Association of Mental Health Status with Suicidal Ideation among the Community-Dwelling Elderly

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Background: This study examined how mental health status influenced suicidal ideation among community-dwelling elderly at senior citizen centers in Korea.

Methods: Data were obtained from a survey on elderly mental health in Jeollanam-do (a southwest province in Korea) conducted by the Jeollanam-do Provincial Mental Health and Welfare Center. In total, 4,113 people were recruited from all 22 cities in Jeollanam-do. We evaluated sociodemographic factors and mental health status using self-reported questionnaires, namely, the Suicidal Ideation Scale, Geriatric Depression Scale-Short Form Korean Version, Multidimensional Scale of Perceived Social Support, Korean version of the General Health Questionnaire-12, and Satisfaction with Life Scale, to assess psychosocial factors affecting suicidal ideation. Multivariate logistic regression was performed to examine the factors associated with suicidal ideation.

Results: Among the 4,113 subjects, 325 (7.9%) reported recent suicidal ideation. Multivariate logistic regression analysis revealed that depression ($p<0.001$), low-level social support and life satisfaction ($p=0.006$), poor general mental health ($p<0.001$), physical disease ($p=0.009$), and poor self-perceived health status ($p=0.039$) were significantly associated with suicidal ideation.

Conclusion: The presence of physical disease, poor self-perceived health status, depression, and poor general mental health conditions increase the risk of suicide ideation among the elderly. Social support and life satisfaction affected their suicidal ideation independently of depression.

Keywords Suicidal ideation; Depression; Mental health; Elderly

INTRODUCTION

The suicide rate in South Korea has been steadily declining since 2013. However, the suicide rate in 2017 was 24.3 per 100,000 population and is still the highest among the Organization for Economic Cooperation and Development countries [1]. The problem of elderly suicide is particularly serious. The suicide rate of elderly people aged 65 years or older is 53.3 per 100,000 population, the highest among all ages.

South Korea has a rapidly aging population. In 2010, the ratio of elderly people aged 65 years or older was

10.8%, but is expected to total 21.0% by 2025, rendering South Korea a super-aged society [2]. The Jeollanam-do Province region has the highest elderly population ratio in South Korea. As such, it became a super-aged society in 2017 with an elderly population ratio of 21.5%. It is predicted that the elderly population will comprise at least one in every four people by 2025 [2].

The rapidly increasing elderly population and a high rate of elderly suicide have heightened social interest especially in aspects of the elderly suicide. Thus, factors associated with elderly suicide are actively being studied in South Korea and other countries. Previous studies

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associated socioeconomic factors such as marital status [3], living alone [3,4], and low economic power [5-8], and factors related to physical health such as perceived subjective health [5,7,9], activities of daily living [5], and physical diseases [7-10] with suicidal ideation. In addition, mental health difficulties such as depression [3-7,9-12], cognitive decline [9], and insomnia [7,9,11] have also been associated with suicidal ideation. In particular, many studies consistently highlight depression as one of the most influential factors in elderly suicide [5,7,9,10,12]. Based on these findings, various suicide prevention programs are being implemented in communities [13].

The World Health Organization (WHO) defines the mental health as a state in which each individual person realizes his or her own potential, which extends beyond the classical definition of mental health as having no mental illness [14]. In addition, some studies report that positive mental health factors such as social support [3,4] and satisfaction with life [9] as well as psychopathology such as depression reduced the risk of suicide.

However, previous studies on factors related to mental health and suicide have focused more on psychopathology such as depression, and research on the positive effects of mental health on suicide irrespective of psychopathology are scarce. The current mental health promotion projects in South Korea also mostly focus on evaluating and managing psychopathology such as depression and stress, and the criteria for evaluating their effects are based on psychopathology [13].

This study aimed to investigate factors associated with suicidal ideation among elderly people who used any senior citizen center in Jeollanam-do Province, a metropolitan municipality in South Korea. Specifically, this study aimed to evaluate the levels of positive mental health factors such as social support and satisfaction with life among elderly people who had no observed psychopathology such as depression to classify their mental health status and thereby investigate the association between mental health status and suicidal ideation. This study also aimed to use its results as basic data for designing and developing community mental health promotion projects in rural areas based on senior citizen centers.

MATERIALS AND METHODS

1. Subjects

This study was conducted using a survey as part of an elderly depression prevention program by the Jeollanam-do Provincial Mental Health and Welfare Center. The survey was administered to randomly selected elderly people aged 65 years or older who used 220 senior citizen centers located in 22 cities and districts ('gun') in Jeollanam-do Province, South Korea from March 2017 to November 2018. The survey was conducted by mental health professionals trained about the questionnaire content. Furthermore, subjects able to understand and respond to the questionnaire were included in the survey without any other exclusion criteria.

This study was conducted after receiving approval from the Institute Review Board (IRB No. NNH-HR-2019-3) of Naju National Hospital and informed consent was obtained. The study was explained to subjects, and those who agreed to participate were included in the research. In total, 4,113 subjects (3,507 female and 606 male) were analyzed excepting those who provided incomplete information.

2. Assessment instruments

1) Socio-demographic variables

Data on sex, age, education level, religion, disability, marital status, household type, and average monthly income were collected. In addition, subjective health status [7,8] and physical disease [7-10] were surveyed to obtain information on health factors known to be associated with suicide among elderly people.

2) Definition of suicidal ideation

Recent suicidal ideation among the elderly subjects was measured using the Korean version of the Suicidal Ideation Scale proposed by Harlow et al. [15], which was translated into Korean by Kim [16]. For the item 'I have recently thought about wanting to take my own life,' those who responded with 'not at all' were defined as the group without suicidal ideation, and those who responded with 'once or twice,' 'occasionally,' and 'frequently' as the group with suicidal ideation.

3) Geriatric Depression Scale–Short Form Korean Version

Depression among elderly people was measured using the Short Geriatric Depression Screening Scale, which was shortened to 15 items from the Geriatric Depression Screening Scale (GDS) [16]. The Geriatric Depression Scale–Short Form Korean Version (SGDS) has also been standardized in South Korea. In terms of the reliability of the scale, Cronbach's $\alpha=0.89$ [17]. The total score ranges from 0 to 15 points, and a high score indicates a high likelihood of depression. In this study, those with a score of 8 points or higher were classified as the depression high-risk group [18].

4) Korean version of the General Health Questionnaire–12

The General Health Questionnaire (GHQ) developed by Goldberg and Hillier [19] is a self-report questionnaire for the screening and early detection of mental illness in the general population. In this study, the 12-item short version of the GHQ translated by Park et al. [20] was used. Cronbach's α was 0.79, indicating excellent reliability. The score ranges from 0 to 12 points, with a higher score indicating a higher likelihood of mental illness [19]. In this study, those with a score of 3 points or higher than 3 points were classified as the poor mental health group, and those with a score of lower than 3 points as the healthy group [20].

5) Multidimensional Scale of Perceived Social Support

Perceived social support was measured using the Multidimensional Scale of Perceived Social Support (MSPSS) [21] originally developed by Zimet and colleagues [22] and modified and supplemented by Seo and Ko [23]. The total score ranges from 12 to 60 points, and a higher score indicates a higher degree of perceived social support [22].

6) Korean version of the Satisfaction with Life Scale

Subjective satisfaction with life was measured using the Korean version of the Satisfaction with Life Scale (K-SWLS) [23] based on the Satisfaction with Life Scale (SWLS) [24] that was developed by Diener et al. [24]. This five-item scale is measured on a seven-point Likert scale. A higher score indicates a higher level of satisfaction with life.

7) Mental health status

For evaluation of mental health status, we classified the subjects as a depression high-risk group, potential high-risk group, and a low-risk group based on the SGDS, MSPSS, and SWLS scores. Subjects with a SGDS score of 8 points or higher than 8 points were classified as the depression high-risk group. Those with a SGDS score of less than 8 points and having both of lower 25% MSPSS and lower 25% SWLS score (or a MSPSS of less than 39 points and SWLS score of less than 19 points) were assigned to the potential high-risk group. Those with a SGDS score of less than 8 points and either an upper 75% MSPSS or SWLS score were defined as the low-risk group.

3. Statistical analysis

All statistical analyses were performed using IBM SPSS Statistics for Windows, Version 21.0 (IBM Co., Armonk, NY, USA). Univariate analysis was performed to identify factors associated with suicidal ideation using the chi-square test. An ANOVA was conducted to compare the mental health scale scores according to mental health status. In addition, a post-hoc analysis was performed using the Games-Howell method, and multivariate logistic regression analysis conducted for variables that demonstrated a statistically significant association with suicide ideation in the univariate analysis. Subsequently, the variables found to be independently correlated with suicidal ideation after controlling for covariates were identified. Statistical significance was set at $p<0.05$. Two-tailed tests were performed.

RESULTS

Of the 4,113 subjects, 14.7% were male and 85.3% female. The mean age was 78.87 ± 6.44 years (Table 1). In terms of age group, more than 50% of the subjects were aged between 75 and 84 years. Regarding level of education, 89% were elementary school graduates. In addition, 52.8% had a religion, 42.5% were married, and 49.4% were living alone. For monthly income, 79.4% were living on less than KRW 500,000 per month, and 10.7% had a monthly income of more than KRW 1 million. Regarding subjective health status, 62.8% reported being not healthy, and 88.5% reported having one or more physical diseases.

Table 1. Comparison of socio-demographic factors according to experiencing suicidal ideation

	No SI	With SI	p-value	Total
Total	3,788 (92.1)	325 (7.9)		4,113 (100.0)
Sex				
Male	557 (91.9)	49 (8.1)	0.856	606 (14.7)
Female	3,231 (92.1)	276 (7.9)		3,507 (85.3)
Age (y)				
65-69	311 (93.4)	22 (6.6)	0.253	333 (8.1)
70-74	680 (91.4)	64 (8.6)		744 (18.1)
75-79	1,062 (93.4)	75 (6.6)		1,137 (27.6)
80-84	996 (91.3)	95 (8.7)		1,091 (26.5)
≥85	739 (91.5)	69 (8.5)		808 (19.6)
Educational years				
0	1,681 (90.4)	178 (9.6)	0.002	1,859 (45.8)
1-6	1,637 (93.4)	115 (6.6)		1,752 (43.2)
7-9	239 (96.0)	10 (4.0)		249 (6.1)
10-12	142 (91.0)	14 (9.0)		156 (3.8)
≥13	38 (95.0)	2 (5.0)		40 (1.0)
Religion				
No	1,760 (91.9)	155 (8.1)	0.672	1,915 (47.2)
Yes	1,980 (92.3)	166 (7.7)		2,146 (52.8)
Marriage status				
Married	1,579 (92.7)	124 (7.3)	0.175	1,703 (42.5)
Others ^a	2,112 (91.5)	195 (8.5)		2,307 (57.5)
Living status				
Alone	1,838 (92.0)	160 (8.0)	0.729	1,998 (49.4)
With others	1,890 (92.3)	158 (7.7)		2,048 (50.6)
Monthly income (thousands won)				
≤300	1,828 (92.1)	156 (7.9)	0.985	1,984 (55.9)
310-500	771 (92.6)	62 (7.4)		833 (23.5)
510-1,000	323 (92.3)	27 (7.7)		350 (9.9)
>1,000	351 (92.4)	29 (7.6)		380 (10.7)
Self-perceived health status				
Poor	2,269 (89.8)	259 (10.2)	<0.001	2,528 (62.8)
Neutral	821 (95.2)	41 (4.8)		862 (21.4)
Healthy	618 (97.0)	19 (3.0)		637 (15.8)
Physical disease				
No	457 (96.6)	16 (3.4)	<0.001	473 (11.5)
Yes	3,319 (91.5)	309 (8.5)		3,628 (88.5)

Values are presented as a number (%).

SI, suicidal ideation.

^aIncludes single/separated/divorced /widowed.

Table 1 shows the differences in socio-demographic characteristics according to suicidal ideation. Of all the subjects, 7.9% (n=325) reported having suicidal ideation, and 8.1% (n=49) of the male subjects and 7.9% (n=276) of the female subjects had suicidal ideation, indicating no difference in suicidal ideation between male and

female (p=0.856). Age (p=0.253), religion (p=0.672), marital status (p=0.175), household type (p=0.729), and monthly income (p=0.985) were not significantly associated with suicidal ideation among elderly subjects using senior citizen centers. On the other hand, education level, subjective health status, and physical disease were

significantly associated with suicidal ideation among elderly subjects. In terms of education level, 9.6% of those with no education, 6.6% of elementary school graduates or below, 4.0% of middle school graduates or below, 9.0% of high school graduates or below, and 5.0% of college graduates or above reported having suicidal ideation ($p=0.002$). In terms of subjective health status, 10.2% ($n=259$) of those who reported being unhealthy, 4.8% ($n=41$) of those who reported that their health status was normal, and 3.0% ($n=19$) of those who reported being healthy were found to have suicidal ideation ($p<0.001$). The results of comparing suicidal ideation according to the presence or absence of physical disease indicated that 3.4% of those without physical disease and 8.5% of those with physical disease reported having suicidal ideation ($p<0.001$).

A difference was observed in the distribution of men-

tal health status according to the presence or absence of suicide ideation (Table 2). Looking at mental health status as classified based on the SGDS, MSPSS, and SWLS scores, the depression high-risk group accounted for 19.5% ($n=803$); the potential risk group accounted for 7.1% ($n=292$); and the low-risk group accounted for the remaining 73.4% ($n=3,014$). A statistically significant difference was observed in suicide ideation among the three groups: 24.7% of the depression high-risk group, 8.9% of the potential risk group, and 3.3% of the low-risk group reported having suicidal ideation ($p<0.001$). In addition, a difference was observed in suicidal ideation according to general mental health status in terms of Korean version of the General Health Questionnaire-12 (GHQ-12) scores. Specifically, 12.4% of those with a poor general mental health status reported having suicidal ideation, whereas only 2.4% of those with a healthy group reported having suicidal ideation ($p<0.001$).

In addition to the presence or absence of suicidal ideation, differences were observed in four mental health scales for depression, general mental health, social support, and satisfaction with life according to mental health status (Table 3). A significant difference was observed in the SGDS scores of the three groups: 10.39 ± 2.05 points in the depression high-risk group, 4.28 ± 2.01 points in the potential risk group, and 2.66 ± 2.12 points in the low-risk group ($p<0.001$). Similar to the SGDS scores, the GHQ-12 score was also the highest in the depression high-risk group, followed by the potential risk group and low-risk group (5.53 ± 2.88 , 4.22 ± 1.97 and 2.44 ± 2.06 points, respectively) ($p<0.001$). In contrast, the MSPSS score was the highest in the low-risk group, followed by the depression high-risk group and the potential high-risk group (45.93 ± 7.82 , 39.25 ± 9.45 , and 32.75 ± 4.31 points, respectively) ($p<0.001$). The SWLS scores also demon-

Table 2. Comparison of mental health conditions according to experiencing suicidal ideation

	No SI	With SI	p-value
Mental health status			
Depression high-risk ^a	605 (75.3)	198 (24.7)	<0.001
Potential high-risk ^b	266 (91.1)	26 (8.9)	
Low-risk ^c	2,914 (96.7)	100 (3.3)	
General mental health			
Good ^d	1,816 (97.6)	45 (2.4)	<0.001
Poor ^e	1,965 (87.6)	278 (12.4)	

Values are presented as a number (%).

SI, suicidal ideation.

^aGeriatric Depression Scale-Short Form Korean Version (SGDS) ≥ 8 ; ^bLow 25% of both Multi-dimensional Scale of Perceived Social Support (MSPSS) and Satisfaction with Life Scale (SWLS) among SGDS < 8 ; ^cHigh 75% of MSPSS or SWLS among SGDS < 8 ; ^dKorean version of the General Health Questionnaire-12 (GHQ-12) < 3 ; ^eGHQ-12 ≥ 3 .

Table 3. Comparison of mental health scales according to mental health status

	Depression high-risk ^a ($n=803$)	Potential high-risk ^b ($n=292$)	Low-risk ^c ($n=3,014$)	p-value
SGDS*	10.39 ± 2.05	4.28 ± 2.01	2.66 ± 2.12	<0.001
GHQ-12*	5.53 ± 2.88	4.22 ± 1.97	2.44 ± 2.06	<0.001
MSPSS [†]	39.25 ± 9.45	32.75 ± 4.31	45.93 ± 7.82	<0.001
SWLS [†]	17.13 ± 6.84	13.17 ± 3.10	23.75 ± 5.86	<0.001

Values are presented as mean $\pm$ standard deviation.

SGDS, Geriatric Depression Scale-Short Form, Korean Version; GHQ-12, Korean version of the General Health Questionnaire-12; MSPSS, Multi-dimensional Scale of Perceived Social Support; SWLS, Korean version of Satisfaction with Life Scale.

^aSGDS ≥ 8 ; ^bLow 25% of both MSPSS and SWLS among SGDS < 8 ; ^cHigh 75% of MSPSS or SWLS among SGDS < 8 .

* $a>b>c$, [†] $c>a>b$.

Table 4. Factors associated with suicidal ideation according to multivariate logistic regression

Variable	With suicidal ideation	p-value
Physical disease		
Yes	2.311 (1.227–4.353)	0.009
Self-perceived health status		
Poor	1.717 (1.028–2.869)	0.039
Neutral	1.432 (0.799–2.566)	0.227
Education year		
0	1.769 (0.395–7.924)	0.456
1–6	1.500 (0.334–6.750)	0.597
7–9	1.195 (0.234–6.095)	0.830
10–12	2.719 (0.546–13.549)	0.222
GHQ-12		
Poor*	2.874 (2.027–4.076)	<0.001
Mental health conditions		
Depression high-risk [†]	5.890 (4.449–7.797)	<0.001
Potential high-risk [‡]	1.931 (1.213–3.073)	0.006

Values are presented odds ratio (95% confidence interval).

GHQ-12, Korean version of the General Health Questionnaire-12.

*GHQ-12<3; [†]Geriatric Depression Scale-Short Form, Korean Version (SGDS)≥8; [‡]Low 25% of both Multi-dimensional Scale of Perceived Social Support and Korean version of Satisfaction with Life Scale among SGDS<8.

strated a similar distribution to the MSPSS scores, and the SWLS scores for the high-risk group, potential risk group, and low-risk group were 17.13±6.84, 13.17±3.10, and 23.75±5.86 points, respectively. This shows that the SWLS score was the highest in the low risk group and lower in the potential risk group than the depression high-risk group ($p<0.001$).

Table 4 provides the results of the multivariate logistic regression analysis of the variables that were associated with suicidal ideation in the univariate analysis. The results indicated that the depression high-risk group (odds ratio [OR], 5.890; 95% confidence interval [CI], 4.449–7.797; $p<0.001$), potential risk group (OR, 1.931; 95% CI, 1.213–3.073; $p=0.006$), those with poor general mental health status (OR, 2.874; 95% CI, 2.027–4.076; $p<0.001$), those with physical disease (OR, 2.311; 95% CI, 1.227–4.353; $p=0.009$), and those with poor subjective health status (OR, 1.717; 95% CI, 1.028–2.869; $p=0.039$) were independently associated with suicidal ideation.

DISCUSSION

This study confirmed that suicidal ideation was preva-

lent among 7.9% (325) of the 4,113 subjects. The results of previous studies regarding suicidal ideation among Korean elderly people reported the prevalence of suicidal ideation as 10.4% to 20.0%, higher than that found in this study [3,9,10]. A direct comparison of these results is difficult, because the target subjects and definition of suicide ideation were different between studies. However, it is thought that the prevalence of suicidal ideation among the elderly subjects in this study was relatively low compared to those found in previous studies. This can be considered as reflecting elderly suicide status, indicating that the incidence of elderly suicide declined from 75.5 per 100,000 population in 2007 to 47.7 in 2017, despite its ups and downs over the years [1]. However, this study involved elderly people who actively used senior citizen centers; thus, the prevalence of suicidal ideation reported here was likely to be lower than that for all community-dwelling elderly people. Elderly people who use senior citizen centers are reported to have better physical and mental health status, and higher satisfaction with social relations than elderly people who do not [24,25]. These may serve as protective factors for suicidal ideation [5-9]. Therefore, it can be inferred that the level of suicidal ideation found in this study may be lower than that of all community-dwelling elderly people. However, further studies are needed for more accurate comparisons.

Factors such as marital status [3], living alone [3,4], and low economic power [3,9,10], which were previously associated with elderly suicide, were not significantly associated with suicidal ideation in this study. This may be because through senior citizen centers, community-dwelling elderly people can build social networks, share their living activities such as meals, and offset difficulties due to living alone or low economic power. Previous studies reporting that social support networks that can substitute one's family could buffer the effects of risk factors for suicidal ideation reported similar results [4].

As such, it is consistently reported that the mental health status of elderly people who used any senior citizen center was better than that among elderly people who did not [24,25]. Further studies are needed to investigate the sequential relationship between senior center use and suicidal ideation, such as whether the use of senior citizen centers may reduce the risk of suicidal ideation [4], or whether elderly people at low risk of suicidal ideation may use senior citizen centers [24,25].

Regarding the mental health status of elderly people,

the proportion of those in the depression high-risk group with a SGDS score of greater than 8 points was 19.5%, which is lower than the results of a study involving community-dwelling elderly people in which this proportion was 29.1% [9]. This finding is consistent with the results of previous studies reporting the good mental health status of elderly people who used any senior citizen center [24,25]. Those with a SGDS score of lower than 8 points who did not clinically present with distinct depression were divided into the lower 25% group and upper 75% group based on both scores of the MSPSS and SWLS, and subsequently reclassified as the potential risk group and low-risk group. The results of investigating the prevalence of suicidal ideation indicated a difference among these three groups. A multivariate analysis confirmed a similar difference. Many domestic and overseas studies consistently claim that depression is one major risk factor for suicide [3,5,7,9-11], which is also supported by this study. In addition, many previous studies reported that low levels of social support and life satisfaction increased the risk of suicide, although they are known to mostly affect suicide through depression. However, this study showed that social support and satisfaction with life affect suicidal ideation even among those without depression. In particular, comparing the SGDS, GHQ-12, MSPSS, and SWLS scores of the three groups revealed that the levels of perceived social support and satisfaction with life were lower in the potential risk group than in the depression high-risk group. These findings are thought to indicate that although no distinct psychopathology is observed, the risk of suicide may increase when the level of positive mental health status falls below a certain level. However, before reaching a conclusion, it is necessary to determine whether social support and satisfaction with life affect mental health such as suicide independently of psychopathology such as depression, or whether depression was not detected in screening tests despite the presence thereof. In this study, the risk of suicide was found to be higher in the potential risk group than in the low-risk group. However, compared with the depression high-risk group, both the MSPSS and SWLS scores were lower for the potential risk group, although no significant depression was observed, and the risk of suicide was also lower for this group. Considering these findings, it can be inferred that the MSPSS and SWLS scales may be related to mental health, but it is also necessary to clarify the extent to which they can reflect mental health in a true sense,

rather than merely a state free of mental illness. Thus, studies on scales and tools that can well reflect mental health status are needed.

The results of the multivariate analysis showed that those with physical disease, poor perceived subjective health, and poor general mental health status also had a significant risk of suicide independently of mental health status. It is well known through many studies that mental health difficulties [7,9-11] including depression [3,5,7,9-11] and physical diseases [5-8,10,11] are major risk factors for elderly suicide. Studies have reported that mental health difficulties such as insomnia [6,8,11] and anxiety [11] also increased suicidal ideation and the risk of suicide. This study found that the overall mental health scale scores were significantly associated with suicidal ideation independently of depression. This suggests that it is necessary to assess not only depression, but also various aspects of mental health when evaluating elderly people at risk of suicide in the future.

Regarding the sex of the subjects of this survey, 85.3% were women, and the gender ratio was not even. However, in terms of the gender ratio of elderly people aged more than 65 years in Jeollanam-do Province, the proportion of elderly women is higher than that of elderly men. This gender difference increases with age, and 76.2% of elderly people aged more than 85 years are women [2]. In addition, according to a survey of elderly people conducted in 2017, more women used senior citizen centers [26,27]. Considering the gender ratio of the community-dwelling elderly population and gender differences in the use of senior citizen centers, it is thought that the gender ratio in this study reflects the current situation of elderly people using senior citizen centers in Jeollanam-do Province.

The limitations of this study are as follows. First, because this study involved elderly people in the Jeollanam-do area selected without a proper sampling process, it is difficult to generalize the results of the research. Second, because the data were collected using self-report questionnaires, there might be recall errors among the elderly subjects. Third, because this study was cross-sectional, there are many limitations in determining the causality between variables. Finally, a social support scale and life satisfaction scale were used to define mental health status. However, because previous studies are lacking on how well such scales can reflect aspects of mental health and what cut-off points can be defined as good mental health, arbitrary criteria were used in this

research. However, the number of subjects in this study was large, and the results may provide useful data for evaluating the distinct characteristics of a region and specific subjects such as elderly people who used senior citizen centers. In addition, this study is significant in that subjects with distinct psychopathology and those with psychopathology such as depression or general mental health status were defined according to the level of positive mental health factors such as social support and satisfaction with life. Furthermore, the study confirmed the association between such factors and suicidal ideation.

CONCLUSION

As interest in elderly mental health continuously increases because of the rapidly growing elderly population, mental health promotion programs including suicide prevention programs for elderly people are actively underway. This study found that suicidal ideation among the elderly was highly associated with psychopathology such as depression and general mental health status. Furthermore, its risk even among elderly subjects without depression significantly increased when levels of perceived social support and satisfaction with life were low. Suicide prevention and mental health promotion projects in South Korea, which are based on psychopathology, are currently in progress. However, the results of this study could be used as baseline data for developing programs to facilitate mental health promotion beyond evaluating psychopathology. In addition, subjective health perception and the presence or absence of physical disease as well as mental health status were also found to increase the prevalence of suicidal ideation. When designing and implementing the senior citizen center-based suicide prevention projects in communities, it is necessary to evaluate and manage physical health and mental status in the future.

CONFLICTS OF INTEREST

The authors have nothing to disclose.

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