



ORIGINAL ARTICLE

## Association between age and attitudes toward suicide



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### Abstract

**Background and objective:** Attitudes toward suicide is one of the important determinants for help-seeking behaviors among suicidal population. We hypothesized that older age groups would have more favorable attitudes toward suicide than would younger groups.

**Methods:** We conducted a survey of attitudes toward suicide in a nationally representative sample. Attitudes toward suicide were measured with the Korean version of the Suicide Opinion Questionnaire (SOQ). Multiple linear regression analysis was performed to determine the influence of age on attitudes toward suicide after adjusting for other sociodemographic and clinical variables.

**Results:** A total of 1200 people in the general public responded to the survey. Older people expressed less favorable attitudes toward suicide than did younger people. According the multiple linear regression analysis, age was the most influential factor with regard to attitudes toward suicide.

**Conclusion:** Contrary to our *a priori* hypothesis, people in the older age groups had more negative attitudes toward suicide than did those in the younger age groups. The results suggest that negative attitudes toward suicide in the general population may interfere with the help-seeking behavior of people at high risk for suicide. Future studies should directly investigate the relationship between attitudes toward suicide and suicide rates.

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## Introduction

One of the possible risk factors for high suicide rates is mental illness. A substantial proportion of suicide victims reportedly suffered from psychiatric illnesses.<sup>1</sup> However, suicide is a consequence of complex interactions among various factors, such as sociodemographic characteristics, physical status, religion, and personality traits.<sup>2,3</sup> We recently revealed that the influence of the non-mental disorder for suicide is particularly strong in the East Asia countries.<sup>4</sup>

Attitudes toward suicide might also be one of possible contributing factors for committing suicide.<sup>5</sup> 'Attitude' means the way one think and feel about it. Attitudes toward suicide can be influenced by various factors such as religious commitment and stigma.<sup>6</sup> People may think that individuals who commit suicide as mentally ill, which could be similar context with the stigma for mental disorders. Those differences in attitudes toward suicide have been investigated in various groups. Recent studies suggested that psychiatrists were more likely than general population to believe that suicide can be prevented.<sup>7</sup> Individuals who previously had attempted suicide or suicidal ideation may be more favorable of suicide than those who had no such experience.<sup>8,9</sup> These suggest that individuals with favorable attitudes toward suicide more easily think that suicide could be a sort of methods for problem solving than those with unfavorable attitudes toward suicide. It has been also suggested that people with permissive attitudes toward suicide are more likely to harbor suicidal intent.<sup>10</sup> According to Jeon et al., permissive attitude toward suicide encompasses thought that one has the right to commit suicide and there would be situations in which one might commit suicide as an alternative.<sup>10</sup> One with favorable attitudes toward may allow that committing suicide can be possible in several perspectives, such as a way of problem solving, self-immolating, and communicating with others, whereas one unfavorable attitude suicide may oppose committing suicide. Thus, it is

possible that individual members of a group with favorable attitudes toward suicide would be more likely than others to attempt suicide.

The suicide rates in Korea increase as a function of age. The prevalence of suicide per 100,000 persons is 19.25 among those in their 20s, 26.94 among those in their 30s, 30.41 among those in their 40s, 35.52 among those in their 50s, 42.45 among those in their 60s, and 83.19 among those in their 70s.<sup>11</sup> The age-specific pattern of suicide in Korea differs from that in other countries such as the United States, Japan, and European countries.<sup>12</sup> (summarized in Fig. 1) On the other hand, the discrepancies in the suicide among elderly could not be explained by the prevalence of mental disorders such as major depressive disorder (MDD). Indeed, the prevalence of major depression in Korea is approximately 5.6%, which is lower than that in the United States and European countries.<sup>13,14</sup> The prevalence of MDD in the elderly is resemblance to that in the whole population.

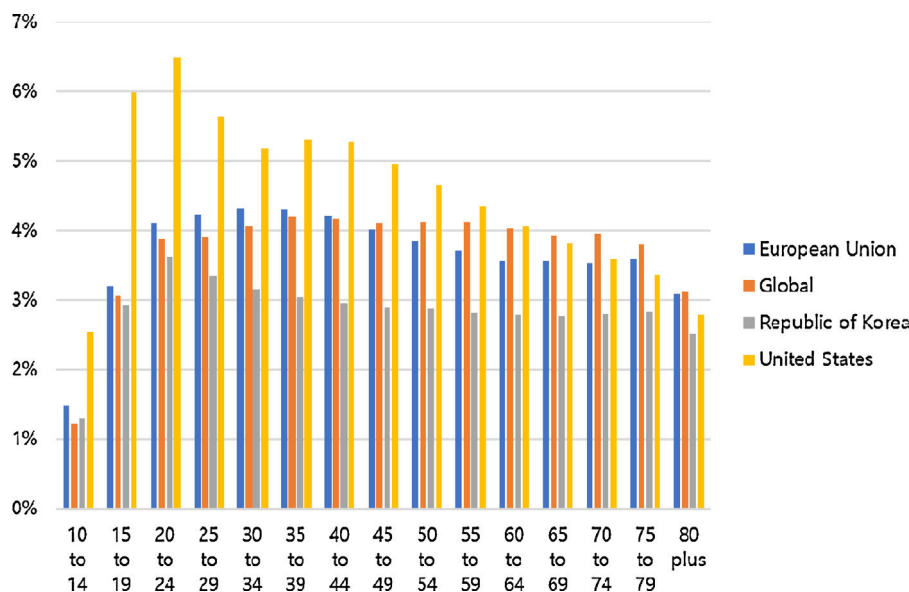
Given the aforementioned significantly high suicide rates in Korea,<sup>11,15</sup> the low prevalence of major depression suggests that factors other than psychiatric illnesses play a role in suicide and that these factors should be identified.

In this study, we hypothesized that older members of the general populations have more favorable attitudes toward suicide than do members of younger groups.

## Methods

### Participants and procedures

This survey was planned and designed by the Korean Association for Suicide Prevention, and it was conducted by Gallup Korea. The sample consisted of people older than 13 years of age and was conducted between Dec. 2 and Dec. 22, 2011. The survey was conducted in person by trained interviewers in the 16 areas in Korea, except Jeju Island. The first stage of sampling employed a multi-stage stratified cluster sampling



**Figure 1** Age group-stratified suicide rate in the European Union, Republic of Korea, United States, and the global estimates.

technique with probability proportionate to size. Subsequently, three-way quota sampling according to age, sex, and region was used to ensure that the age, sex, and region of residence in the sample represented that in the national population. After completely explaining the study to all participants, written informed consent was obtained. The study protocol was reviewed and approved by the Institutional Review Board of Gachon University Gil Medical Center.

## Instruments

Attitudes toward suicide were measured by the Korean version of the Suicide Opinion Questionnaire (K-SOQ).<sup>16</sup> An expert panel from the Korean Academy of Anxiety Disorders carefully selected 41 items from the original SOQ. The main exclusion criteria was cultural suitability in Korea. For example, item 84 which stating "Passive suicide, such as an overdose of sleeping pills, is more acceptable than violent suicide such as by gunshot." is completely inappropriate for Korean culture in which gunshot possession is rigorously restricted. Each item was scored from 0 to 4 using a Likert-type scale (0 = strongly disagree, 1 = disagree, 2 = undecided, 3 = agree, 4 = strongly agree). Several items were scored in reverse, so higher scores on each item reflected less favorable attitudes toward suicide. According to communication<sup>13</sup> with the author of a previous study,<sup>12</sup> 35 of the 41 items measure attitudinal aspects of suicide rather than facts. The final 35 items used in the present study belonged to nine categories: morality (eight items, e.g., "I would be ashamed if a member of my family committed suicide"); religion (seven items, e.g., "People who commit suicide lack solid religious convictions"); mental illness (six items, e.g., "People who commit suicide must have a weak personality structure"); aging (three items, e.g., "Most suicide victims are older persons with little to live for"); motivations (three items, e.g., "Once a person is suicidal, he is suicidal forever"); getting even (three items, e.g., "People who attempt suicide are typically trying to get even with someone"); familial risks (two items, e.g., "People with no roots or family ties are more likely to attempt suicide"); acceptability (two items, e.g., "Suicide is an acceptable means to end an incurable illness"); and attention seeking (one item, "A suicide attempt is essentially a 'cry for help'"). The internal consistency of the 35 items was appropriate (Cronbach's  $\alpha = 0.771$ ).

Current depression was measured with the Korean version of the Center for Epidemiological Studies-Depression Scale (CES-D).<sup>17,18</sup> Variables associated with attitudes toward suicide, such as personal and family histories of suicide, were also investigated.

## Statistical analysis

The sociodemographic and clinical characteristics of the total sample were analyzed with descriptive statistics. Attitudes toward suicide according to age group (13–19, 20–29, 30–39, 40–49, 50–59, 60–69, 70 years or older) were analyzed by analysis of covariance (ANCOVA), treating sex, education, family income, marital status, past suicide attempt, and family history of suicide as covariates. Scores on the nine subscales (morality, religion, mental illness,

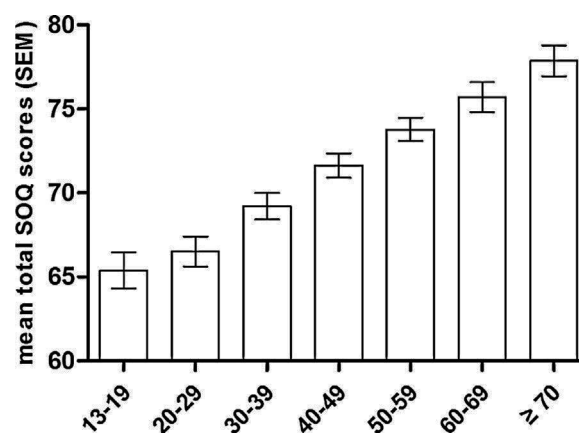


Figure 2 Attitudes toward suicide by age group.

aging, motivations, attention seeking, getting even, familial risks, and acceptability) and total scores were used to assess attitudes toward suicide. In the *post hoc* analysis, Bonferroni-adjusted *p*-values were used to prevent type I errors due to the use of seven age groups.

To determine whether attitudes toward suicide were associated with suicide risk, people with and without past histories of suicide attempts were also compared using ANCOVA using age, sex, and family income as covariates. Multiple linear regression analysis adjusted for age, sex, education, family income, size of region, religion, marital status, and past suicide attempt was conducted to identify the independent influence of each risk factor on attitudes toward suicide in terms of total and mortality, religion, and mental illness subscale scores on the SOQ. All statistical procedures were conducted using SPSS 16.0 (SPSS, Inc., Chicago, IL, US).

## Results

### Sociodemographic data

A total of 1200 people participated in the survey, and their sociodemographic and clinical characteristics are presented in Table 1. Among the total study sample, 41 (3.4%) and 150 (11.5%) had previously attempted and had planned suicide, respectively. There was no association between age groups and prior suicide attempt ( $\chi^2 = 7.653$ ,  $p = .265$ ). The mean (SD) CES-D score for the full sample was 9.66 (8.427), and 251 (20.9%) participants were at risk for depression (i.e., scores of 16 or higher on the CES-D).

### Attitudes toward to suicide

According to total scores on the K-SOQ, attitudes toward suicide became less favorable as the age of participants increased (Fig. 2, Table 2), which was contrary to our *a priori* hypothesis. Of the nine subscales of the K-SOQ, scores on those addressing morality, religion, mental illness, and motivations were positively associated with age (data not shown). People with a history of previous suicide attempts (mean = 61.15, SD = 12.55) had significantly lower total scores (i.e., more favorable attitudes) for attitudes

**Table 1** Sociodemographic and clinical data.

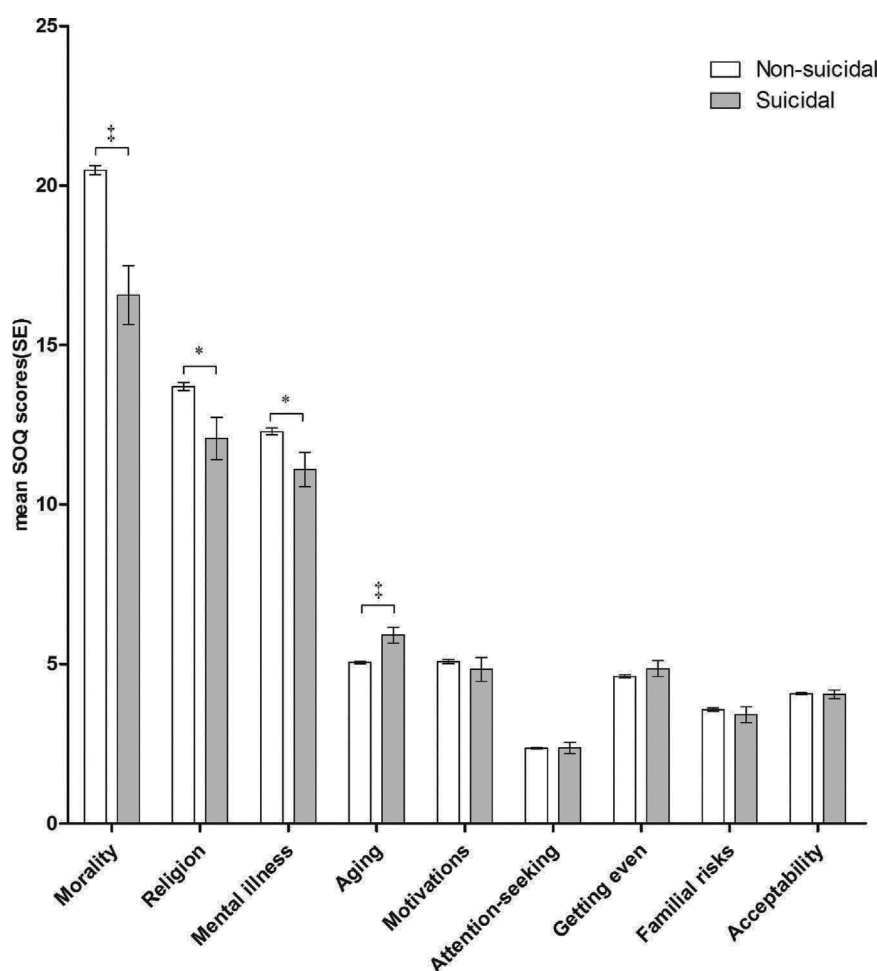
Variable	N	%
<i>Age groups, years</i>		
13–19	134	11.2
20–29	184	15.3
30–39	222	18.5
40–49	238	19.8
50–59	203	16.9
60–69	117	9.8
≥70	102	8.5
Sex, male	599	49.9
<i>Education</i>		
Elementary	151	12.6
Middle	175	14.6
High	463	38.6
University/College	411	34.3
Religion, presence	628	52.3
<i>Marital status</i>		
Unmarried	389	32.4
Married	736	61.3
Widowed/divorced/separated	75	6.3
<i>Monthly income, ₩</i>		
<99	76	6.3
100–199	154	12.8
200–299	261	21.8
300–399	343	28.6
400–499	158	13.2
500–599	95	7.9
600–699	51	4.3
≥700	51	4.3
Missing	11	0.9
<i>Residential area</i>		
Large city	560	46.7
Medium/Small city	470	39.2
Rural	170	14.2
<i>Lifetime suicidal ideation</i>		
Within 1 year	101	8.4
Before 1 year	239	19.9
<i>Lifetime suicide plan</i>		
Within 1 year	44	3.7
Before 1 year	94	7.8
<i>Suicide attempt</i>		
Within 1 year	8	0.7
Before 1 year	33	2.8
None		
Relative who committed suicide	81	6.8

All data are presented as numbers and percentages.

toward suicide than did people without such a history (mean = 71.20,  $SD = 11.63$ ,  $F_{1,1184} = 7.258$ ,  $p = 0.001$ ). Additionally, people who had attempted suicide scored lower on the morality ( $F_{1,1184} = 20.725$ ,  $p = 0.000006$ ) and religion ( $F_{1,1184} = 3.908$ ,  $p = 0.048$ ) subscales and higher on the aging subscale ( $F_{1,1184} = 12.133$ ,  $p = 0.001$ ) (Fig. 3). Absence of religious affiliation and more severe depression were also

**Table 2** Comparison of attitudes toward suicide by age group.

	13–19		20–29		30–39		40–49		50–59		60–69		≥70		Total		F	p
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD		
Total	65.39	12.47	66.52	12.14	69.20	11.68	71.63	11.12	73.78	9.94	75.70	9.71	77.87	9.25	70.99	11.71	21.139	<0.0001
Morality	17.12	5.42	19.01	5.17	19.64	4.49	20.65	4.45	21.54	4.30	22.27	3.96	23.33	4.11	20.35	4.89	25.026	<0.0001
Religion	12.34	4.26	12.37	4.21	13.09	4.55	13.83	4.12	14.50	3.87	14.76	4.16	15.44	3.91	13.64	4.29	9.403	<0.0001
Mental illness	11.55	4.14	11.45	3.65	11.91	3.54	12.34	3.34	12.74	3.18	13.11	3.33	13.17	2.93	12.25	3.51	4.968	<0.0001
Aging	5.31	1.38	4.94	1.38	5.08	1.26	5.11	1.42	5.03	1.58	5.15	1.61	4.96	1.79	5.08	1.46	1.013	0.415
Motivations	4.87	2.36	4.47	2.08	4.85	2.21	5.08	2.01	5.37	2.06	5.55	1.82	5.69	1.96	5.07	2.12	5.083	<0.0001
Getting even	4.73	1.84	4.53	1.72	4.59	1.52	4.57	1.65	4.54	1.76	4.68	1.70	4.92	1.89	4.62	1.70	3.492	0.002
Familial risks	3.28	1.84	3.23	1.75	3.43	1.68	3.61	1.75	3.76	1.58	3.90	1.59	3.94	1.73	3.56	1.717	0.927	0.475
Acceptability	4.01	0.93	4.14	0.98	4.03	1.05	4.15	1.05	4.04	1.06	3.99	1.04	4.02	0.93	4.07	1.016	4.653	0.0001
Attention seeking	2.18	1.08	2.39	1.02	2.59	0.93	2.29	0.98	2.25	0.89	2.30	0.97	2.40	0.89	2.35	.972	0.517	0.796



**Figure 3** Comparison of subscale scores for attitudes toward suicide according to history of suicide attempts.

associated with lower scores on the K-SOQ, which represent favorable attitudes toward suicide. We found no differences between males (mean = 70.72,  $SD = 11.84$ ) and females (mean = 71.26,  $SD = 11.58$ ,  $p = 0.420$ ) with regard to total scores for attitudes toward suicide. The subgroup analysis of subscale scores showed that males (mean = 4.13,  $SD = 1.016$ ,  $p = 0.021$ ) had significantly less favorable attitudes than did females (mean = 4.00,  $SD = 1.012$ ) on the acceptability, although the significance of this difference was modest. No differences in the other subscales were observed (data not shown).

The assumptions of multicollinearity, independence of errors, homoscedasticity, and normality of residuals were met. A multiple regression was run to predict attitude toward suicide from age, gender, size of region, religion, monthly income, depression, prior history of suicide, marital status, and education level. These variables statistically significantly predicted total scores ( $F_{(9,1179)} = 18.126$ ,  $p < 0.0001$ , adjusted  $R^2 = .115$ ), morality ( $F_{(9,1179)} = 27.258$ ,  $p < 0.0001$ , adjusted  $R^2 = 0.166$ ), religion ( $F_{(9,1179)} = 11.170$ ,  $p < 0.0001$ , adjusted  $R^2 = 0.072$ ), and mental illness ( $F_{(9,1179)} = 4.696$ ,  $p < 0.0001$ , adjusted  $R^2 = 0.027$ ). Regression coefficients and standard errors can be found in Table 3. According to the multiple linear regression analysis, age had the strongest influence on attitudes toward

suicide in terms of total scores and scores on the morality, religion, and mental illness subscales. Depression had a significant influence on scores on the morality subscale but not in terms of total scores or scores on the religion and mental illness subscales.

## Discussion

One of the main findings of this study was that attitudes toward suicide are increasingly unfavorable as a function of age among members of the Korean general population. These results are contrary to our *a priori* hypothesis that attitudes toward suicide would become more favorable as a function of age, possibly serving as the sociocultural background for the higher suicide rates among older individuals. As described in the Introduction, we initially thought that high suicide rate in elderly might arise from favorable attitude toward suicide. However, increasing age group was the strongest influence on unfavorable attitudes toward suicide; it was more powerful than all other risk factors, such as prior suicide attempts, depression, and religion. Given the evidences suggesting that prior suicide attempts, depression, and religion are well-known risk factors for committed suicide,<sup>19,20</sup> it is possible that negative attitudes toward suicide among older general people would be an important



**Table 3** Multiple regression predicting attitudes toward suicide from demographic and clinical variables.

Variable	Total			Morality			Religion			Mental illness		
	<i>B</i>	<i>SE<sub>B</sub></i>	$\beta$	<i>B</i>	<i>SE<sub>B</sub></i>	$\beta$	<i>B</i>	<i>SE<sub>B</sub></i>	$\beta$	<i>B</i>	<i>SE<sub>B</sub></i>	$\beta$
Intercept	64.749	1.375		17.804	0.557		11.823	0.516		11.924	0.430	
Age groups	1.894	0.240	0.283*	0.796	0.097	0.285*	0.469	0.090	0.191*	0.230	0.075	0.115*
Sex	0.161	0.650	0.007	0.182	0.263	0.019	0.135	0.244	0.016	-0.165	0.203	-0.024
Size of region	0.478	0.453	0.029	0.326	0.183	0.048	0.102	0.170	0.017	-0.025	0.142	-0.005
Religion	2.378	0.656	0.102*	1.291	0.266	0.132*	1.273	0.246	0.148*	0.279	0.205	0.040
Monthly income	-0.062	0.210	-0.009	0.022	0.085	0.008	-0.098	0.079	-0.038	-0.072	0.066	-0.035
Depression	-0.651	0.804	-0.023	-1.788	0.326	-0.149*	0.145	0.302	0.014	0.029	0.251	0.003
Prior suicide attempt	-4.586	1.794	-0.071*	-2.752	0.726	-0.102*	-1.392	0.673	-0.059*	-0.951	0.561	-0.049
Marital status	-0.828	0.811	-0.034	-0.521	0.328	-0.052	0.054	0.304	0.006	-0.414	0.254	-0.058
Education level	0.398	0.711	0.016	-0.093	0.288	-0.009	-0.019	0.267	-0.002	0.126	0.222	0.017

Reference values: age groups = 13–19 years, sex = female, size of region = large city, religion = none, monthly income = 99₩, prior suicide attempt = none, depression = Center for Epidemiological Studies-Depression Scale scores below 16, marital status = married, marital status: education levels = 12 years and under.

\*  $p < 0.05$ , *B* = unstandardized regression coefficient, *SE<sub>B</sub>* = standardized error of the coefficient, and  $\beta$  = standardized coefficient.

contributor to the high suicide rates among these populations.

One might think that these age-dependent unfavorable attitudes toward suicide may be related to the characteristics of our sample. Indeed, the respondents in this survey were selected from the general population rather than from a clinical population or those at high risk for suicide. As described in the Results section, only 41 (3.4%) and 150 (11.5%) respondents had a history of a suicide attempt and a suicide plan, respectively. However, the dissociation between age group and prior suicide attempt raise an alternative explanation for our results.

One of possible explanations for our results is that unfavorable attitudes toward suicide among the general population may be a double-edged sword. Whereas negative attitudes toward suicide may prevent future suicide, people at high risk for suicide may be reluctant to discuss their suicidal feelings with people who hold negative and unfavorable views about suicide. In other words, negative attitudes toward suicide among the general population may stigmatize and create prejudice against mental illness, thereby discouraging people from accessing mental health services. In fact, the Korean general population views mentally ill people as incompetent and unable to recover from their condition.<sup>21</sup> It has been reported that the stigmatization of and prejudice against mentally ill individuals may interfere with help-seeking behavior and consequently increase the prevalence of mental illnesses.<sup>22</sup> Help seeking consists of two major components. One is the recognition of a problem and of the need to seek help, and the other is an accepting environment that offers opportunities to get help for the problem.<sup>23</sup> One previous study found that people living in regions where suicide rates were low had more favorable attitudes toward help-seeking and placed less stigma on mental illness than did people living where suicide rates were high.<sup>24</sup> That study also reported that help-seeking was negatively associated with shame,<sup>24</sup> which is consistent with previous findings that shame is among the most influential contributors to the reluctance of mentally ill individuals to seek help.<sup>25</sup> Additionally, the significant association between depression

and morality-based attitudes toward suicide revealed by our results may also interfere with help-seeking behavior, thereby increasing the suicide risk in depressed people.

It is noteworthy that people who previously attempted suicide had significantly more favorable attitudes toward suicide than did those without a prior suicide attempt. In the context of the inverse association between attitudes toward suicide and age in our results, the positive association between attitudes toward suicide and prior suicide history suggests that older people at high risk for suicide would be more reluctant to seek help than would younger people. If elderly individuals have suicidal ideation or plan to commit suicide, the unfavorable attitudes toward suicide among people in the elderly community may render at-risk individuals reluctant to discuss their suicidality. Interestingly, moral attitudes had the strongest association with age. The items included in the morality subscale address moral objections to suicide, such as shame related to suicide and suicide as an evil act not to be condoned. Thus, as discussed above, the huge attitudinal differences between the general public and those at risk for suicide, particularly in terms of the morality of suicide, may contribute to increased suicide rates. This notion is also consistent with a previous report suggesting that 850 of 1025 (82.9%) members of the Korean general public believed that suicide is a serious ethical crime not to be condoned.<sup>26</sup> That survey was conducted in 2005, a year in which Korea had the highest suicide rate among OECD countries.

The age-specific pattern of unfavorable attitudes toward suicide can be viewed from two different perspectives. First, age-specific stigma and prejudice may be a long-standing characteristic in Korea. For example, a previous study reported that elderly individuals demonstrated more prejudice and discriminated more against those with mental illnesses than did younger people.<sup>27</sup> In contrast, younger people in other countries have been reported to be more prejudiced and to discriminate more against mentally ill individuals.<sup>28</sup> Second, in general, it is more difficult to understand indications of suicidality provided by elderly than by younger individuals.<sup>29</sup> This difficulty may be

reflected in the lower prevalence of mental illness among the elderly than among younger people according to psychological autopsies.<sup>30</sup>

This study has several limitations that should be noted. First, we could not directly analyze whether attitudes toward suicide in the general population were associated with suicide, particularly among the elderly. Second, this study included only a Korean sample, and cross-cultural issues could not be considered. Previous studies have shown wide national and regional variations in attitudes toward mental illnesses.<sup>31</sup> Previous cross-cultural studies using the SOQ have also reported significant cultural differences.<sup>32,33</sup> Since the K-SOQ is a short-version of the 100-items SOQ, it was not possible to directly compare the scores on the SOQ. This is also limitation in our results. Third, various factors, such as personality traits and physical health, are involved in suicide,<sup>3</sup> but this study included only some of the risk factors. Fourth, data on age-specific variables were not collected. As this study aimed to examine differences in attitudes toward suicide across age groups, age-specific stressors or factors that influence suicide may be relevant to our results. For example, the relationship with parents is one of the main contributors to suicidal ideation in adolescents,<sup>34</sup> whereas physical status and loss of relationships play important roles for elderly individuals.<sup>35,36</sup> Fifth, our results could not explain the huge differences between males and females. In Korea, the suicide rate among males (38.4 per 100,000) was twice as high as that among females (18.0 per 100,000).<sup>11</sup> However, the attitudes toward suicide held by males and females differed very little according to our results. The non-significant findings regarding sex difference suggest that attitudes toward suicide may be age dependent, whereas sex-specific suicide rates may be influenced by other factors that we did not address. As age-related suicide risk factors were not a major concern of this study, we were unable to further elucidate this issue.

Despite these limitations, our results have important implications for the development of suicide prevention strategies. Unfavorable attitudes toward suicide among the general population increase in an age-dependent manner, yet the rate of suicide is high among elderly individuals. Although suicide and mental illness have several similarities, they also differ. Some cases of suicide may arise in the context of mental illness, whereas others may involve other factors such as imitation and religious beliefs. Thus, attitudes toward suicide should be considered in the context of many complex factors. Future studies should directly investigate associations between suicide rates and attitudes toward suicide in a group at high risk for suicide. Additionally, it is necessary to carefully consider how to detect at-risk groups at an early stage and to increase access to preventive programs rather than merely increase awareness of the negative aspects of suicide.

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## Conflict of interest

All authors declare that there is no conflict of interests.

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