

# The Relationship Between the Economic Status and Suicidal Behavior of Rural Elderly Population: Focused on the mediating effects of depression

Jeong Min Choi

Department of Social Welfare, Mokpo National University, Muangun, Republic of Korea  
jmchoi1225@mokpo.ac.kr

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## Abstract

The purpose of this study is to examine the mediating effect of depression in the relationship between the economic status and suicidal behavior of rural elderly individuals. To achieve the purpose of the research, the raw data from the Elderly Welfare Center Survey Report conducted at Jindo-gun county Elderly Welfare Center was used. The subject of the investigation is 1,088 elderly residents of Jindo-gun county, and the data collection period was from July to November 2019. The data analysis was conducted using SPSS version 27.0. The research findings revealed a partial mediating effect of depression in the relationship between the economic status and suicidal behavior of rural elderly individuals. Based on these findings, practical and policy recommendations have been proposed to reduce suicidal behavior among rural elderly individuals.

## Keywords

Rural Elderly Population, Economic Status, Suicidal Behavior, Depression

## 1. Introduction

Analyzing the current world population reveals a growing proportion of elderly populations. Among OECD countries, especially in South Korea, the elderly population is projected to rise from 29th place in 2020 to 1st place by 2048, indicating that the aging of the population is prominent (Korea Economic Research Institute, 2021).

Such population aging is causing several negative issues in Korean society. Among them, the most critical issue is the suicide of the elderly. The seriousness of suicide goes beyond personal unhappiness and results in various losses (Gvion & Apter, 2012). According to Lim (2016), applying labor force participation rates to suicide, the economic cost of suicide

deaths and suicide attempts was reported to be approximately KRW 8.3 trillion. Furthermore, according to Seoul National University Hospital (2016), family members of suicide victims experience social stigma, leading to interpersonal avoidance and disconnection from neighbors, which increases suicidal thoughts and the likelihood of suicide.

Considering the negative impacts of suicide, the Korean government and the academia have been implementing various interventions to properly address the issue of elderly suicide. The Central Suicide Prevention Center, established by the government, is involved in initiatives such as 'building a suicide prevention network' and 'providing consulting for region-specific suicide prevention programs.' Additionally, they operate suicide prevention and mental health welfare centers where various suicide prevention programs are carried out (Ministry of Health and Welfare & Korea Suicide Prevention Center, 2020).

In academia as well, various research activities on elderly suicide are being conducted. However, according to Kwon & Jeon (2017), research on suicide victims is being conducted at a limited level, primarily through psychological autopsies, to gather retrospective information about the suicide victims and understand the causes of suicide. For these reasons, to overcome the limitations of research and properly understand the causes of suicide, it is crucial to focus on suicidal behaviors that precede elderly suicide, such as suicidal ideation, suicide planning, and suicide attempts (Lee, Fung, Tsang, Liu, Huang, He, Zhang, Shen, Nock & Kessler, 2007; Jung & Heo, 2017; National Institute of Mental Health, 2023). Therefore, this study aims to predict the causes of suicide through suicidal behaviors.

The causes of elderly suicide behaviors are diverse, including genetic, biological, environmental risk factors, as well as socio-political factors (Gvion & Apter, 2012). Widely recognized within the Korean academic community, economic status is universally considered to have the most significant impact on the suicidal behavior of elderly individuals. The importance of understanding the relationship between the economic status of the elderly and suicidal behavior lies in its significance as a crucial personal resource for effectively addressing the social issues faced by the elderly, such as illness, unemployment, family dissolution, and other challenges (Wolff, 1998). In fact, the Ministry of Health and Welfare and the Korea Institute for Health and Social Affairs (2017) have also identified economic hardship as the primary cause of elderly suicide behaviors. Previous studies (Raschke, Mohsenpour, Aschentrup, Fischer & Wrona, 2022; Mo & Bae, 2011) also support the significance of the relationship between economic status and suicidal behavior.

In addition to the previous research results indicating a direct relationship between economic status and suicidal behavior, it is important to consider that further analysis is required to understand the context of the relationship. According to Kwon, Kim, and Um (2011), the elderly do not simply choose suicide due to risk factors such as poverty, but they attempt suicide through the "context of experience" caused by these risk factors. Based on the study by Kwon, Kim, and Um (2011), it can be inferred that there may be a third variable in the relationship between economic status and suicidal behavior. Agnew (1998), who proposed a model of suicide approval based on strain theory of suicide, explained that economic issues influence suicidal behavior through a third variable. Here, various concepts related to negative emotion have been introduced as the third variable.

Among the negative emotions proposed by Agnew, the concept of depression is the one of interest in this study. When you experience depression and a decreased interest in work for at least two weeks, it is clinically referred to as major depressive disorder (National Institute of Mental Health, 2021). Social attention, particularly towards depression in the elderly, is essential. This is because elderly people often neglect depression because they do not recognize the symptoms of depression well and do not know how to deal with it properly. According to a study by An, Cho & Lee (2021), the elderly people in rural areas recognized some signs of depression but did not understand exactly the symptoms and how to cope.

In the end, based on Agnew's Model of Suicide Approval, there is a mediating effect of depression in the relationship between the economic status and suicidal behavior of rural elderly individuals. Indeed, in previous studies, significant relationships have been indicated between economic status and depression (Lee, 2011; Oh, 2017), as well as between depression and suicidal behavior (Noh & Cho, 2015; Kwon & Jeon, 2017).

In light of this background, this study aims to analyze the mediating effect of depression in the relationship between the economic status of rural elderly individuals and suicidal behavior. In addition, this study aims to present practical and policy implications of social welfare to manage the suicidal behavior of the elderly in rural areas.

## 2. Theoretical Background

### 2.1. Suicidal Behavior

Suicide is globally recognized as a major problem in public health (Gvion & Apter, 2012). Thus, to cope with suicide problems, the World Health Organization, and the International Association for Suicide Prevention (IASP) designate September 10 as "World Suicide Prevention Day" every year, which urges attention and response to suicide problems.

Korea is also in a serious situation due to the suicide problem. With the enactment of the "Act on the Prevention of Suicide and the Creation of Culture of Respect for Life" in 2011, various efforts are being made in the government and the private sector. Through this act, policies and programs for suicide prevention and life respect are developed, and awareness and social response to suicide prevention are strengthened.

As a result of various efforts, the suicide rate in Korea decreased by 16.1% from 31.7 per 100,000 population in 2011 to 26.6 in 2018 (Ministry of Health and Welfare & Korea Suicide Prevention Center, 2020). However, despite the decrease in the suicide rate in South Korea, elderly suicide remains a very serious issue. Among OECD countries, Korea's elderly suicide rate was 53.3 per 100,000 people as of 2016, far higher than the OECD average of 18.4 (Ministry of Health and Welfare & Korea Suicide Prevention Center, 2020). After all, the issue of suicide remains a significant social challenge, and overcoming it requires more efforts and support.

On the other hand, research related to suicide can be broadly categorized into suicide and suicidal behavior. Suicide refers to the act of voluntarily causing your own death (O'Connor & Nock, 2014). On the other hand, it is a concept that encompasses all precursors to suicidal behavior, including suicidal ideation, suicide plans, and suicide attempts. According to a study analyzing the tendency of suicidal behavior (Jung & Heo, 2017), approximately 32% of the elderly population reported having had suicidal thoughts, 9% had made suicide plans, and 12% had a history of suicide attempts.

Most of the research related to suicide and suicidal behavior primarily focuses on understanding the key issues related to suicidal behavior. This is because it is impossible to meet and study actual suicide victims. Of course, there are a few studies that conduct research on suicide victims through psychological autopsies (Kwon & Jeon, 2017; Cavanagh, Carson, Sharpe & Lawrie, 2003). However, as previously mentioned, these studies are conducted at a limited level to obtain retrospective information about suicide victims and understand the causes of suicide. Due to these limitations, research related to suicide is primarily conducted through suicidal behavior.

In this context, research related to suicide prevention should consider a comprehensive approach, considering suicidal ideation, suicide plans, and suicide attempts to predict and prevent suicide more effectively. Therefore, this study aims to predict elderly suicide through suicidal behavior.

## 2.2 Theoretical Discussion of Suicidal Behavior: Suicide Approval Model

Durkheim analyzed the primary causes of suicide as anomie phenomenon, which refers to a state where individual behavior is not regulated due to the loss of social norms (Mueller, Abrutyn, Pescosolido & Diefendorf, 2021). In other words, anomic suicide occurs when normative constraints related to work or life suddenly disappear, leading to a sense of anomie (Marson & Powell, 2011). Durkheim's theory of anomie was subsequently systematized by the American sociologist Merton (Zhao & Cao, 2010). Merton explained anomie as the product of strain that arises when the cultural goals of society do not align or are absent from agreed-upon institutional means (Merton, 1938; Maguire, Morgan & Reiner, 2012; Hagan, 2011).

Furthermore, Agnew extended Merton's strain theory into the concept of General Strain Theory. Agnew (2008) explained that as presented in Figure 1, the strains individuals experience led to negative experiences and, in the absence of appropriate coping mechanisms, increase the likelihood of engaging in criminal behavior.

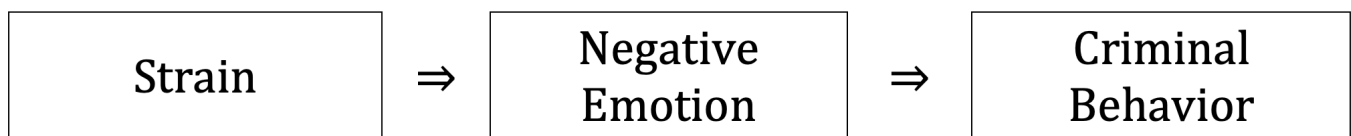


Fig 1. Model of Agnew's General Strain Theory

In this study, based on Agnew's General Strain Theory, the study model was set for the following reasons. Agnew (1998) developed a model of suicide approval to explain individual differences in suicide, suicide attempts, and suicidal ideation. In particular, in the suicide approval model, a model like Figure 2 was established based on strain theory. According to the suicide approval model based on strain theory, when individuals find it difficult to cope with strain through legitimate means, they experience negative emotions. In these situations, individuals have a favorable attitude toward criminal solutions, and suicide is one of them (Agnew, 1998).

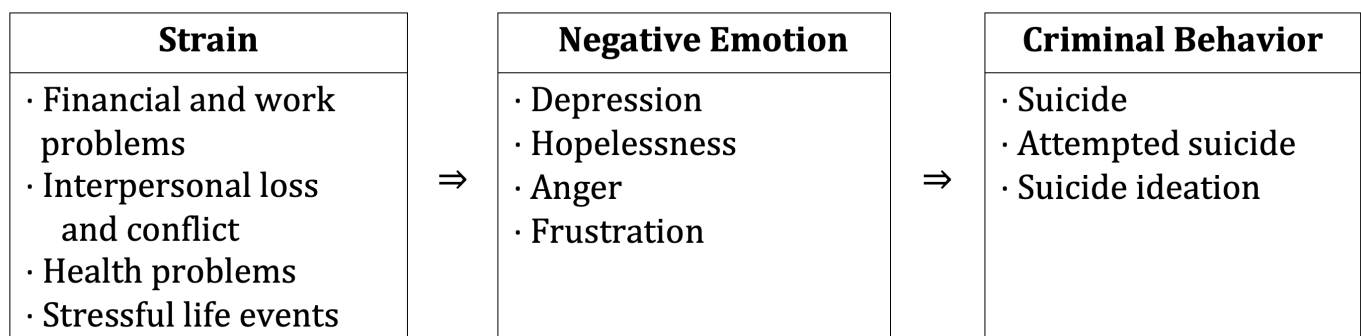


Fig 2. Model of Suicide Approval Based on Agnew's Strain Theory

On the other hand, in this study, economic status and negative emotions, such as depression, are posited as contributing strains that influence suicidal behavior. The primary strain that elderly individuals in South Korea are currently experiencing is economic issues. According to a study by the Ministry of Health and Welfare & Korea Institute for Health and Social Affairs (2017), one of the most important problems facing the elderly in Korea is economic factors. Furthermore, in a study by Zhang (2019) utilizing the General Strain Theory (GST), it was pointed out that economic

issues are a major strain factor. Furthermore, economic status-related strain is associated with an increase in negative emotions such as depression. Previous studies (Jang & Johnson, 2003; Agnew, 1992) suggested depression and anxiety as negative emotions. Furthermore, in 2017, the Ministry of Health and Welfare and the Korea Institute for Health and Social Affairs pointed out that depression, stemming from negative emotions experienced by Korean elderly individuals, is considered the most serious issue.

In other words, this study aims to analyze the relationship between economic status, depression, and suicidal behavior using Agnew's (1998) model of suicide approval based on strain theory of suicide.

### 2.3 Previous Studies

The economic status of Korean elderly individuals is confirmed to be very impoverished. According to the Korea Economic Research Institute (2021), Korea's elderly poverty rate was reported to be 43.4 percent in 2018, significantly higher than the OECD average of 14.8 percent. Furthermore, rural elderly individuals have been found to have poorer economic status compared to their urban counterparts. According to the Ministry of Health and Welfare and the Korea Institute for Health and Social Affairs (2017), it was confirmed that elderly individuals in rural areas had more negative economic indicators compared to their urban counterparts.

Such precarious economic status causes a variety of social problems. A representative social problem is suicide. According to the Ministry of Health and Welfare and the Korea Institute for Health and Social Affairs (2017), 27.7% of the respondents reported that they had thought of suicide due to economic difficulties. Actual previous studies also support a significant relationship between the economic status of the elderly and suicidal behavior. According to the study by Raschke, Mohsenpour, Aschentrup, Fischer & Wrona (2022), unemployment, low income, and economic difficulties were identified as risk factors for suicidal ideation, suicide attempts, and other suicidal behaviors. In the study conducted by Mo & Bae (2011), analyzing data from the 2009 KGSS, it was reported that as economic status becomes more negative, suicidal behavior increases.

On the other hand, depression is a common concept in everyday life. However, in general, depression typically refers to a persistent emotional state characterized by feelings of helplessness and depressed (Kang & Kim, 2014; National Institute of Mental Health, 2021; American Psychiatric Association, 2000). Such depression is experienced at all ages, but the population that is particularly likely to suffer from depression is the elderly. A study by Park & Kim (2011) pointed out that the prevalence rate of major depressive disorder among Korean elderly individuals ranged from 4.6% to 7.5%. It was confirmed that rural elderly individuals experience higher depression compared to urban elderly individuals. In a study by Son (2010) of a total of 2,754 people over the age of 65 reported that 41.8% of the elderly in urban areas have depression, while 48.9% of the elderly in rural areas have depression.

In addition, various genetic, biological, environmental, and psychological factors (National Institute of Mental Health, 2021) are explained in previous studies as to the causes of increasing depression. However, in this study, economic status is being highlighted as a factor that increases depression. This is because, according to Turner (1995), economic factors such as unemployment increase financial strain, leading individuals to perceive themselves negatively and ultimately resulting in increased depression. Previous research also supports the relationship between economic conditions and depression. According to a study by Oh (2017), which analyzed the 2014 Daejeon City Elderly Survey, economic status was indicated to have a significant impact on the depression of elderly individuals. In Lee's (2011) study, based on the analysis of 4,040 respondents aged 65 and older out of a total of 8,688 respondents in the second panel survey, it was confirmed that subjective economic status significantly affects the depression of the elderly.

This is because the strain resulting from economic status leads the elderly to develop negative thoughts about their situation. Furthermore, when negative thoughts persist, it can lead to depression, a cognitive distortion phenomenon, occurs. The elderly are more likely to choose suicidal behavior because depression is accompanied by self-deprecating thoughts and worthlessness (Beck, Rush, Shaw & Emery, 1979; O'Connor & Nock, 2014). Previous research also supports a significant association between depression and suicidal behavior. According to the study by Noh & Cho (2015), there was a significant association between education level, poverty, physical health, mental well-being, depression, and suicidal behavior in the elderly. In particular, it was reported that depression had the greatest effect on suicidal behavior. In the study by Kwon & Jeon (2017), it was also found that individuals in the high-risk group for suicide behavior were significantly affected by depression, life satisfaction, and subjective health perception.

Based on these research findings, it can be inferred that there is a mediating effect of depression in the relationship between the economic status of rural elderly individuals and suicidal behavior.

### 3. Research Method

#### 3.1. Research Model

The purpose of this study is to verify the mediating effect of depression in the relationship between the economic status of rural elderly individuals and suicidal behavior. Based on the results of previous studies, a research model such as Figure 3 was set up.

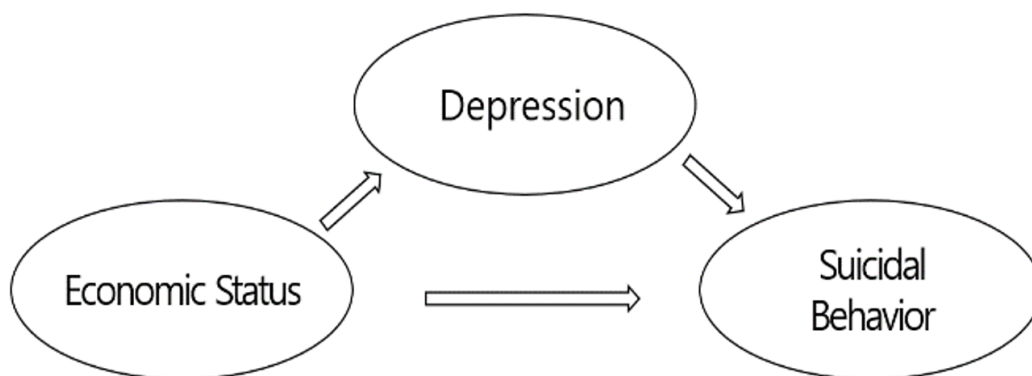


Fig 3. Research Model

#### 3.2. Research Objects and Research Methods

This study used raw-data from a survey report on the Elderly Welfare Center Survey Report conducted by the Elderly Welfare Center in Jindo-gun county, Jeollanam-do province. The subjects of the survey are the elderly aged 60 or older in Jindo-gun county, Jeollanam-do province, and the survey period is from July to November 2019. The survey was conducted directly by the investigator visiting the area. For the actual analysis, the data of 1,088 people were used in the final analysis, excluding the data that were responded insincerely.

And to achieve the research objectives, data analysis was conducted using IBM SPSS Statistics 27.0. In particular, hierarchical regression analysis was used to verify the research hypothesis, and the significance of the mediating effect was assessed using the Sobel-Test.

### 3.3. Measurement Tool

The suicide behavior scale used the SBQ-R (Suicidal Behaviors Questionnaire) developed by Osman, Bagge, Gutierrez, Konick, Kooper & Barrios (2001). The suicide behavior scale consists of 4 items, and a higher score indicates a higher level of suicidal behavior. In this study, the Cronbach's Alpha was reported as 0.819.

The depression scale was used PHQ-9 (Patient Health Questionnaire-9) by Park, Choi, Choi, Kim & Hong (2010). The depression scale consists of nine items. The responses are categorized as follows: No response: 0 points Responded 2-3 days or more: 1 point Responded for 7 days or more: 2 points Almost every day: 3 points. Therefore, a higher score implies a higher level of depression. Cronbach's Alpha in this study was found to be .820.

Economic status was assessed using a subjective economic status scale, ranging from very poor (4) to very good (1), and the scores were reverse-coded. Therefore, higher scores indicate a better subjective economic status.

On the other hand, the control variables of this study are gender, age group, education, and family type variables that influenced suicidal behavior in previous studies. In particular, gender(1=male), education (1=elementary school or higher), and family type(1=the elderly living with the family) were dummy-treated to verify the research hypothesis.

## 4. Research Results

### 4.1. Population Sociological Characteristics

The results of examining the demographic and sociological characteristics of respondents are shown in Table 1. Gender accounted for 85.6% of women, higher than 14.4% of men. In the age group, those in their 80s and older accounted for the highest percentage with 53.6%, followed by 39.1% in their 70s and 7.4% in their 60s. Education was reported to be 49.0% non-academic and 51.0% elementary school or higher. The family type was 53.1% of the elderly living alone and 46.9% of the elderly living with the family.

Table 1. Population Sociological Characteristics (Unit: People, %)

Item		Frequency	Percent	Note
Gender	Female	931	85.6	
	Male	157	14.4	
Age group	60s	80	7.4	Mean(SD) 79.74(6.94)
	70s	425	39.1	
	More than 80s	583	53.6	
Education	non-academic	526	49.0	
	elementary school or higher	547	51.0	
Family type	the elderly living alone	563	53.1	
	the elderly living with the family.	498	46.9	

### 4.2. Descriptive Statistics on Major Research Variables

The results of reviewing the descriptive statistics of major research variables are presented in Table 2. The economic status was confirmed to be 2.79 points (SD.0.54) between 1 and 4 points. Depression was surveyed at 3.27 points (SD.3.90) between 0 and 29 points. Suicidal behavior was reported as 3.58 points (SD.1.78) between 3 and 18 points.



Table 2. Characteristics of the main research variables

Classification	Score Range	Average	Standard Deviation
Economic Status	1- 4 points	2.79	.54
Depression	0 - 29 points	3.27	3.90
Suicidal behavior	3 - 18 points	3.58	1.78

### 4.3. The Mediating Effect of Depression in the Relationship between Economic Status and Suicidal Behavior

The study verified the mediating effect of depression in the relationship between the economic status of elderly individuals in rural areas and suicidal behavior. In particular, the significance of the mediating effect was carried out Sobel-test. In addition, to verify the multicollinearity problem for the regression model, the Variance Inflation Factor in Tables 3 and 4 was reported to be 10 or less. Therefore, it can be estimated that no serious multicollinearity problems are found in this regression model.

#### 4.3.1. The Impact of Economic Status on Depression

The results of the analysis of the impact of economic status on depression are presented in Table 3. In <Model I>, population sociological characteristics (gender, age, education, family type) were reported to explain the variation of depression by 0%. Secondly, in <Model II>, when the economic status variable was introduced while controlling for demographic characteristics, the explanatory power for depression increased to 8.7% compared to <Model I>. Furthermore, economic status ( $\beta = -.298$ ) was found to have a significant impact on depression. Hence, it can be understood that as economic status improves, depression tends to decrease.

Table 3. Relationship between Economic Status and Depression

Stage	Depression							
	Model I				Model II			
	B	S.E	$\beta$	VIF	B	S.E	$\beta$	VIF
Gender	.086	.377	.008	1.179	-.195	.361	-.018	1.186
Age	-.027	.020	-.047	1.244	-.010	.019	-.018	1.254
Education	-.409	.286	-.052	1.350	-.249	.274	-.032	1.354
Family type	-.313	.264	-.040	1.147	.016	.255	.002	1.167
Economic Status					-2.166	.220	-.298***	1.025
Model Fit	Constant = 5.806 F = 1.108 adj. R <sup>2</sup> = .000				Constant = 10.330 F = 20.319*** adj. R <sup>2</sup> = .087 R <sup>2</sup> -change = .087			

\*\*\*p < .001

Remark) Dummy: Gender (1=male), Education (1=elementary school or higher), Family type (1=the elderly living with the family)

#### 4.3.2. The Influence of Economic Status and Depression on Suicidal Behavior

The results of the analysis of the impact of economic status and depression on suicidal behavior are presented in Table 4. In <Model I>, population sociological characteristics (gender, age, education, family type) were reported to explain the variation of suicidal behavior by 1.1%, and a significant influence of age variation was identified. Secondly, in <Model II>, when the economic status and depression variables were introduced while controlling for demographic characteristics, the explanatory power for suicidal behavior increased to 25.4% compared to <Model I>. Furthermore, economic status ( $\beta$



= -.128), and depression ( $\beta = .441$ ) were found to have significant effects on suicidal behavior. Therefore, it can be understood that as economic status improves and depression decreases, suicidal behavior tends to decrease.

Table 4. Relationship between Economic Status, Depression, and Suicidal Behavior

Stage	Suicidal behavior							
	Model I				Model II			
	B	S.E	$\beta$	VIF	B	S.E	$\beta$	VIF
Gender	.268	.170	.054	1.183	.204	.148	.041	1.191
Age	-.027	.009	-.105**	1.244	-.019	.008	-.072*	1.254
Education	.073	.129	.020	1.350	.183	.113	.051	1.356
Family type	-.154	.120	-.043	1.150	-.034	.105	-.010	1.171
Economic Status					-.420	.095	-.128***	1.125
Depression					.199	.013	.441***	1.101
Model Fit	Constant = 5.729 F = 3.871** adj. R <sup>2</sup> = .011				Constant = 5.451 F = 58.198*** adj. R <sup>2</sup> = .254 R <sup>2</sup> -change = .243			

\*\*p < .01, \*\*\*p < .001

Remark) Dummy: Gender (1=male), Education (1=elementary school or higher), Family type (1=the elderly living with the family)

#### 4.3.3. Significance Verification of Depression Mediating Effects

This study verified the mediating effect of depression in the relationship between economic status and suicidal behavior. As shown in the analysis Figure 4, it was confirmed that depression serves as a partial mediating effect in the relationship between economic status and suicidal behavior.

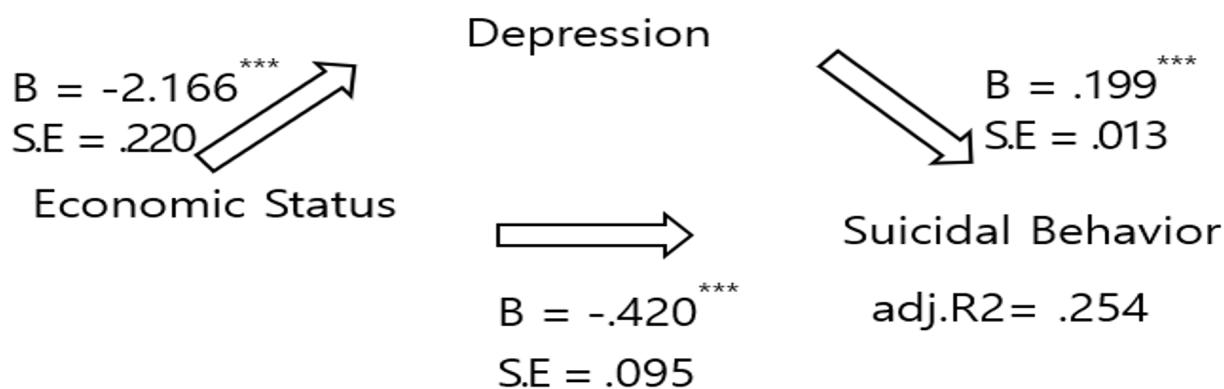


Fig 4. \*\*\*p &lt; .001

The mediating effect of depression in the relationship between economic status and suicidal behavior.

Meanwhile, Sobel's Z verification was performed to verify the mediating effect of the models presented above as presented in Table 5. The path of economic status → depression → suicidal behavior showed statistical significance for the mediating effect at the level of  $Z=8.28$ ,  $P=.000$ .

Table 5. Significance test of mediating effect of depression by Sobel-Test

Route	Z	P
Economic status → Depression → Suicidal behavior	8.28	.000

## 5. Conclusion

This study analyzed the mediating effect of depression in the relationship between the economic status of rural elderly individuals and suicidal behavior. The analysis revealed a partial mediating effect of depression in the relationship between economic status and suicidal behavior. The detailed verification results are as follows.

Firstly, it was confirmed that the economic status of rural elderly individuals significantly affects suicidal behavior. This result is consistent with previous studies (Raschke, Mohsenpour, Aschentrup, Fischer & Wrona, 2022; Mo & Bae, 2011) that have found a significant relationship between economic status and suicidal behavior. As such, Wolff (1998) explained that the impoverished economic status of the elderly increases suicidal behavior because personal economic status serves as a resource to cope with social risks faced by the individual such as unemployment, illness, and family breakdown. In other words, the impoverished economic status of the elderly signifies a lack of resources to cope with social risks. In this context, it can be estimated that the elderly lack economic resources to cope with social risks, resulting in an increase in suicidal behavior.

Therefore, policy intervention is necessary to address the economic status of rural elderly individuals to reduce suicidal behavior. First, it is necessary to consider the payment of basic income for farmers and fishermen operated as a pilot project in Gyeonggi-do province, Korea. Basic income is a social security system that provides a certain amount to residents of rural areas, regardless of income or property. What should be checked here is that the basic income for farmers and fishermen in Gyeonggi-do is paid only when fishing and agricultural activities are carried out. As a result, elderly individuals who are not engaged in economic activities are more likely to be excluded. Therefore, in the case of the elderly in rural areas, the basic income payment standard need to be modified to recognize not only the current but also the past experience of agricultural and fishing activities. Furthermore, South Korea operates the National Basic Livelihood Security System for the impoverished population and the main recipients are the elderly. However, in rural areas, even if elderly individuals may be impoverished, the reality is that they cannot access the National Basic Livelihood Security System if the income and assets of their support obligators exceed a certain threshold. Therefore, it is necessary to consider the enhancement of more proactive policies, such as the abolition of the support obligator system, to ensure that elderly individuals in rural areas who require substantial support do not fall into a welfare blind spot.

Secondly, the mediating effect of depression in the relationship between the economic status of rural elderly individuals and suicidal behavior was confirmed. This result is in line with previous studies (Oh, 2017; Lee, 2011) that have found significant relationships between economic status and depression, as well as between depression and suicidal behavior (Noh & Cho, 2015; Kwon & Jeon, 2017). This is because the strain resulting from economic status leads the elderly to develop negative thoughts about their situation. Furthermore, when negative thoughts persist, it can lead to depression, a cognitive distortion phenomenon, occurs. Depression is accompanied by self-deprecating thoughts and a sense of worthlessness, which may lead to an increased likelihood of elderly individuals choosing suicidal behavior (Beck, Rush, Shaw & Emery, 1979; O'Connor & Nock, 2014).

In other words, various practical interventions are needed to reduce depression among the elderly in rural areas. First, in Korea, depression screening is conducted at community health centers or mental welfare centers. Therefore, elderly people in rural areas should also visit health centers in person and undergo a depression screening test. However, the daily life of rural areas itself is not easy, and there are difficulties in accessing the facility due to the distance or the inconvenience of using transportation. In addition, there are frequent cases in which depression screening tests are not

available for various reasons, such as health problems of the elderly. Therefore, it is necessary to operate an Out-Reach depression screening test program for the elderly in rural areas who have not been screened for depression. In addition, considering that depression is a precursor to suicidal behavior, there is a need for institutional mechanisms to establish connections with relevant organizations such as mental welfare centers and elderly welfare centers in the community when high-risk elderly individuals in rural areas display signs of suicide.

However, this study has the following limitations. First, the subject of this study is limited to the elderly living in Jindo-gun county, Jeollanam-do province, Korea. Therefore, there are limitations in generalizing to elderly individuals in rural areas nationwide. Therefore, in subsequent research, a nationwide survey targeting elderly individuals in rural areas across the entire country is necessary. In addition, this study considered only the depression variable as the third variable. There are various third variations in the relationship between economic conditions and suicidal behavior. Therefore, it is necessary to consider various psychosocial variables as the third variable in future studies.

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