Study deviance-type scale in the development of Korean elder

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This research aims to develop a questionnaire of deviant behavior for the Korean elderly people which may make a big contribution to the examination of deviance behavior of the elderly people and may play an important role in providing a methodological basis. In order to accomplish the purpose of this study, there were three different stages; (a) making preliminary question items, (b) refining the items of the scale through a pilot study, and (c) finalizing question items by a main survey. In the first stage, 43 question items were developed using the open-ended questionnaire and structural inquiry of succession from 137 elderly people who are over 65 yr. In the second phase, based on data collected by the 200 elderly people pilot testing was performed through exploratory factor analysis and reliability test. The scale is a 27-item self-report questionnaire. In the main survey conducted by 184 elderly people, 21 items, which consisted of four subfactors, were finalized in order to measure deviance behaviors of the Korean elderly people: social deviance (n = 8), economic deviance (n = 5), psychological deviance (n = 5), and physical deviance (n = 3).

Keywords: Korean elder, Deviance-type scale

INTRODUCTION

Korea has the fastest rate of the elderly population among the Organization for Economic Co-operation and Development (OECD) countries. When compared to the growth rate of the elderly population with other advanced countries such as France (115 yr), the United States (73 yr) and Japan (24 yr), this country has only taken 18 yr to enter the aged society (over 14% of those over age 65 in the entire population) from the aging society (over 7% for the elderly in the entire population). Such an explosive increase in the elderly population has caused serious social problems such as medical care, pension, and house.

One of the key issues caused by a rapid rise of the elderly population is their deviant behavior. The reason why the elderly's deviant behavior is becoming a more important issue is that it can be developed from actions which break social norms and rules to crimes that destroy social order or integration (Lee, 2008; Park et al., 2007). According to research on the elderly's crimes in police administration and gerontology, individual, socio-economic and environmental factors would affect deviant behavior and even crimes (Covey and Menard, 1987; Jang, 2009; Ji, 2002; Lee et al., 2003; Loeeber and Dishion, 1983; Na, 2004; Steffenmeier, 1987). In other words, in the case of the elderly, deviant behaviors can be caused by financial incompetence, conflicts with their children and the absence of spouse or partner. Those factors may amplify the sense of isolation, depression and loneliness, affect building social relationship with others and, after all, lead to deviant behaviors and crimes. In 1996 there were 34,000 senior criminals, accounting for 1.8% of the total number of criminals 1,922,000, but it has been significantly increased to about 82,000, accounting for 4.3% of the total number of 1,932,000 criminals in 2006. This data shows that while the total number of criminals only increased about 0.5%, the rate of senior crimes had risen by about 200%. However, more comprehensive social programs which can
help to prevent the elderly’s crimes and antisocial behavior are still inadequate. Therefore, conducting a variety of research on the elderly’s deviant behaviors is needed to prevent the social problem.

While, until now, most research on deviant behaviors conducted by the government agencies have focused primarily on Juveniles’ deviant behaviors and crimes, there has been little research on the elderly’s deviance. However, as mentioned before, the rapid increase of the crime rates of the elderly can be attributed to a variety of individual, socio-economic and environmental factors which can cause their deviant behaviors.

Therefore, this research aims to explore the factors which can affect the elderly’s deviant behaviors and to develop a questionnaire which can help standardize the pattern of the elderly’s deviant behaviors. It may provide a better understanding of what factors are the most influential in the elderly’s deviant behaviors. In addition, it may play an important role in providing a methodological basis on the elderly.

**MATERIALS AND METHODS**

**Subjects and procedures**

The study was conducted in 2015 and the data in three different stages was collected by using multistage stratified cluster random sampling method from senior cultural centers, senior welfare centers and senior community centers in metropolitan area, mediumsized urban area, and rural area. In the first stage to extract a variety of factors using open-ended questionnaire, 137 data were collected. In the next stage of exploratory factor analysis (EFA), 200 data were collected and in the third stage, 184 data were collected for confirmatory factor analysis. The characteristics of subject are presented in Table 1.

**Table 1.** The characteristics of subject

| Characteristic       | Open-ended questionnaire (n = 137) | Exploratory factor analysis (n = 200) | Confirmatory factor analysis (n = 184) |
|----------------------|-----------------------------------|--------------------------------------|--------------------------------------|
| Gender               |                                    |                                      |                                      |
| Male                 | 76                                 | 102                                  | 95                                   |
| Female               | 61                                 | 98                                   | 89                                   |
| Age (yr)             |                                    |                                      |                                      |
| 60s                  | 64                                 | 97                                   | 81                                   |
| 70s                  | 43                                 | 72                                   | 72                                   |
| Over 80s             | 30                                 | 31                                   | 31                                   |

**Table 2.** Results of pilot tests

| Theme                      | Item                                                                 |
|----------------------------|----------------------------------------------------------------------|
| Types of the elderly’s deviant behavior | Runaway (7), fee ride (8), falsification & misappropriation (5), verbal violence (6), drunk driving (6), traffic offence (13), intimidation (7), physical violence (5), homeless (8), arson (6) |
| Economic deviance (6)      | Gambling to make a living (5), addicted gambling (4), theft (4), fraud (6), burglary (6), illegal act to make a living (6) |
| Psychological deviance (8) | Drug abuse (4), drinking (10), suicidal impulse (8), instigation for murder (7), social phobia (8), drug addiction (6) |
| Physical deviance (5)      | Watching pornography (9), having a sex with prostitute (7), experiencing adult entertainment venue (4), taking medications for sexual dysfunction (8), sexual molestation (5) |
| 4 subthemes (27 questions) | 43 question items (176 scale items) |

**Data analysis**

First, participants answered a series of open-ended questions about processes relevant to deviant behaviors. Collected data was analyzed by three experts using Semantic Differential Method (Kim, 2001).

Second, a varimax rotated principal components and Oblimin EFA were conducted to examine construct validity and Chronbach alpha was used to examine reliability of the elderly’s deviant behavior sub scales.

Finally, a confirmatory factor analysis using IBM SPSS AMOS ver. 20.0 (IBM Co., Armonk, NY, USA) was run to check if the questionnaire data fit the model hypothesized at the outset of the study.

**RESULTS**

**Pilot testing of items for the elderly’s deviant behavior scale**

The first step taken to begin constructing the elderly’s deviant behavior scale was to pilot test potential items for the scale. Pilot testing was conducted among over 65-yr elders living in a different size of cities and included two separate phases. The initial phase of pilot testing involved 137 participants. Participants answered a series of open-ended questions about processes relevant to deviant behaviors. Through this process, 176 scale items could be generated that would be relevant and easily understood by the average elderly person. In the next step, similar items were categorized into a theme using Semantic Differential Method (Kim, 2001).
2001) and a total of 43 items were generated. In the second phase of pilot testing, then participants were asked to fill out a brief questionnaire containing a number of potential scale items to reduce the error of item composition and the set of potential scale items was modified and refined. Through these processes, the elderly’s deviant behavior scale which was constituted by a total of 27 questions (10 social deviance items, 6 economic deviance items, 6 psychological deviance items and 5 physical deviance items) was developed. Results of pilot tests were presented in Table 2.

**Factor structure of the elderly’s deviants behavior scale**

**EFA of the elderly’s deviant behavior scale**

To examine the relations among the items of the elderly’s deviant behavior scale, a varimax rotated principal components and Oblimin EFA were conducted. An EFA was conducted because this was the first study using the elderly’s deviant behavior scale. As shown in Table 3, four distinct factors emerged accounting for 67.646% of the systematic variance in responding. For interpretation purpose, first, we used a factor loading of at least 0.40 as the minimum cutoff. Second, we required each item to be clearly defined by only one factor and maintained that the difference between loadings for any given item was more than 0.10 across factors. In those processes, 16 items (item 4, 8, 16, 17, 24, 28, 30, 33, 34, 36, 37, 38, 40, 41, 42, 43) were dropped because they did not meet these criteria, thus 27 items remained. In general, the factors that emerged corresponded conceptually to the subscales of

**Table 3. Exploratory factor analysis and reliability coefficient result (n = 200)**

| Item | Social | Economic | Psychological | Physical | h² | Cronbach α |
|------|--------|----------|---------------|----------|----|------------|
| V3. (Do you have/feel/do) runaway? | 0.795 | 0.244 | 0.374 | 0.267 | 0.633 |
| V7. free ride? | 0.770 | 0.259 | 0.373 | 0.327 | 0.602 |
| V2. falsification & misappropriation? | 0.738 | 0.309 | 0.253 | 0.294 | 0.568 |
| V11. verbal violence? | 0.727 | 0.284 | 0.550 | 0.245 | 0.600 |
| V5. traffic offence? | 0.725 | 0.203 | 0.380 | 0.407 | 0.566 | 0.882 |
| V1. drunk driving? | 0.663 | 0.291 | 0.322 | 0.199 | 0.463 |
| V6. physical violence? | 0.626 | 0.240 | 0.483 | 0.337 | 0.457 |
| V31. intimidation? | 0.604 | 0.440 | 0.207 | 0.439 | 0.501 |
| V18. sleep out? | 0.530 | 0.344 | 0.430 | 0.512 | 0.440 |
| V9. arson? | 0.508 | 0.172 | 0.454 | 0.455 | 0.403 |
| V21. gambling to make a living? | 0.399 | 0.756 | 0.375 | 0.343 | 0.600 |
| V39. gambling addiction? | 0.311 | 0.741 | 0.367 | 0.114 | 0.619 |
| V35. theft? | 0.347 | 0.673 | 0.345 | 0.318 | 0.488 | 0.766 |
| V25. fraud? | 0.502 | 0.611 | 0.284 | 0.336 | 0.483 |
| V22. burglary? | 0.406 | 0.595 | 0.423 | 0.297 | 0.444 |
| V23. illegal act to make a living? | 0.104 | 0.560 | 0.006 | 0.381 | 0.476 |
| V13. drug abuse? | 0.312 | 0.237 | 0.718 | 0.333 | 0.528 |
| V12. heavy drinking? | 0.527 | 0.257 | 0.712 | 0.123 | 0.595 |
| V14. suicidal impulse? | 0.369 | 0.330 | 0.700 | 0.377 | 0.523 | 0.765 |
| V10. instigation for murder? | 0.546 | 0.289 | 0.597 | 0.236 | 0.462 |
| V15. social phobia? | 0.358 | 0.374 | 0.592 | 0.411 | 0.427 |
| V29. drug addiction? | 0.113 | 0.382 | 0.501 | 0.280 | 0.342 |
| V26. watching pornography? | 0.345 | 0.266 | 0.280 | 0.673 | 0.473 | 0.751 |
| V27. having a sex with prostitute? | 0.332 | 0.330 | 0.375 | 0.648 | 0.460 |
| V19. experiencing adult entertainment venue? | 0.443 | 0.340 | 0.551 | 0.634 | 0.554 |
| V20. taking medications for sexual dysfunction? | 0.380 | 0.303 | 0.549 | 0.627 | 0.531 |
| V32. sexual molestation? | 0.390 | 0.522 | 0.282 | 0.530 | 0.435 |
| Eigenvalue | 9.816 | 3.828 | 2.301 | 1.827 | | |
| Variance (%) | 37.256 | 12.769 | 9.818 | 6.903 | 0.929 |
| Cumulative (%) | 37.256 | 51.025 | 60.843 | 67.646 | |

Kaiser-Meyer-Olkin test: 0.933; Bartlett test: χ²: 4,534.594 (P<0.001).
the elderly’s deviant behavior.

After conducting EFA, both principal and coresearchers labeled the first factor, “social deviant behavior” which can be defined as antisocial behaviors. More specifically, people who show those behaviors violate social norms and values and have difficulties to build social relationships with others. The second factor was named as “economic deviant behaviors”. Such deviant behaviors are caused by financial incompetence. The third factor was labeled as “psychological deviant behavior”. This category indicates that losing their spouse and close friends, experiencing economic difficulty and discord in their family relationships cause a variety of psychological problems such as insomnia, drug additions, depression and isolation. Finally, we labeled the fourth factor as “physical deviant behaviors” which are brought about by sexual offenses.

All ten of the items making up the social deviant behaviors subvariable loaded positively on Factor 1. All six of the economic deviant behaviors items loaded positively on Factor 2. The six items from psychological deviant behaviors loaded positively on Factor 3. The five items from the physical deviant behaviors subvariable loaded positively on Factor 4.

To examine the suitability for factor analysis, Kaiser-Meyer-Olkin (KMO) and the Bartlett test of Sphericity were used. KMO measure of sampling adequacy was used to test the appropriateness of using factor analysis on data and the value of KMO was 0.933 which indicated that factor analysis is appropriate. In addition, Bartlett test of Sphericity was used to test factor model and the value of it was \( \chi^2: 4,534.594 \) that displayed that there had more appropriate factor structure. As a result, 6 items (items 31 and 9 in social deviant behavior, item 23 in economic deviant behavior, item 29 in psychological deviant behavior and items 26 and 32 in physical deviant behavior) were dropped because those items did not meet at least 0.4 of squared multiple correlation. To confirm the modified model, we conducted the second confirmatory factor analysis with 21 items (Fig. 1). All results of the modified model (GFI, 0.875; NFI, 0.823, and CFI (0.883) did not meet the absolute fit indices. As a result, 6 items (items 31 and 9 in social deviant behavior, item 23 in economic deviant behavior, item 29 in psychological deviant behavior and items 26 and 32 in physical deviant behavior) were dropped because those items did not meet at least 0.4 of squared multiple correlation. To confirm the modified model, we conducted the second confirmatory factor analysis with 21 items (Fig. 1). All results of the modified model (GFI, 0.907; RMR, 0.040; RMSEA, 0.055; NFI, 0.915; and CFI, 0.920) did meet the absolute fit indices. Therefore, the modified model with 21 items had more appropriate factor structure.

**Correlations among the elderly’s deviant behavior subvariables**

To further examine the internal consistency of the subvariables of the elderly’s deviant behavior, the corrected item-total correlations for each variables were examined Table 4. These correlations ranged from 0.54 to 0.66 for the social deviant behavior, 0.52 to 0.58 for the economic, 0.52 to 0.66 for the psychological and 0.58 to 0.66 for physical interrelations among four variables. Therefore, the range of the magnitude of these coefficients was moderate as expected.

**Confirmatory factor analysis of the elderly’s deviant behavior scale**

After doing EFA, a confirmatory factor analysis was run to check if the questionnaire data fit the model hypothesized at the outset of the study. In other words, the questionnaire was once again administrated to 184 participants.

In order to report the model fitness, there are five common absolute fit indices including: (a) goodness-of-fit (GFI) exceeds 0.90, (b) root mean residual (RMR) is less than 0.08, (c) root mean squared error of approximation (RMSEA); acceptable fit < 0.10 and good fit < 0.05; hence the smaller the RMSEA, the better and fitter the model is, (d) normed fit index (NFI) exceeds 0.90, and (e) comparative fit index (CFI) exceeds 0.92. The result of the first confirmatory factor analysis was showed in Table 5. As seen in the Table 5, GFI (0.875), NFI (0.823), and CFI (0.883) did not meet the absolute fit indices.

As a result, 6 items (items 31 and 9 in social deviant behavior, item 23 in economic deviant behavior, item 29 in psychological deviant behavior and items 26 and 32 in physical deviant behavior) were dropped because those items did not meet at least 0.4 of squared multiple correlation. To confirm the modified model, we conducted the second confirmatory factor analysis with 21 items (Fig. 1). All results of the modified model (GFI, 0.907; RMR, 0.040; RMSEA, 0.055; NFI, 0.915; and CFI, 0.920) did meet the absolute fit indices.

| Model | First model | Modified model |
|-------|-------------|----------------|
| GFI   | 0.875       | 0.907          |
| RMR   | 0.047       | 0.040          |
| RMSEA | 0.061       | 0.055          |
| NFI   | 0.823       | 0.915          |
| CFI   | 0.883       | 0.920          |

GFI, goodness-of-fit; RMR, root mean residual; RMSEA, root mean squared error of approximation; NFI, normed fit index; CFI, comparative fit index.

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**Table 4. Correlation of input variables (n = 200)**

| Deviance | Social | Economic | Psychological | Physical |
|----------|--------|----------|---------------|----------|
| Mean     | 2.87   | 2.70     | 2.98          | 3.02     |
| SD       | 0.62   | 0.74     | 0.73          | 0.65     |
| GFI      |        |          | 0.544***      | 0.562*** |
| NFI      |        |          | 0.666***      | 0.666*** |
| CFI      |        |          | 0.685***      | 0.685*** |

**Table 5. The result of confirmatory factor analysis**

http://dx.doi.org/10.12965/jer.150259
DISCUSSION

A prediction of “the number of people aged over 65 yr will rise to 800 million by 2025, reaching 10% of the total population” can lead to a variety of social problems (Park et al., 2007). In other words, we need to show more concern for the elder people who are ignored and neglected in our society. Therefore, this research aims to develop deviant behavior questionnaire and confirm the validation of the scale. There are four different type of deviant behavior by the elderly; (a) social deviant behavior, (b) economic deviant behavior, (c) psychological deviant behavior, and (d) physical deviant behavior. In other words, the elderly’s deviant behavior should be measured by multistructured questionnaire.

First of all, the first subscale, social deviant behavior, which was developed by this study can be explained by social control theory. Individuals are prevented from engaging in delinquency by their bond to society. In other words, when individuals’ social relationships are weakened, they are more involved in social deviance. As seen in the subscale of social deviant behaviors, a variety of social deviant behaviors such as violating social norms or committing crimes can be caused by the loss of their family member, close friends. Therefore, local and central government agencies have to consider plans against possible loss of the elderly’s social connection.

The elderly’s economic deviant behaviors are closely related to their financial incompetence. Some studies on poverty and the elderly’s crimes have reported that economic difficulties by retirement and unemployment may cause crimes (Kim, 2001). In other words, the main reason of economic deviant behavior is because of economic difficulties and poverty. In South Korea, to date, welfare policies for the elderly have focused on facility service for the low-income elderly. However, with the increase of elderly population, those services should be expanded to general coverage. The services help expand and improve welfare facilities for the elderly, old-age pension system, health promotion programs for the elderly, in-home welfare service for the elderly, and promote the elderly’s social participation, and spare-time activities and courtesy programs for the elderly. Overall, those policies contribute to reducing the elderly’s deviant behavior related to economic difficulties.

Old age is often defined as a period of multiple losses (spouse, partner and/or friends), declining physical and mental functions (less physical activities and a variety of mental diseases) and restricted cognitive abilities (loss of memories). More specifically, Bae (2004) points out that a high level of isolation can lead to a high level of depression and even suicide. Between 1992 and 2011, the South Korean elderly’s suicide rate rose from 9.1 to 31.7 per 100,000 people and this figure shows that it worse than that of any other OECD countries. Therefore, a variety of service programs for this target group can be designed, guided and facilitated.

The physical deviant behavior seems to be equally led by the increase of health life expectancy with the average life expectancy. With the rising life expectancy and improving health conditions, a growing number of South Korean senior citizens are seeking an active sex life. However, there has been less interest in the elderly’s sex life. As a result, around 10.6% of the men reported sex with a prostitute at least once within the past year and they are highly exposed to the risk of unprotected sex (Choe et al., 2011). In addition, the rate of sex crimes of the elderly is continuously increasing and becoming a serious social issue. The Hankyoreh reports that, despite suspicions that sexual assault of the elderly is a growing crime, the country does not have special programs to offer them the aid they need. Therefore, the government should make greater efforts to increase the awareness about the risk of unprotected sex and properly prevent senior citizens’ crimes.

The findings of this study on the development of the elderly’s deviant behaviors scale show similar results with the causes of criminal behaviors. In other words, deviant behaviors can lead to the crimes (Ahn et al., 2013). Therefore, in order to prevent the elderly’s deviant behaviors, we should draw up a variety of deviance prevention policies such as welfare facilities and jobs for senior citizens.

There is a future direction we think would be valuable for research on the elderly’s deviant behaviors. Age, gender, and regions
among the elderly should be considered because different socio-economic and environmental factors can lead to different types of deviant behaviors. Some scholars emphasize the need for criminology or gerontology to explore “intersectionality”; they endorse “more sophisticated conceptualisations of class, race and gender in order to come to grips with their categorical intersections while maintaining a view of social action, group formation and identity building” (Bürkner, 2012). It will be valuable to understand how intersectionality between class, gender and region in the context of the elderly’s deviance operates in the cultural spaces and how this impacts their lives.

**CONFLICT OF INTEREST**

No potential conflict of interest relevant to this article was reported.

**ACKNOWLEDGMENTS**

This work was supported by the ICT R&D program of MSIP/IITP (B0101-15-247, Development of open ICT healing platform using personal health data).

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http://dx.doi.org/10.12965/jer.150259