

A Study based on suicide-related mental health data from Gimhae Middle-aged citizen

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Abstract

The purpose of this study is to identify the current status of middle-aged suicide in Gimhae based on statistical data and to suggest practical measures. Among Gimhae citizens, men were about three times more likely to commit suicide than women. The main causes of suicide by age were mental and psychiatric problems in the 40s and economic life problems in the 50s. The rate of stress perception among middle-aged people in Gimhae was somewhat higher than other age groups, with men reporting higher rates than women. The rate of depression among Gimhae residents was slightly higher than that of Gyeongsangnam-do residents, with more women experiencing depression than men. Among the core indicators of suicide, the number of suicide deaths, depression experience rate, and high-risk drinking rate were higher than those of Gyeongsangnam-do and the nation, and the number of suicide prevention officials was lower. It can be used as a basis for tailoring suicide prevention programs that take into account a variety of factors for middle-aged adults at risk of suicide who are encountered in the community.

Keywords : Suicide, Suicide prevention, Community-led suicide prevention, Injury Surveillance System

I. Introduction

Suicide is one of the most pressing public health issues in South Korean society. According to 2022 statistics, the average suicide rate in the Organization for Economic CO-operation and Development (OECD) member countries is 11.1 (OECD, 2023). South Korea, on the other hand, has the highest suicide rate among OECD countries, with a rate of 24.1 in 2020. In response, the Korean government recognized that suicide is not only an individual problem, but also a national problem, and established the 5th Basic Plan for Suicide Prevention from 2023 to 2027. However, according to the 2023 Suicide Survey, awareness of suicide prevention is still low (Ministry of Health and Welfare, 2023).

When looking at suicide in Korea by age, intentional self-harm (suicide) is the number one cause of death among those aged 10 to 30, and the number two cause of death among those aged 40 to 50, accounting for the largest proportion of deaths among the productive population (Statistics Korea, 2023). In the 60+ age group, intentional self-harm (suicide) is not among the top three leading causes of death, but when looking at the suicide rate by age group, it is the highest among all age groups (Statistics Korea, 2023).

To break this down by the number of suicides, the total number of suicides in 2021 was 13,352. The age

group with the highest number of suicides is the 40 to 50 year olds, who are in middle age. This accounts for about 36%. Midlife is becoming increasingly important in modern society, especially as the number of elderly people increases due to medical advances (Jang & Byun, 2022). Midlife is a time of transition and crisis in the life cycle (Bae, 2022). Midlife is a generation that is facing various life event stresses and crises as they are laying the economic foundation for a stable old age, while at the same time, they are personally experiencing physical and psychological changes due to aging, and are responsible for supporting their parents and raising children (Bae, 2022; Chae & Joung, 2016). In particular, repetitive stress can lead to depression in midlife, which can lead to doubts about one's own existence, which can lead to suicidal thoughts (Chang & cha, 2003). In addition, the social ramifications of suicide in midlife cannot be overlooked, as midlife is the peak of an individual's impact on their family and society (Yoon, 2018).

In order to identify the characteristics of suicide risk groups and their impact on suicide, an understanding of the most relevant risk factors at a particular age is paramount so that appropriate interventions can be made (Jeong, et, al., 2022). Previous studies on suicide in general have shown that men, older age, and chronic medical conditions are associated with higher suicide rates, and depression is closely related to suicidal behavior (Moon, et, al., 2021). However, most of the current studies on suicide-related risk factors in Korea have been conducted on adolescents and the elderly population, and studies on middle-aged people are rare (Kim & Kim, 2020; Jeong, et, al., 2022). In addition, there have been few studies analyzing suicide in specific regions that share the same living area. Although suicide can be thought of as an individual problem, it can have a negative impact on families, neighbors, and society, so it is necessary to examine suicide at the community level (Park, et, al., 2009). Therefore, this study aims to systematically analyze the mental health and suicide status of Gimhae citizens based on the statistical data of the damage monitoring system at the community level in Gimhae City and prepare policies to prevent suicide.

II. Purpose

This study aims to identify the current status of middle-aged suicide in Gimhae based on statistical data and propose practical measures. The specific objectives are as follows.

- 1) Analyze the current status of midlife suicide in Gimhae based on statistical data.
- 2) Analyze the risk factors for midlife suicide.
- 3) Derive suicide prevention measures based on high-risk factors.

III. Methods

1. Study Design

This study is a descriptive research study that identifies the current status of middle-aged suicide in Gimhae based on statistical data and derives high-risk factors.

2. Study Population and Statistical Analysis

The data used in the study were cause of death statistics, death statistics from the Korea National Police Agency, Korea Centers for Disease Control and Prevention's Community Health Statistics, and the regional safety index from the Ministry of the Interior and Safety, and the collected data were analyzed using the IBM SPSS window 27.0 program.

IV. Suicides and Analysis

1. Compare suicide rates in major cities

When looking at the suicide investigation coverage rate in Gimhae and comparable cities nationwide, Yangsan City has the highest rate as of 2022, followed by Gimhae City and Busan Metropolitan City. Looking at the trend of suicide investigation coverage rate since 2018, Gimhae City has shown an increasing trend since 2020 and is higher than Gyeongsangnam-do and the nation <Table 1-1>.

<Table 1-1> Trends in Suicide Survey Mortality Rate in Gimhae City and Comparative Cities in Korea (2018~2022)

(Unit: people/100,000 population, (people))

Regions	2018		2019		2020		2021		2022	
Gimhae	29.4	(156)	28.4	(152)	25.2	(136)	27.3	(147)	28.0	(150)
Changwon	27.5	(289)	26.2	(273)	26.1	(270)	24.3	(250)	23.9	(244)
Yangsan	33.6	(115)	30.7	(107)	29.1	(102)	25.0	(88)	29.4	(104)
Busan	27.9	(952)	30.1	(1,020)	27.4	(921)	27.7	(926)	27.3	(906)
Gyeongsangnam-do	28.9	(971)	28.0	(938)	25.3	(844)	26.3	(872)	26.7	(878)
Average	26.6	(13,670)	26.9	(13,799)	25.7	(13,195)	26.0	(13,352)	25.2	(12,906)

*Source: Statistics Korea, Causes of Death Statistics, 2018~2022

2. Status of middle-aged suicides in Gimhae

1) Suicide Status by Gender and Age

When comparing the suicide mortality rate of Gimhae citizens by gender, men have a rate of 41.8 per 100,000 population and women have a rate of 14.0, which is about three times higher than women. In particular, the suicide rate for men is

higher than that of all age groups, while the suicide rate for women is higher than that of all age groups in their 40s but lower in their 50s <Table 2-1>.

<Table 2-1> Suicide Death Rates for the by Age and Gender (2022)

(Unit: people/100,000 population, (people))

Classification	40s		50s		All ages	
Men	46.7	(22)	43.6	(22)	41.8	(113)
Women	33.5	(16)	62	(3)	140	(37)
Total	40.1	(38)	25.3	(25)	280	(150)

*Source: Statistics Korea, Causes of Death Statistics, 2022

2) Number of Suicides by Cause by Age

When comparing the suicide mortality rate of Gimhae citizens by age, the causes of suicide in the 40s were mental and psychiatric problems, economic life problems, and physical illness. In the 50s, the causes of suicide were economic life problems, physical illness, mental and psychiatric problems, and family problems <Table 2-2>.

<Table 2-2> Comparison of suicides by cause by age (2022)

(Unit: People)

Classification	40s	50s	All ages
1	Mental problems(11)	Financial and life problems(4)	Mental problems(30)
2	Financial and life problems(9)	Physical illness & Mental problems(3)	Financial and life problem(27)
3	Physical illness(2)	Domestic problems(1)	Physical illness(18)

*Source: Statistics Korea, Causes of Death Statistics, 2022

3. Status of middle-aged mental health in Gimhae

1) Stress Perception Rate

In 2022, the perceived stress rate of Gimhae citizens was 25.8%, which decreased year-on-year in 2022, but remained higher than Gyeongsangnam-do. Both Gimhae and Gyeongsangnam-do showed a decreasing trend since 2021 <Table 3-1>. When looking at the trend of stress perception by gender and age among Gimhae citizens, it was found that men were higher than women in both their 40s and 50s <Table 3-2>.

<Table 3-1> Stress Perception Rate Trends (2018 - 2022)

(Unit:%)

Classification	2018	2019	2020	2021	2022
Gimhae	27.6	25.7	27.3	27.4	25.8
Gyeongsangnam-do	23.4	21.6	23.5	22.2	20.7

*Source : Korea Centers for Disease Control and Prevention's Community Health Statistics, 2018-2022

<Table 3-2> Trend of Stress Perception Rate by Gender and Age (2018 - 2022)

(Unit:%)

Classification	40s	50s	All ages
Men	35.6	27.2	23.8
Women	32.2	22.5	27.9
Total	33.9	24.9	25.8

*Source : Korea Centers for Disease Control and Prevention's Community Health Statistics, 2018-2022

2) Depression Experience Rate

In 2022, the overall rate of depression among Gimhae citizens was 8.3%, which showed a significant decrease in 2022 compared to the previous year <Table 3-3>. When separating this by gender and age, it was found that women had a higher rate of depression than men. The rate of depression among those in their 40s was higher than that of those in their 50s <Table 3-4>.

<Table 3-3> Trends in depression experience (2018 ~ 2022)

(Unit:%)

Classification	2018	2019	2020	2021	2022
Gimhae	5.2	7.1	10.0	14.3	8.3
Gyeongsangnam-do	5.4	4.9	6.3	7.4	7.2

*Source : Korea Centers for Disease Control and Prevention's Community Health Statistics, 2018-2022

<Table 3-4> Trends in depression experience by gender and age (2018 ~ 2022)

(Unit:%)

Classification	40s	50s	All ages
Men	7.7	4.1	7.2
Women	12.9	10.3	9.4
Total	10.3	7.1	8.3

*Source : Korea Centers for Disease Control and Prevention's Community Health Statistics, 2018-2022

4. Analysis of the Suicide Regional Safety Index of the Ministry of the Interior and Safety

1) Analysis of Core Suicide Indices

Looking at the status of the core indicators of the Gimhae Suicide Safety Index in 2023, the number of suicide deaths (Harmful indicator) was 2.71, which is higher than the Gyeongsangnam-do average and the national average. The depression experience rate (Vulnerability indicator) was 8.30, which was higher than the average in Gyeongsangnam-do and the national average. The number of suicide prevention officials (Mitigating indicator) was 0.007, which was lower than the Gyeongsangnam-do average and the national average, and the high-risk drinking rate (Awareness indicator) was 18.3, which was higher than the Gyeongsangnam-do average and the national average <Table 4-1>.

<Table 4-1> Core Indices for the Suicide Safety Index (2023)

Index Type	2023 Safety Index				Safety Index	
	Index Name	Conversion Standard	Unit	Index Score	Gyeongsangnam-do	Average
Harmful (-)	<u>Suicide deaths</u>	Per 10,000 people	People	<u>2.71</u>	2.62	2.45
Vulnerable (-)	<u>Elderly living alone</u>	Per 10,000 people	People	279	466	375
	<u>Recipients of the national basic livelihood security system</u>	Per 10,000 people	People	255	282	273
	<u>Depression experience rate</u>		%	<u>8.30</u>	7.20	7.22
Mitigating (+)	Dedicated suicide prevention government workers	Compared to Base Year	People	<u>0.007</u>	0.030	0.022
	Share of social welfare and health expenditures		%	34.3	32.8	35.9
Awareness (±)	Walking rate		%	50.9	44.0	47.0
	<u>High-risk drinking rate</u>		%	<u>18.3</u>	17.6	16.7

Underlined: Indices with low scores

*Source: Ministry of the Interior and Safety Regional Safety Index, 2023

V. Discussion

When comparing the middle-aged suicide death rate of Gimhae citizens by age group, the rate was 40.1 per 100,000 people in the 40s. The middle-aged suicide rate was about 25.3 people in the 50s, compared to about 28 people in all age groups. The middle-aged age group is the largest age group in the population and has unique characteristics and importance in our society

(Kim & Han 2023). It has also been said that middle age is a stressful time as people experience various life event stresses. It is a critical time when people are simultaneously responsible for supporting their parents and raising their children, and are approaching retirement (Chae & Joung, 2016). In addition, the rate of depression increases due to the onset of physical aging and hormonal changes, role changes at work, and the emptiness caused by children's independence, which can lead to suicide (Mun & Moon, 2021). Therefore, midlife suicide is an important social issue and needs to be addressed.

When the suicide rate of Gimhae citizens was divided by gender, it was found that the suicide rate of middle-aged men was higher than the suicide rate of men in all age groups. In addition, the suicide rate of middle-aged women was about 2.4 times higher than the suicide rate of all women in their 40s, and lower than the suicide rate of all women in their 50s. When compared by gender, the difference in suicide rates between men and women in their 40s is about 1.4 times, while the difference in suicide rates between men and women in their 50s is about 7 times. Middle age is a critical period in human development where men and women differ significantly.

Middle-aged men experience changes in their social status at work, such as early retirement, job loss, and lack of promotion, while simultaneously experiencing the pressure to earn money to support a family (Seo, Youngsook, & Chu-Young, 2019). It is known that middle-aged men tend to hold in their feelings without expressing them to others, are less receptive to outside help, and often turn to substances such as alcohol or tobacco to cope with stressful situations (Baek, et. al., 2014). Furthermore, when men do attempt suicide, they tend to choose a more lethal form of suicide than women, resulting in a higher suicide rate (Kim, et. al., 2013). Given these characteristics, it is necessary to periodically conduct psychological and psychiatric screening tests to prevent suicide in order to reduce the suicide rate among middle-aged men. In addition, it is necessary to provide active welfare services when there is a change in social status or economic situation, and to conduct suicidal ideation and depression screening when providing these services. Active screening on a regular basis can prevent people from attempting suicide as a lethal form of suicide.

Middle-aged women have been shown to experience a variety of physical and psychological problems due to physiological changes caused by menopause (Yoon, 2018). As a result of these problems, they experience negative emotions such as feelings of worthlessness, loneliness, and failure, leading to psychological crises such as depression (Um & Jung, 2014). Therefore, in order to reduce the suicide rate among middle-aged women, it is necessary to create a community where middle-aged women can exchange negative emotions with others in the same age group so that their psychological crises can be resolved. In addition, it has been found that middle-aged women often complain of somatization symptoms due to unresolved psychological crises. Therefore, it is necessary to make psychiatric checkups for suicidal thoughts and depression mandatory in addition to physical checkups, and to select high-risk groups and conduct regular monitoring systems.

When looking at the causes of suicide by age, those in their 40s reported mental and psychiatric problems, economic life problems, and physical illness, while those in their 50s reported economic life problems, physical illness, mental and psychiatric problems, and family problems. The 40s is the age when full-blown aging begins, and many women experience menopause, a

period of physical and psychological changes caused by menopause. Given that depression is the most common symptom among adults experiencing menopause, the highest rate of mental and psychiatric problems may be supported (Park, et, al., 2017). In the 50s, the highest suicide factor was financial life problems, which is likely due to the need for financial support as this is the time when people in their 50s are caring for their elderly parents and helping their children become independent. Suicide is influenced by social structures beyond the individual. Therefore, it is necessary to manage individual life stress events, but regular mental health screenings should also be considered in light of family life stress events.

The rate of depression among Gimhae residents is higher than that of Gyeongsangnam-do residents. When looking at this by gender, the rate of depression among middle-aged women was higher than that of men. By age, those in their 40s had a higher rate than those in their 50s. Comparing this to the all-age depression rate, the 50s are lower than the all-age rate, but the 40s are higher. This suggests that women and those in their 40s are more likely to experience depression. It has been shown that 15% of people with depression have a history of suicide attempts, and more than 50% of people who die by suicide have a major depressive disorder (Mun & Moon, 2021). This suggests that suicide and depression are closely related. Factors that affect depression in midlife include financial problems, social changes such as job loss or retirement, separation from loved ones, and physical illness (World Health Organization, 2017). In addition, subjective health status, stress, anxiety, depression, and quality of life have been shown to influence suicidal ideation (Bang, 2021). In light of this, it is necessary to examine the life stress factors that middle-aged people often experience and implement interventions to reduce stress accordingly.

Looking at the status of the core indicators of the Gimhae Suicide Safety Index in 2023, the number of suicide deaths was higher than the average of Gyeongsangnam-do and the national average as a risk indicator. The depression experience rate is a vulnerability indicator, which is higher than the average of Gyeongsangnam-do and the national average, and the number of suicide prevention specialists, which is a mitigation indicator, is lower than the average of Gyeongsangnam-do and the national average. The rate of high-risk drinking, an indicator of awareness, was higher than the Gyeongsangnam-do and national averages. Alcohol consumption has been shown to have a strong correlation with suicide rates, as it impairs judgment and increases impulsivity and lethality in suicidal ideation and attempts (Conner & Duberstein, 2004). Therefore, it is essential to reduce the rate of high-risk drinking in order to reduce the suicide rate of Gimhae citizens, and it is also necessary to increase the number of suicide prevention specialists, which is a protective factor, so that they can respond quickly to suicide cases and suicide prevention.

VI. Conclusion

This study was conducted to identify the current status of middle-aged suicides in Gimhae based on statistics from the damage monitoring system and to suggest practical measures. First of all, the suicide rate was high when the gender was male, and the suicide rate was higher in the age group of 40s. The 40s age group committed suicide due to mental and psychiatric problems, while the 50s age group committed suicide due to economic life problems. The stress perception rate of Gimhae citizens was higher than the average in Gyeongsangnam-do, especially among men in their 40s. This was consistent with the high suicide rate

ate among men in their 40s. The rate of depression experience was also higher than the average in Gyeongsangnam-do. When analyzing the core indicators of suicide, the number of suicide deaths, depression experience, and high-risk drinking rates were higher than other cities, but the number of suicide prevention officials was low.

The significance of this study is that it examined community-wide suicide risk factors based on community statistics. The results of this study can be used as a basis for providing customized suicide prevention programs that take into account various factors to middle-aged adults at risk of suicide in the community. It is also expected to raise awareness that suicide is not an individual problem, but a community and national problem that needs to be solved together, and that community-level prevention is necessary.

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