co-reside with their children were likely to belong to a more culturally excluded group. One possible explanation is that financial difficulties along older Koreans forced them to co-reside with their children. Thus, this pre-existing financial difficulties limited their involvement in cultural activities. In addition, older Koreans who have unsatisfactory relationship with adult children were appear to be emotionally excluded. Based on the findings, there is suggestive evidences that interventions to promote healthy family relationships could benefit older adults at high risk of social exclusion. Finally, our data suggests that age was the most significant determinant of social exclusion in all categories. It appears that the senior Koreans who are older are the most vulnerable to social exclusion, and thus, special attention should be paid to this group in order to integrate them into social systems.

The discussion should, however, also be framed within the context of the number of limitations associated with this study. Potentially important factors were unavailable for analysis, including access to consumer goods and services, and the environmental characteristics that have been recognized as important determinants in social exclusion (Scharf et al. 2005). Also we have not considered other types of employment status such as economically inactive population. The effect of such misclassification, may underestimate any true association between employment status and social exclusion. Second, despite the holistic definition of social exclusion, the measure of financial and cultural exclusion was limited to older adults' access to financial products and the involvement in the social and cultural activities. For future research, a case could be made for using a more comprehensive approach to measure social exclusion. Third, the participants in this study for the multinomial analysis were restricted to older adults who were currently married and have children, which may limit the interpretation of the result. Further studies may explore the risk factors that may be associated with exclusion among older adults who are unmarried and those without children. Fourth, future research may explore the cause of differences in the number of trajectory groups between social exclusion dimensions. Lastly, the data were not the most current, and Korea's continuous social and economic transformation has implications for the appropriateness of the study results.

Despite these limitations, this study demonstrates a need to study social exclusion among older adults from a life course perspective as it allows us to understand the complex links between the different forms of disadvantages experienced by older Koreans over time. Moreover, the present study provides greater urgency to public policy efforts in South Korea that seek to improve social exclusion among older adults. The results of this study also underscore the value of cross-cultural research to better address this global concern as many countries face the deepening social inequalities and the marginalization of aging population.

Acknowledgements This study was supported by the National Research Foundation of Korea #NRF-2016-S1A3A2924582.

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