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Subgroups of self-neglect and effects on suicidal ideation among the older adults

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Abstract

The issue of self-neglect among older adults is receiving attention in modern societies where aging is accelerating. To help expand our understanding of this phenomenon, this study identified its different types using latent profile analysis and verified the main variables that distinguish these types from each other. The three profiles that were identified are high self-neglect (HSN: 28.8%), low self-neglect (LSN: 35.6%), and poor personal hygiene (PPH: 35.6%). Interestingly, PPH showed a high rate and was identified as a noticeable type of elder self-neglect. Gender, age group, SES, support size, and suicidal ideation were significant in classifying the types of self-neglect. Men were more likely to be within the HSN group, and late elderly were more likely to be within the PPH group. The higher SES and social support, the higher the probability of being within the LSN group. The higher the suicidal ideation, the higher the possibility of falling under the HSN group. To reduce self-neglect among older adults, this study suggests to older adults vulnerable to self-neglect, expansion of the social support available to them, and provision of mental health services to this population.

Keywords: self-neglect; suicidal ideation; latent profiles analysis; typology; older adults

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Introduction

Self-neglect is an international public health problem that is directly related to the health and well-being of the increasing older adults population. It can be defined as older adults' intentional or unintentional abandonment of essential tasks of self-care, such as providing oneself with food and clothing and seeking medical treatment, which can result in dangerous situations or even death (Ministry of Health and Welfare & Korea Elder Protection Agency, 2021). As social problems continue, such as the increase of older adults living alone and the rapid increase in the number of solitary death among older people who die alone while being disconnected from their families or neighbors, the need for social intervention for elder self-neglect is being emphasized (Kim & Kim, 2019). However, unlike with other elder abuse problems, it is difficult to actively prevent and resolve the elder self-neglect problem because (1) older adults themselves refuse intervention and (2) this self-neglect problem is not well understood (Woo, 2014).

In the US, self-neglect is one of the most frequent types of elder abuse (İlhan et al., 2020). According to research results, it is reported that more than 1 million cases of self-neglect occur annually (Day et al., 2016). According to the results of the 2020 US National Adult Maltreatment Report (National Adult Maltreatment Reporting System, 2021), 166,135 cases of self-neglect occurred in 2020, and about 80% of them were aged 60 and older. The number of self-neglect victims is higher than all the other types of maltreatment combined. However, until recently, this problem was not receiving much attention in Korea. Since domestic attention has been focused on abuse from external factors, acts that put oneself in danger (e.g., not taking care of oneself) were not recognized as abuse until recently.

In Korea, due to the culture and values centered around family, it was common for children to support their parents, leading to a greater emphasis on addressing abuse issues within the family. However, with the trend toward nuclear families and changes in caregiving patterns, the proportion of older adults living alone has increased, while the proportion of older adults living with their children has decreased (Chung, 2011). According to statistics in 2022, 22.8% of all households in Korea were classified as older adult's households with a household head aged 65 or above, with 36.4% of these older adult's households consisting of seniors living alone. On the other hand, multigenerational households have steadily declined since 2000, reaching 3.4% in 2021 (Statistics Korea, 2023). Consequently, there is a strong societal and cultural shift towards recognizing the growing importance of self-care for the older adults. As the discussions around the dangers of older adults living alone expanded, self-neglect began to be recognized as a type of abuse (Lee, 2016). According to annual statistics on elder abuse provided by Korea Elder Protection Agency, the number of self-neglect-related abuse cases was 622 in 2015, accounting for 10.1 percent of the total elder abuse cases. For 2016, 523 cases (7.7%) were reported, and an average of 238.5 cases judged as self-neglect occurred per year from 2017 to 2020 (Ministry of Health and Welfare & Korea Elder Protection Agency, 2021).

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Self-neglect is usually classified for accurate diagnosis and researchers classify and measure it differently. The Self-Neglect Severity Scale(SSS) designed by researchers at the Consortium for Research in Elder Self-neglect of Texas, in collaboration with experts in self-neglect, was used to measure the level of self-neglect based on the score of three areas – hygiene, functioning, and environment – and a trained observer's overall risk assessment score (Dyer et al., 2006; Kelly et al., 2008). In a client survey conducted by Texas Adult Protective Services in 2005, self-neglect was measured in five areas – financial status, living conditions, mental status, physical and medical status, and social connectedness – using the Adult Protective Services Client Assessment and Risk Evaluation (CARE) tool (Choi et al., 2009). The Abrams Geriatric Self-Neglect Scale (AGSS), developed by Abrams and his colleagues (Abrams et al., 2018), classifies self-neglect into six areas: prescription medicines, personal care, nutrition, environment/housing, financial stewardship, and socialization. In this way, self-neglect is divided in different ways depending on the researcher; however, factors influencing elder self-neglect is commonly classified into individual and social-environmental factors. In this study, based on the aforementioned categories, self-neglect was classified into four domains: daily life management – including physical and medical neglect (e.g., health, function, and nutrition management) –, hygiene related to personal cleanliness and environmental neglect, financial management corresponding to economic neglect, and relationship – including isolation and neglect experienced in social relationships (e.g., family, friends, acquaintances) (Park & Kim, 2015). The SSS, CARE, and AGSS scales are being utilized as measures for the clinical diagnosis of self-neglect. Within these scales, the domains of medical neglect and physical neglect are structured as significant domains for measurement. Additionally, the SSS and CARE scales are measures that include qualitative evaluations or comments from clinicians or investigators, with a large number of items. There is a limitation that the content of evaluations may vary depending on the observer's assessments or scopes. AGSS has the concise advantage of consisting of only six items compared to the two previously mentioned scales, and it provides a quantitative assessment of self-neglect. However, AGSS has the limitation of requiring expert evaluation since it incorporates both observational and self-report data in scoring. The self-neglect scale by Park & Kim (2015), used in this study, has a characteristic of primarily serving as a screening tool rather than a diagnostic tool for self-neglect, unlike other scales. This characteristic enables its advantageous utilization in the context of community-dwelling older adults in this study. Additionally, the scale consists of 14 self-report items, making it suitable for application among older adults.

Self-neglect may appear as a single symptom or behavior, or as a complex pattern. The aspects of self-neglect are a multifaceted phenomenon that is complexly influenced by an individual's physical, cognitive, functional, social, and financial problems (Iris et al., 2014), and the levels thereof can also appear differently (Burnett et al., 2014). Accordingly, Iris et al. (2010) argued that not only the presence of self-neglect but also the degree of severity should be evaluated. Accordingly, recently, the need to provide proper intervention by identifying the aspects of elder self-neglect and conducting research that classifies self-neglect by levels is being raised. For example, the degree of medical neglect may be high, while the degree of self-neglect in hygiene management is low, and each factor may have a different degree of risk. Accordingly, studies categorizing the aspects of elder self-neglect

are underway, and attempts are being made to identify the characteristics of each type of self-neglect.

In this study, we classify the groups of self-neglect among older adults using LCA. LCA is a person-centered approach that groups individuals into latent classes based on shared characteristics and behaviors, using observed data. Each class has a distinct pattern of endorsement for indicator items that is unique to that class, and LCA calculates the likelihood of belonging to a specific class by analyzing an individual's responses(Rinker & Neighbors, 2015; Ruscio & Ruscio, 2008). Therefore, The identified groups may require different intervention approaches based on their characteristics. As an example, DeLiema et al. (2018) classified perpetrators of elder abuse using LCA and proposed tailored intervention strategies. Hence, Identifying elder self-neglect groups helps reduce negative consequences and enables targeted treatment and prevention programs based on the biopsychosocial vulnerabilities of each group. Understanding these factors is crucial for predicting and preventing self-neglect group to which each older adult belongs (Yu et al., 2021).

Many sociodemographic factors related to elder self-neglect have already been revealed through studies on the influencing factors and risk factors of self-neglect. In general, reports show that old people with poor economic status and health conditions who live alone are associated with high levels of self-neglect (Abrams et al., 2002; Lee et al., 2018). Opposing results were observed regarding gender. Due to the accumulated health, economic, and social disadvantages associated with family caregiving labor, women experienced greater disparities (Wakabayashi & Donato, 2006). Particularly, in Korean society, where traditional gender roles are emphasized, caregiving responsibilities have predominantly fallen on women. As a result, women tend to exhibit higher levels of self-neglect in terms of health and self-care as they age (Kwon et al., 2018). On the other hand, in the context of the older adult's generation in Korea, men primarily assumed economic roles, leading to relatively higher levels of self-neglect in terms of self-care due to their limited experience in personal caregiving (Kim & Lee, 2016). Social factors related to elder self-neglect include social support (Li et al., 2018), social participation, and social networks (Burnett et al., 2006; Dong et al., 2010; Lee & Kim, 2014). Low levels of social network and social participation are associated with an increase in the risk of self-neglect, and many older adults who neglect themselves are reported to be socially isolated or likely to live without an appropriate social support system. Race has also been found to be a major factor in self-neglect (Dong et al., 2011). These results imply that the effects of self-neglect differ greatly depending on social or cultural background (Dahl et al., 2020). Although there have been previous studies on self-neglect types conducted in other countries, there are no studies targeting older adults in Korea. Based on the results of previous studies, it is difficult to fully understand the self-neglect characteristics of older adults in Korea. In this study, the difference between sociodemographic factors and social factors for each type of self-neglect were identified to examine the type and characteristics of elder self-neglect in Korea and suggest an appropriate intervention plan.

In addition to sociodemographic, social, and cultural factors, recent research has found a strong association between self-neglect and mental health. Intentionally or unintentionally, neglecting oneself can be highly related to negative mental health (Lien et al., 2016), and because self-neglect can lead to suicide, some researchers have focused on the relationship between self-neglect

and suicidal ideation (Dong et al., 2017; Jeong et al., 2022). Suicidal ideation is a powerful predictor of suicide attempts and deaths (Jahn et al., 2011). It emerges as a precursor to suicidal behavior, and by reducing the negative impact of causal factors that influence suicidal behavior, it may be possible to prevent suicide planning and execution in advance. Particularly, South Korea has maintained the highest older adult's suicide rate among OECD countries since 2013. As of 2019, it recorded an older adult's suicide rate of 46.6 per 100,000 population, surpassing 40 per 100,000 population, making it the only country among OECD member nations with such a high suicide rate (Ministry of Health and Welfare & Korea Foundation for Suicide Prevention, 2022). Consequently, numerous studies have been conducted to examine suicidal ideation and its influencing factors, leading to suicide attempts and actual suicides among the older adults. However, there has been a lack of research investigating the relationship between self-neglect and suicidal ideation among the older adults in South Korea. Hence, this study aims to focus on exploring the relationship between self-neglect and suicidal ideation.

In Don's study, a high level of self-neglect significantly influenced suicidal ideation in the short and long term (Dong et al., 2017). However, the study only identified the relationship between the levels of self-neglect and suicidal ideation, and few studies have examined the relationship with suicidal ideation by reflecting various aspects of self-neglect and individual characteristics. Therefore, based on the relationship between self-neglect and suicidal ideation found in preceding studies, this study aims to delve deeper by determining whether there is a difference in suicidal ideation by type of self-neglect and identify sociodemographic variables that distinguish the types of self-neglect that carry a high risk of suicidal ideation. This research will enable the prevention of self-neglect and suicide, and allow for customized improvement by identifying the risk factors of suicidal ideation for each type of self-neglect classified according to the aspects of self-neglect in older adults. The hypotheses of this study are presented in detail as follows.

a. How many subgroups will self-neglect of older people be divided into?
b. What sociodemographic factors differentiate distinct self-neglect subgroups?
c. How did suicidal ideation differ between the self-neglect subgroups?

Material and methods

Participants and procedure

For data collection, an online survey of 612 older adults aged 55 or older in South Korea was conducted from October 13 to November 3, 2021. Quota sampling by age group (early elderly: aged 55–64 years, $n = 256$ people; late elderly: aged 65 or older, $n = 356$ people)[1] was applied considering the possibility that the early elderly who are familiar with online operations will constitute the majority of the online survey participants. Through the research statement, participants in the study were informed of the purpose and content of this study, the time required for the survey, their freedom to discontinue participation, the confidentiality of and restrictions imposed on the use of research materials, and the rewards for participation. Only those who expressed their consent to participate

were included in the survey. The entire process of this study was approved by the Institutional Review Board, with which the researchers are affiliated (7001988-202110-HR-1380-02).

Measures

The scale developed by Park and Kim (2015) was used to measure elder self-neglect in the latent profile analysis. The scale consisted of 14 questions that were to be answered through 4-point Likert-type responses ranging from "Not at all (1)" to "Very much (4)." In the latent profile analysis, four sub-dimensions of self-neglect: (1) Daily Life Management (e.g., *"I fail to take necessary medications regularly"*), (2) Personal Hygiene Management (e.g., *"Overall hygiene condition is clean"*, *"The house is not cleaned, resulting in unpleasant odors"*), (3) Financial Management (e.g., *"I have been unable to pay utility bills (electricity, water, etc.)"*, *"I do not use my money in a planned manner"*), and (4) Relationships (e.g., *"I do not meet with my adult children"*, *"I have no one to meet other than family or friends"*) were used. The scale has demonstrated high criterion validity. The Cronbach's alpha on this scale was .88 (.79 for Daily Life Management, .92 for Personal Hygiene Management, .63 for Financial Management, and .68 for Relationships).

Age was classified into early elderly (ages 55 to 64) and late elderly (ages 65 or older), as in the sample. Marital status was divided into the married/cohabit group and the other group. SES was self-measured from "Very low (1)" to "Very high (10)" through the participants' responses to "What is your socioeconomic status (considering income, job, education, property, etc.)?" Health was measured from "Very bad (1)" to "Very healthy (5)" through the participants' responses to "What is your health status?" Social support size was measured according to the number of people from whom the participants could receive help (family, relatives, friends, neighbors, colleagues, etc.). The Suicide Ideation Scale, consisting of five questions (e.g., *"Think about killing self"*, *"Told kill self"*, and *"Tried to kill self"*), was used to measure suicide ideation (Harlow et al., 1986). The scale has been found to exhibit high criterion validity when compared to relevant. The reliability of this study was Cronbach's alpha = .84.

In addition, the descriptive statistics and correlation analysis results of the key variables used in this study are presented in Table 1.

Data analysis

The analysis of this study was conducted in three stages. In the first stage, the types of elder self-neglect were identified by setting the four subtypes of self-neglect as variables. Various indices were considered to distinguish the optimal latent profile. Regarding the proper model criterion, the lower the value of Log-likelihood, AIC, Bayesian information criterion (BIC), and sample-size adjusted Bayesian information criterion (SABIC), and higher the entropy value, the better the fit. Moreover, a comparison between the k-profile and k-1-profile models was performed using the Lo-Mendell-Rubin likelihood ratio test (LMR test) (Lo et al, 2001). In the second stage, a Chi-square test and ANOVA were conducted on the difference between the sociodemographic and mental health variables according to variable type. In the third stage, variables that distinguish groups were verified using multinomial logistic regression. Both LPA and multinomial logistic regression analysis employed the MLE method for parameter estimation. All statistical analyses were performed using R statistical software (version 4.1.2; R Core Team, 2021).

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[1]This study defines the term "elderly" in accordance with Korean law, encompassing both the early elderly (middle-aged) and late elderly (aged 65 or older) populations.

Table 1. Descriptive statistics and correlations of key variables

Variable	M	SD	1	2	3	4	5	6	7	8
1. Self-neglect	1.52	0.39								
2. Daily life management	1.41	0.41	.87**							
			[.85, .89]							
3. Personal hygiene management	1.72	0.57	.73**	.42**						
			[.69, .77]	[.35, .48]						
4. Financial management	1.51	0.57	.72**	.59**	.30**					
			[.68, .75]	[.54, .64]	[.23, .37]					
5. Relationships	1.47	0.59	.69**	.55**	.29**	.52**				
			[.65, .73]	[.49, .60]	[.21, .36]	[.46, .58]				
6. SES	5.00	1.69	−.16**	−.10*	−.17**	−.07	−.13**			
			[−.24, −.08]	[−.18, −.02]	[−.25, −.10]	[−.15, .01]	[−.21, −.05]			
7. Health	3.05	0.74	−.22**	−.18**	−.21**	−.06	−.17**	.34**		
			[−.29, −.14]	[−.25, −.10]	[−.28, −.13]	[−.14, .02]	[−.24, −.09]	[.27, .41]		
8. Support size	2.60	2.40	−.24**	−.21**	−.15**	−.14**	−.27**	.20**	.14**	
			[−.32, −.17]	[−.29, −.13]	[−.22, −.07]	[−.22, −.06]	[−.34, −.19]	[.12, .28]	[.06, .21]	
9. Suicidal ideation	1.80	0.78	.38**	.35**	.22**	.23**	.39**	−.15**	−.31**	−.16**
			[.31, .45]	[.28, .42]	[.15, .30]	[.15, .30]	[.32, .45]	[−.23, −.08]	[−.38, −.24]	[−.23, −.08]

M and *SD* are used to represent mean and standard deviation, respectively. Values in square brackets indicate the 95% confidence interval for each correlation. * indicates $p < .05$. ** indicates $p < .01$.

Table 2. Goodness-of-fit statistics for class solutions

Profile	Log-likelihood	AIC	BIC	SABIC	Entropy	LMR LRT	p
1	−1910.91	3837.82	3873.16	3847.76	1.00		
2	−1554.77	3135.53	3192.95	3151.68	0.86	712.29	0.01
3	−1518.58	3073.17	3152.67	3095.52	0.84	72.36	0.01
4	−1518.58	3083.17	3184.75	3111.73	0.70	0.00	0.44
5	−1450.09	2956.18	3079.84	2990.95	0.74	136.99	0.01

AIC = akaike information criterion; BIC = bayesian information criterion; SABIC = sample size adjusted BIC; LMR-LRT = vuong-lo-mendell-rubin likelihood ratio test.

Results

Latent profile analysis

Table 2 shows the main indices of the elder self-neglect types obtained from the latent profile analysis. The major indices of Log-likelihood, AIC, BIC, and SABIC showed reduced values in Profiles 1, 2, and 3, showing high goodness-of-fit, but the values were increased in Profiles 4 and 5. In addition, the LMR test of Profile 4 was insignificant, and the entropy value decreased. Profile 5 showed good index results, but the divided profile was less than 5 percent of the total group. Overall, Profile 3 was determined as the optimal solution.

Figure 1 shows the subgroups of elder self-neglect. The profile with overall high levels of self-neglect factors were classified as "high self-neglect (HSN)" (28.8% of the sample) and the profile with low overall self-neglect factors were classified as "low self-neglect (LSN) (35.6% of the sample). The profile with the lowest self-neglect was called as "low self-neglect (LSN). Featuring the

worst hygiene, the profile was classified as "poor personal hygiene (PPH)" (35.6% of the sample).

Predictors of class membership

Table 3 presents the result of analyzing the difference between sociodemographic and mental health-related variables between the classified profiles. In the two profiles (HSN and LSN) classified according to the level of self-neglect, the proportion of women was slightly higher than that of men. In the PPH profile that is closely related to the hygiene indicator, the proportion of women was very high (66.5%). The difference between the profiles of the early elderly and the late elderly was not verified. The work factor was similar in the PPH profile, and the proportion of workers was high in the HSN and LSN profiles. In terms of education, the LSN profile showed a higher proportion of "higher than HS" (66.5%) compared to other profiles. Moreover, the SES factor (M = 5.4, SD = 1.7), health factor (M = 3.2, SD = 0.8), and (social) support size (M = 3.1, SD = 3.1) were higher/larger in the LSN profile. In terms of suicidal ideation, the average of the HSN profile was higher than that of other groups (M = 2.1, SD = 0.8).

Multinomial logistic regression

Multinomial logistic regression analysis was performed to identify variables that distinguish the types of elder self-neglect (see Table 4). The reference profile was set to HSN, and the significance of its variables was compared with those of the other profiles. The significant variables for the classification of the types of self-neglect were gender, age group, SES, support size, and suicidal ideation. Men were more likely to be in the HSN group, and late elderly were more likely to be in the PPH group. The higher the SES level and the larger the (social) support size, the higher the probability of
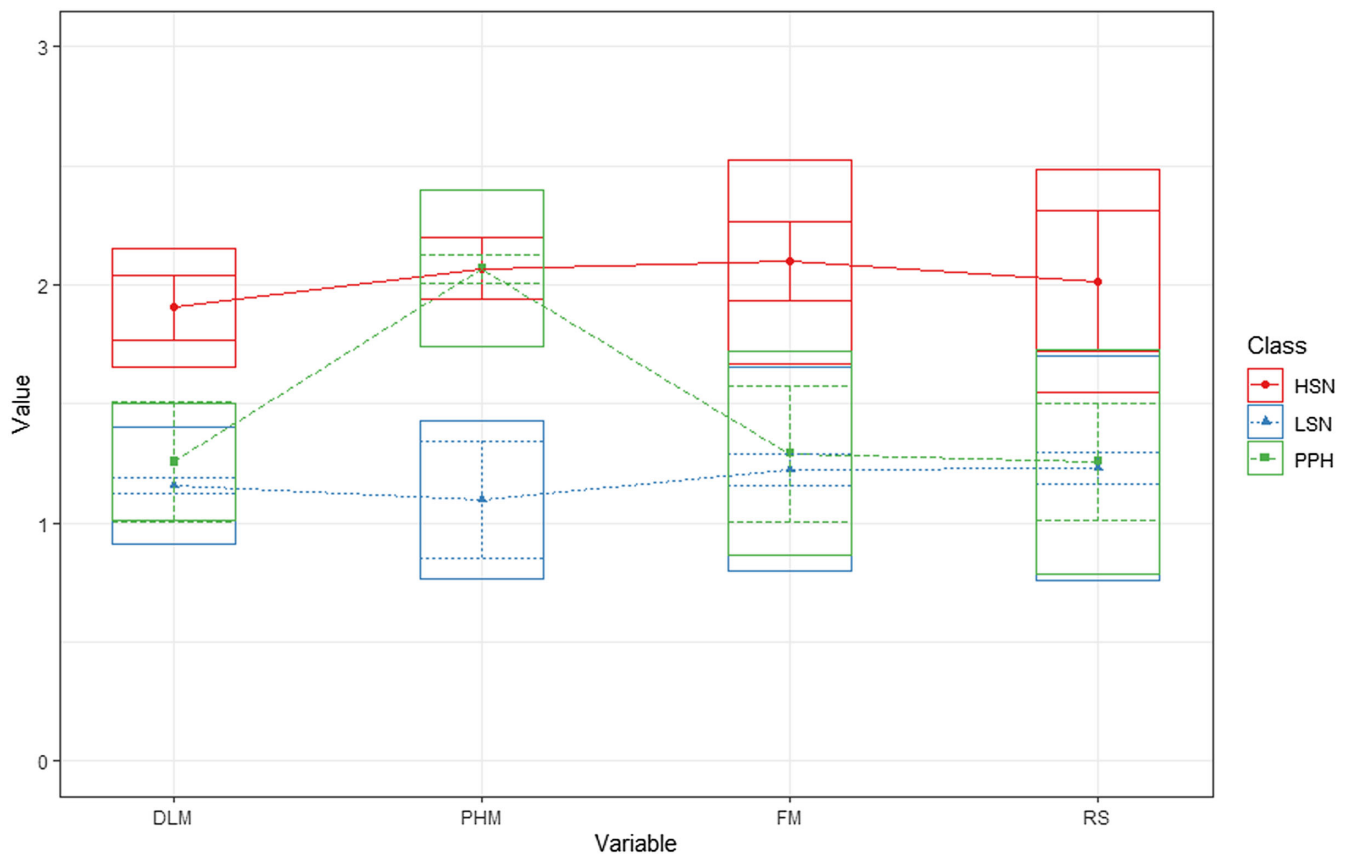
Figure 1. Self-neglect among the older adults in the three-class latent profile model. * DLM = daily life management; PHM = personal hygiene management; FM = financial management; RS = relationships; HSN = high self-neglect; LSN = low self-neglect; PPH = poor personal hygiene.

falling under the LSN group. Finally, the higher the suicidal ideation, the higher the possibility of falling under the HSN group.

Conclusion and discussion

The conclusion and implications of this study are as follows.

First, through latent profile analysis, the types of self-neglect of the participants were classified into three subgroups: HSN, LSN, and PPH. LSN accounted for 35.6 percent, as did PPH, which showed low self-neglect in the physical, economic, and emotional areas but high self-neglect in personal hygiene. The composition ratio of HSN, which showed high overall self-neglect, was about 29 percent.

Concerning the characteristics of each type, the LSN profile had a higher proportion of working older adults with high education, high SES, good health, and large support size than the other groups. The PPH profile showing a high level of self-neglect in personal hygiene had a high proportion of women compared to the other two groups. In addition, the high proportion of old people belonging to the late elderly group was high, and the proportion of the working older adults group was the lowest (50%). Overall, the HSN profile showing a high level of self-neglect had a higher proportion of men in the early elderly group compared to the other two groups. Moreover, the proportion of the working older adults group was higher, while SES, health status, and social support were the lowest. On the other hand, existing study has pointed to inadequate personal hygiene (and/or environmental hygiene) as one of the main observable external diagnostic criteria that can be recognized as signs of an early stage

of self-neglect, even though it is without the risk of self-harm (Gibbons et al., 2006). Considering the result of preceding study that poor personal hygiene is mainly seen in the early stages of self-neglect, early intervention in personal hygiene management is needed so that such neglect does not expand into other types of self-neglect or become severe. At the same time, considering that about one-third of all participants belong to the HSN profile, urgent intervention for severe self-neglect should be taken into account. These results also suggest that urgent and early intervention for and early prevention of severe self-neglect should be considered simultaneously.

In a study by Burnett et al. (2014), elder self-neglect was categorized into four types from a biopsychosocial perspective: physical and medical neglect problems (49%), environmental neglect (22%), global neglect (21%), and financial neglect (9%). Among the four types, nearly half of the participants experienced physical and medical neglect problems, indicating that neglect in daily life management seen in this study is prominent. In addition, environmental neglect with noticeable problems in areas such as living condition and physical and medical neglect accounted for the second highest proportion. Considering that the results of this study show similar types of self-neglect to those of other cultures, living condition and daily life management can be seen as representative symptoms and patterns in discussing the self-neglect of older adults. On the other hand, self-neglect in financial management was also high for the HSN profile, which showed an overall high level of self-neglect in daily life management, personal hygiene management, and relationships. However, self-neglect in financial management was low for global neglect.

Table 3. Differences in socio-demographic and mental health related variables by profile

	HSN 176 (28.8%)	LSN 218 (35.6%)	PPH 218 (35.6%)	F	p	Post-hoc
Gender				7.19	0.027	
male	82 (46.6%)	90 (41.3%)	73 (33.5%)			
female	94 (53.4%)	128 (58.7%)	145 (66.5%)			
Age group				4.71	0.095	
early elderly	82 (46.6%)	95 (43.6%)	79 (36.2%)			
late elderly	94 (53.4%)	123 (56.4%)	139 (63.8%)			
Work				11.13	0.004	
worker	109 (61.9%)	143 (65.6%)	110 (50.5%)			
non-worker	67 (38.1%)	75 (34.4%)	108 (49.5%)			
Education				8.90	0.012	
less than HS	83 (47.2%)	73 (33.5%)	97 (44.5%)			
higher than HS	93 (52.8%)	145 (66.5%)	121 (55.5%)			
Marriage				5.36	0.069	
married/cohabit	140 (79.5%)	192 (88.1%)	184 (84.4%)			
etc	36 (20.5%)	26 (11.9%)	34 (15.6%)			
SES	4.6 ± 1.6	5.4 ± 1.7	4.9 ± 1.6	10.87	< 0.001	LSN > HSN, LSN > PPHM
Health	2.9 ± 0.7	3.2 ± 0.8	3.0 ± 0.7	8.37	< 0.001	LSN > HSN
Support size	1.9 ± 1.4	3.1 ± 3.1	2.7 ± 2.1	13.79	< 0.001	LSN > HSN, PPHM > HSN
Suicidal ideation	2.1 ± 0.8	1.6 ± 0.7	1.7 ± 0.7	23.22	< 0.001	HSN > LSN, HSN > PPHM

*Values are frequency (percent) or mean (standard deviation); P values come from Chi-square test or ANOVA; HS = high school; HSN = high self-neglect; LSN = low self-neglect; PPH = poor personal hygiene.

Table 4. Results of multinomial logistic regression

Ref. HSN	LSN			PPH		
Predictors	*Odds Ratios*	*CI*	*p*	*Odds Ratios*	*CI*	*p*
Gender						
male	reference	–	–	reference	–	–
female	1.68	1.07–2.66	**0.025**	1.90	1.20–2.99	**0.006**
Age group						
early elderly	reference	–	–	reference	–	–
late elderly	1.33	0.86–2.05	0.199	1.60	1.04–2.47	**0.032**
Work						
worker	reference	–	–	reference	–	–
non-worker	0.81	0.51–1.28	0.365	1.43	0.92–2.22	0.113
Education						
less than HS	reference	–	–	reference	–	–
higher than HS	1.46	0.93–2.29	0.102	1.12	0.72–1.74	0.620
Marriage						
married/cohabit	reference	–	–	reference	–	–
etc.	0.73	0.40–1.33	0.302	0.77	0.43–1.35	0.359
SES	1.16	1.01–1.34	**0.042**	1.03	0.90–1.18	0.669
Health	1.15	0.83–1.59	0.398	1.01	0.73–1.39	0.959
Support size	1.29	1.14–1.47	**< 0.001**	1.25	1.10–1.42	**0.001**
Suicidal ideation	0.54	0.41–0.72	**< 0.001**	0.53	0.40–0.71	**< 0.001**

*CI = confidence interval; HS = high school; SES = socioeconomic stat; HSN = high self-neglect; LSN = low self-neglect; PPH = poor personal hygiene.

Second, a multinomial logistic regression was conducted to compare the influencing factors that distinguish the three profiles of self-neglect and the statistical significance of suicidal ideation. It revealed that men were more likely to be in the HSN group with high levels of self-neglect, and the late elderly were more likely to be in the PPH group with high levels of self-neglect in personal hygiene. The higher the level of SES, the higher the probability of being in the LSN profile with high social support. In addition, older adults belonging to the HSN group had a high possibility of experiencing high suicidal ideation. These results are similar to those of preceding studies on the influencing factors of self-neglect that showed that factors such as old age, being male, and having a low SES level increases the possibility of self-neglect (Abrams et al., 2002; Lee et al., 2018). The HSN profile with high levels of overall self-neglect had a higher possibility of suicidal ideation compared to the other two profiles, consistent with the results of preceding studies that verified the negative impact of self-neglect on suicidal ideation (Dong et al., 2017; Jeong et al., 2022). The PPH profile with a high level of self-neglect in personal hygiene management showed no difference in SES, health, and education level compared to the HSN profile, but showed a statistically significant difference in support size (high) and suicidal ideation (low). Considering that PPH is found in the initial stage of self-neglect, which has the potential to develop into high-level self-neglect, social support plays an important role in preventing it from expanding or becoming severe. Preceding studies have shown that low levels of social network and social engagement are associated with increased risk of self-neglect (Dong et al., 2010), and that social support reduces self-neglect through psychological capital (Zhao et al., 2022). Initial responses and interventions that consider social network formation and social engagement for older adults who have difficulty managing their personal hygiene will prevent self-neglect from worsening, reduce suicidal ideation, and improve mental health.

South Korea's aging population necessitates significant social intervention in caregiving. Since 2008, the long-term care insurance system has provided benefits to older adults requiring long-term care. However, those residing in communities with minimal geriatric illnesses or physical constraints face limitations in accessing these benefits (Lee, 2010). From a preventive perspective in long-term care, the Individualized Support Service for older adults has been introduced since 2020, providing tailored caregiving services to vulnerable older adults facing difficulties in their daily lives. It encompasses safety assistance, social participation, life skills education, household chores, and more. Specifically, individuals with severe depression and a high suicide risk receive personalized case management and psychological support (Ministry of Health and Welfare, 2023). For example, the PPH group in this study benefits from services like social support and improved personal hygiene through household support and life skills education. However, despite these efforts, some older adults who exhibit self-neglect tendencies may refuse support and assistance, leading to their exclusion from social support and leaving them in blind spots(Lee & Huh, 2022). Therefore, it is crucial to continue researching and addressing the characteristics and risks associated with self-neglect among older adults.

In summary, this study classified the groups of self-neglect among older adults in Korea based on the levels of the subtypes of self-neglect, and identified the characteristics of each type, focusing on the influencing factors of self-neglect. The results will help in the development of intervention measures suitable for the

characteristics of each type of self-neglect. In addition, investigating the influence of suicidal ideation by type is helpful in screening older adults who are at high risk of self-neglect-related suicidal ideation. Such attempts are applicable in developing countries that were somewhat latent in realizing that self-neglect is a form of abuse, having strong cohort characteristics, and having undergone rapid aging and industrialization like Korea.

Despite the implications of this study, the following limitations exist. First, the subgroups of elder self-neglect in Korea were classified using a Korean scale that takes into account the domestic social-cultural context. Although the scale has the advantage of classifying the subgroups of self-neglect considering the emotions and situations of older adults in Korea, it is limited in that international comparison by factor and component ratio by area, which is generally possible when the same measurement tool is used, is difficult. In follow-up studies, it would be valuable to utilize an internationally recognized scale to assess self-neglect among older adults and compare the findings with those of this study. This approach would enable the identification of specific aspects of elder self-neglect in Korea and facilitate a comparison of similarities and differences with international findings. Additionally, it is worth considering the inclusion of measures related to medical and physical neglect, as incorporated in other self-neglect scales, to enhance the comprehensiveness of future studies on self-neglect.

Second, this study was conducted based on response data collected through online surveys, which raises the question of sample representation. It is highly likely that only older adults with easy access to online platforms participated in the survey, which would mean the data of those who are socially isolated due to serious self-neglect were not represented in the study. However, it is highly likely that those who did participate responded honestly regarding their actual status of self-neglect because the survey was conducted in an online environment that guarantees anonymity. Since we only received response data with all personally identifiable information encoded from the research panel company that conducted this survey, we were able to secure the credibility of the online response data. In future studies, an offline survey (e.g., one-on-one or face-to-face surveys) suitable for older adults who have limited access to online surveys or live under severe self-neglect should also be conducted to verify the sample.

Third, this study did not consider the context related to family, such as children and grandchildren in examining the self-neglect of older adults. In future studies, a more detailed study is needed by considering the presence or absence of children and the number of family members living together.

Lastly, the utilization of assessment tools for the measurement of suicidal ideation encompasses a comprehensive construct that encompasses both suicidal thoughts and suicide attempts. Future research will necessitate investigations aimed at discerning and comparing the distinct aspects of ideation and actual attempts.

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