

Original Article

# An Exploratory Study on Self-Esteem and Psychological Well-Being According to Unmet Care in Single-Person Households

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## ABSTRACT

**Objectives:** The purpose of this study is to empirically identify the factors affecting self-esteem and psychological well-being among unmet care recipients in single-person households, with a focus on the interaction between economic and social factors. **Methods:** An online survey was conducted on 410 adults by a professional survey company with the approval of the Institutional Review Board (IRB). The collected data were analyzed using SPSS Statistics 25 through reliability analysis, descriptive statistics, chi-squared test, one-way ANOVA, and multiple regression analysis. **Results:** First, economic insecurity ( $\beta = -0.248$ ) was found to be the most significant negative factor affecting self-esteem, and unemployment also lowered self-esteem. In contrast, social leisure activities ( $\beta = 0.240$ ), frequency of contact with family and friends ( $\beta = 0.161$ ), level of education, and age significantly increased self-esteem. Second, positive psychological well-being was most strongly affected by social and leisure activities ( $\beta = 0.486$ ), and the frequency of contact with family and friends also had a positive effect, whereas economic anxiety ( $\beta = -0.354$ ) reduced positive well-being. Third, economic anxiety ( $\beta = 0.315$ ) was the strongest factor increasing negative well-being, while social leisure activities and frequency of contact with family and friends reduced negative well-being, particularly among women. **Conclusions:** These findings indicate that the psychological state of unmet care recipients is shaped by the complex interaction of economic and social factors. Economic anxiety functions as a key risk factor, whereas social leisure activities and social relationships act as protective factors. This study is significant in that it empirically identifies the multi-dimensional structure of psychological well-being and the interaction between economic and social variables. Future research should verify causal relationships through longitudinal designs and examine differences according to types of social leisure activities, as well as the quality and frequency of social relationships.

**Keywords:** Psychological well-being, Self-esteem, Single-person households, Social leisure activities, Social support, Unmet care

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## 1. Introduction

Amidst rapid demographic changes, Korean society has recently been experiencing a distinct social phenomenon: an increase in single-person households. Statistics Korea reports that single-person households accounted for 36.1% of all households as of 2024, showing a rapid growth trend. With 4 out of 10 households being single-person house-

holds, the number of single-person households has steadily increased since 2015, reaching an all-time high [1]. In particular, as the proportion of single-person households among the middle-aged, elderly, and senior populations gradually increases, new challenges are emerging in various fields—including welfare, health, and psychological stability—rather than simply a change in household structure [2]. The increase in single-person households and the ex-

pansion of unmarried and childless individuals are structurally increasing the number of people without a caregiver when their health deteriorates due to geographical separation from their families. In particular, Korea, which has a strong family-dependent care system among OECD countries, experiences a greater care gap when family functions weaken [3]. Despite the expansion of public care services, Korea still has a structure that relies heavily on family-centered informal care, and a decrease in family resources leads to an increase in unmet care.

Well-aging means not merely living longer, but to sustaining an autonomous and dignified life [4]. The importance of internal personal resources for well-aging is further highlighted, especially in single-person households where family and social support systems are relatively vulnerable. 'Self-esteem' is primarily discussed as one of these internal resources.

Self-esteem, which is an individual's self-evaluation, has a decisive influence on an individual's psychological stability, social adaptation, and quality of life improvement [5]. Self-esteem plays an essential role not only for the elderly but also for middle-aged people in their 40s and 50s, helping them maintain life satisfaction and an independent life [6]. Single-person households are highly likely to experience social isolation or identity confusion, and low self-esteem becomes a factor that hinders well-aging [7].

With the rapid increase in single-person households, self-esteem is receiving attention as a key variable that explains their psychological well-being [8,9]. In particular, unmet care causes social emotional deficits, acting as a major factor that reduces self-esteem due to a decline in self-efficacy [10].

Psychological well-being is a concept that encompasses positive emotions, satisfaction, and the meaning of life experienced by an individual [11]. Being closely related to self-realization, a sense of control over the environment, and a sense of purpose, it is considered a key indicator in the healthy aging process. Among single-person households, especially those receiving unmet care are prone to weakened social networks, which may lead to a decline in psychological well-being. Therefore, it is important to seek well-aging strategies for those receiving unmet care among single-person households by exploring the correlation between self-esteem and psychological well-being.

Previous studies have repeatedly reported that self-esteem has a positive effect on psychological well-being. For example, it has been found that the level of self-esteem among elderly single-person households contributes to an increase in psychological well-being by alleviating depression and loneliness [12]. Also, self-esteem acts as a key psychological resource that promotes well-aging through

self-determination and positive emotion regulation [13].

Previous studies on single-person households have examined the association between social relationships and social isolation using variables such as age, family contact frequency, and social participation [14]. However, these studies have primarily relied on simple frequency measures and have paid limited attention to temporal aspects, such as continuity and regularity.

Therefore, this study aims to structure the relationship between self-esteem and psychological well-being to present practical measures for the well-aging of unmet care recipients among single-person households. Furthermore, it is expected that this will not only strengthen individuals' internal capabilities but also derive integrated support directions at the community and policy levels. It can also provide a theoretical basis for establishment of customized mental health and welfare intervention strategies to improve the quality of life for unmet care recipients living alone.

Accordingly, the purpose of this study is to explore the relationship between self-esteem and psychological well-being, which are key psychological factors for well-aging of unmet care recipients in single-person households, and to provide basic data for the development of educational programs that can improve self-esteem and psychological well-being based on the results. Ultimately, this study seeks to enhance the quality of life for unmet care recipients in single-person households and provide theoretical and practical grounds for integrated welfare support measures at the community level.

## 2. Research Method

### 2.1. Subjects and Methods

This study was conducted in accordance with ethical regulations after obtaining approval from the university's Institutional Review Board (KYU-2025-06-041). Research subjects were recruited through a survey company (Korea Public Opinion Research). Based on the calculation of the sample size required for multiple regression analysis using the G\*Power 3.1.9 program, research subjects were proportionally allocated by age group, and the final number of research subjects, excluding those with uncertain responses, was 410.

The study was conducted as follows: It was confirmed that the research subjects fully understood the purpose of this study, and then prior consent was obtained. After being instructed to respond to the survey, the research participants completed the online questionnaire in a self-reporting manner.

## 2.2. Research Tools

The tool used in this study is the Self-Esteem Scale developed by Rosenberg (1979) [15], with 10 items on a 5-point Likert scale. The response categories were constructed as an interval scale ranging from 'Absolutely yes (5 points)' to 'Absolutely no (1 point).' Among the items, the statements 'I generally feel that I am a failure,' 'I do not have much to be proud of,' 'I wish I could respect myself a little more,' 'I often feel that I am a useless person,' and 'Sometimes I think that I am not a good person' were inversely transformed, and a higher score indicates higher self-esteem. In this study, the reliability was Cronbach's  $\alpha = 0.846$ .

Based on the studies that distinguished psychological well-being into the opposing concept of positive and negative emotions, the study by Cho and Choi (2011) [16] was referenced in order to reconstruct psychological well-being into a total of 14 items: 7 items on positive well-being and 7 items on negative well-being. Each item was measured using a 5-point Likert scale, and the response categories were constructed as an interval scale ranging from 'Absolutely yes (5 points)' to 'Absolutely no (1 point),' with higher scores indicating a higher level of the opposing concepts of positive and negative emotions.

In this study, the reliability for positive psychological well-being was Cronbach's  $\alpha = 0.931$ , and for negative psychological well-being, it was Cronbach's  $\alpha = 0.870$ .

The definition of unmet care was analyzed in a dichotomous manner: responses were classified as "Yes" when there are 'no help providers at all' in case of health deterioration, and as "No" when there are help providers 'sometimes', 'occasionally', 'often', or 'always.'

## 2.3. Analysis Method

In this study, Data were analyzed using IBM SPSS Statistics 25.0 (IBM Corp., Armonk, NY, USA).was used to analyze the effects of unmet care on self-esteem and psychological well-being among single-person households. General characteristics were analyzed using frequencies, percentages, chi-squared test. Detailed items regarding self-esteem and psychological well-being based on the frequency of contact with family and friends and social leisure activities among unmet caregivers in single-person households were analyzed using one-way ANOVA, and post-hoc testing was performed using the Duncan test for comparative analysis. Multiple regression analysis was conducted to identify factors affecting the self-esteem and psychological well-being of unmet caregivers.

## 3. Research Result

### 3.1. General Characteristics of the Research Subjects

The research subjects were compared based on whether they received unmet care. As a result, among respondents who answered 'yes' significantly more often regarding unmet care, the highest number was 52 (74.3%) for 'less than once a week' regarding contact with family and friends ( $p < 0.001$ ), 50 (71.4%) for 'feel anxious' regarding economic anxiety ( $p < 0.05$ ), and 47 (67.1%) for 'male' regarding gender.

Among respondents who answered 'No' significantly more frequently regarding unmet care, the 'unmarried' group was the largest in terms of marital status, with 256 individuals (75.3%) ( $p < 0.05$ ). Generally, unmarried individuals often fall under the category of unmet care, but the proportion of those aged 39 or younger in this study is high at 47.4%, indicating that the result of 'No' was derived due to the influence of the young unmarried group. In terms of social leisure activities, 234 people (68.8%) responded 'occasional' ( $p < 0.001$ ). In terms of level of education, 225 people (66.2%) responded 'university (3-4 year) graduate' ( $p < 0.001$ ), while 161 people (47.4%) were '39 years old or younger' ( $p < 0.05$ ) in terms of age group.

These results imply that unmet care is not merely an individual health issue, but a structural problem closely linked to social networks, economic stability, and levels of social participation. In particular, unmet care is significantly higher among groups with limited social contact and economic insecurity, indicating the need for future care policies to be approached based on the formation of social networks and to shift toward a focus on supporting vulnerable groups.

### 3.2. Self-Esteem by Frequency of Contact with Family and Friends in Unmet Care Recipients

There were significant differences in the average scores of unmet care recipients based on the frequency of contact with family and friends regarding self-esteem across groups. The results of post-hoc analysis (Duncan) showed that the group contacting family and friends 'less than once a week' had significantly lower self-esteem compared to the groups contacting '1 to 3 times a week' and 'more than 4 times' ( $p < 0.05$ ).

Among the sub-items regarding self-esteem, the item with a significantly lower score based on the frequency of contact with family and friends was 'I think I am a valuable person just like others' ( $p < 0.05$ ). The results of post-hoc analysis (Duncan) showed that the 'less than once a week' group scored lower than the '1 to 3 times

**Table 1. General characteristics of the research subjects**

Characteristics	Unmet care		Total	p	unit : N(%)
	Yes	No			
Gender					<0.05
Male	47 (67.1)	182 (53.5)	229 (55.9)		
Female	23 (32.9)	158 (46.5)	181 (44.1)		
Age group					<0.05
39 years old or younger	18 (25.7)	161 (47.4)	179 (43.7)		
40~49 years old	11 (15.7)	53 (15.6)	64 (15.6)		
50~59 years old	19 (27.1)	59 (17.4)	78 (19.0)		
60 years old or older	22 (31.4)	67 (19.7)	89 (21.7)		
Level of education					<0.001
High school graduate or lower	34 (48.6)	85 (25.0)	119 (29.0)		
University graduate (3-4 year program)	32 (45.7)	225 (66.2)	257 (62.7)		
Graduate school (Master's, Ph.D.) graduate	4 (5.7)	30 (8.8)	34 (8.3)		
Employment status					0.231
Employed	48 (68.6)	257 (75.6)	305 (74.4)		
Unemployed	22 (31.4)	82 (24.4)	105 (25.6)		
Marital status					<0.05
Unmarried	43 (61.4)	256 (75.3)	299 (72.9)		
Married (Married/Divorced/Widowed)	27 (38.6)	84 (24.7)	111 (27.1)		
Frequency of contact with family/friends					<0.001
Less than once a week	52 (74.3)	87 (25.6)	139 (33.9)		
About 1 to 3 times a week	12 (17.1)	130 (38.2)	142 (34.6)		
More than 4 times a week	6 (8.6)	123 (36.2)	129 (31.5)		
Economic anxiety					<0.05
Not anxious	6 (8.6)	48 (14.1)	54 (13.2)		
Moderate	14 (20.0)	115 (33.8)	129 (31.5)		
Anxious	50 (71.4)	177 (52.1)	227 (55.4)		
Social leisure activities					<0.001
Not at all	25 (35.7)	37 (10.9)	62 (15.1)		
Occasional	41 (58.6)	234 (68.8)	275 (67.1)		
Often	4 (5.7)	69 (20.3)	73 (17.8)		
Total	70 (17.1)	340 (82.9)	410 (100.0)		

p-value calculated by Chi-Squared test.

**Table 2. Self-esteem by frequency of contact with family and friends in unmet care recipients**

Item	Frequency of contact with family/friends			p	Post hoc (Duncan)
	Less than once a week <sup>a</sup> n=52	About 1 to 3 times a week <sup>b</sup> n=12	More than 4 times a week <sup>c</sup> n=6		
Self-esteem					
1. I think I am a valuable person just like others.	2.8 ± 1.16	3.8 ± 0.45	3.3 ± 0.52	<0.05	a<b
2. I think I have a good character.	3.0 ± 1.00	3.6 ± 0.67	3.8 ± 0.75	<0.05	a<c
*3. I generally feel that I am a failure.	3.6 ± 1.05	3.0 ± 0.85	2.8 ± 0.75	0.063	
4. I can do my job well like most other people.	3.3 ± 1.07	3.8 ± 0.87	3.5 ± 0.55	0.353	
*5. I do not have much to be proud of.	3.6 ± 0.96	3.0 ± 0.60	3.7 ± 0.52	0.116	
6. I have a positive attitude toward myself.	2.9 ± 1.02	3.4 ± 1.08	3.2 ± 0.98	0.342	
7. I am generally satisfied with myself.	2.6 ± 0.98	3.5 ± 0.52	3.2 ± 0.75	<0.05	a<b
*8. I wish I could respect myself a little more.	3.3 ± 1.07	3.5 ± 0.52	3.3 ± 1.37	0.781	
*9. I often feel that I am a useless person.	3.4 ± 1.16	2.3 ± 0.62	2.0 ± 1.10	<0.001	a>bc
*10. Sometimes I think that I am not a good person.	3.1 ± 1.07	2.5 ± 0.80	1.7 ± 1.03	<0.05	a>c
Total	2.8 ± 0.65	3.4 ± 0.34	3.4 ± 0.39	<0.05	a<bc

\*: Items 3, 5, 8, 9, and 10 were calculated using inverse transformation.  
p-value calculated by one way ANOVA and post-hoc Analysis is *Duncan*  
Self-esteem (scale1-5) 1: Absolutely no, 2: No, 3: Moderate, 4: Yes, 5: Absolutely yes

a week' group. It was 'I think I have a good character', 'I think I have a good character' ( $p < 0.05$ ). According to the results of post-hoc analysis, 'less than once a week' group scored lower than the 'more than 4 times' group, 'I am generally satisfied with myself' ( $p < 0.05$ ). The results of post-hoc analysis (Duncan) showed that the 'less than once a week' group scored lower than the '1 to 3 times a week' group. Among the detailed items regarding self-esteem, the item with a significantly higher score based on the frequency of contact with family and friends after inverse transformation was 'I often feel that I am a useless person' ( $p < 0.05$ ). The results of post-hoc analysis (Duncan) showed that the group contacting 'less than once a week' had a higher score compared to the groups contacting '1 to 3 times a week' and 'more than 4 times', 'Sometimes I think that I am not a good person' ( $p < 0.05$ ), and that the group contacting 'less than once a week' had a higher score compared to the group contacting 'more than 4 times.'

### 3.3. Self-Esteem by Social Leisure Activities in Unmet Care Recipients

There were significant differences in the average scores of unmet care recipients regarding self-esteem based on social leisure activities across groups. According to the results of post-hoc analysis (Duncan), the group that 'does not engage in social leisure activities at all' had significantly lower self-esteem compared to the groups that 'do it occasionally' and 'do it often' ( $p < 0.001$ ).

Among the sub-items regarding self-esteem, the item with a significantly lower score based on social leisure activities was 'I think I am a valuable person just like others' ( $p < 0.001$ ). According to the results of post-hoc analysis

(Duncan), the group that 'does not engage in social leisure activities at all' had significantly lower self-esteem compared to the groups that 'do it occasionally' and 'do it often', 'I think I have a good character' ( $p < 0.05$ ). Based on the results of post-hoc analysis (Duncan), the group that 'does not engage in activities at all' had significantly lower self-esteem compared to the groups that 'do it occasionally' and 'do it often', 'I have a positive attitude toward myself' ( $p < 0.05$ ). According to the results of post-hoc analysis (Duncan), the group that 'does not engage in activities at all' had significantly lower self-esteem compared to the group that 'does it often', 'I am generally satisfied with myself' ( $p < 0.001$ ), and that the 'not at all' group had significantly lower self-esteem compared to the 'often' group.

Among the sub-items regarding self-esteem, the item with the significantly higher score based on inverse transformation of social leisure activities was 'I generally feel that I am a failure' ( $p < 0.001$ ). The results of post-hoc analysis (Duncan) showed that the 'Not at all' group had significantly higher self-esteem compared to the 'occasional' group. 'I do not have much to be proud of' ( $p < 0.001$ ) was the statement, and the 'Not at all' group had significantly higher self-esteem compared to the 'occasional' and 'often' groups. The statement was 'I often feel that I am a useless person' ( $p < 0.001$ ), and the results of post-hoc analysis (Duncan) showed that the 'Not at all' group had significantly higher self-esteem compared to the 'occasional' group. "Sometimes I think that I am not a good person" ( $p < 0.05$ ), and the 'Not at all' group had significantly higher self-esteem compared to the 'often' group.

Self-esteem was significantly lower when the frequency

**Table 3. Self-esteem by social leisure activities in unmet care recipients**

Item	Social leisure activities			p	Post hoc (Duncan)	
	Not at all <sup>a</sup> n=25	Occasional <sup>b</sup> n=41	Often <sup>c</sup> n=4			
Self-esteem	1. I think I am a valuable person just like others.	2.1 ± 1.05	3.5 ± 0.78	3.5 ± 0.58	<0.001	a<bc
	2. I think I have a good character.	2.7 ± 1.14	3.4 ± 0.78	3.3 ± 0.50	<0.05	a<bc
	*3. I generally feel that I am a failure.	4.1 ± 1.00	3.0 ± 0.87	3.8 ± 0.50	<0.001	a>b
	4. I can do my job well like most other people.	3.3 ± 1.11	3.4 ± 1.00	3.5 ± 0.58	0.912	
	*5. I do not have much to be proud of.	4.0 ± 0.89	3.2 ± 0.77	3.3 ± 0.50	<0.001	a>bc
	6. I have a positive attitude toward myself.	2.7 ± 1.14	3.2 ± 0.92	4.0 ± 0.00	<0.05	a<c
	7. I am generally satisfied with myself.	2.2 ± 0.94	3.1 ± 0.83	3.3 ± 0.50	<0.001	a<c
	*8. I wish I could respect myself a little more.	3.0 ± 1.31	3.5 ± 0.74	3.3 ± 0.96	0.079	
	*9. I often feel that I am a useless person.	3.9 ± 1.17	2.7 ± 1.04	3.0 ± 0.82	<0.001	a>b
	*10. Sometimes I think that I am not a good person.	3.5 ± 1.12	2.6 ± 0.95	2.3 ± 0.96	<0.05	a>c
Total	2.4 ± 0.65	3.2 ± 0.50	3.2 ± 0.22	<0.001	a<bc	

\*: Items 3, 5, 8, 9, and 10 were calculated using inverse transformation.  
p-value calculated by one way ANOVA and post-hoc Analysis is Duncan  
Self-esteem (scale1-5) 1: Absolutely no, 2: No, 3: Moderate, 4: Yes, 5: Absolutely yes

of contact with family and friends was less than once a week. This implies that self-esteem is not merely an internal individual characteristic but a relational concept maintained within social relationships. Furthermore, self-esteem increases significantly from 1 to 3 times a week and is not significantly different from more than 4 times, indicating that securing a certain level of contact is more important than excessive frequency and that maintaining a basic relationship is key.

The analysis of sub-items regarding self-esteem showed that scores increased for items such as "I am a useless person" and "I am not a good person" in the group with low contact frequency, indicating that social isolation leads to a decline in self-worth and the reinforcement of negative self-perceptions, which can be interpreted as a high-risk signal for mental health issues that is highly likely to result in depression, lethargy, and self-deprecation.

### 3.4. Psychological Well-Being by Family and Friend Contact Frequency in Unmet Care Recipients

Psychological well-being was classified into positive and negative well-being and analyzed, and the results are as follows:

The analysis of the average scores of unmet care recipients based on positive well-being regarding the frequency of contact with family and friends showed significant differences between groups ( $p < 0.05$ ). The results of post-hoc analysis (Duncan) showed that positive well-being was lower in the group contacting family and friends 'less than once a week' compared to the group contacting them '1 to 3 times a week.' Among the sub-items of positive well-being, the item with a significantly lower score based on the frequency of contact with family and friends was 'I find life interesting' ( $p < 0.05$ ).

The results of post-hoc analysis (Duncan) are as follows: The group contacting family and friends 'less than once a week' had a lower score compared to the group contacting them '1-3 times a week' and the statement was 'I am satisfied with my life'; the group contacting family and friends 'less than once a week' had a lower score compared to the group contacting them '1-3 times a week' and the statement was 'I have something particularly fun and interesting in my life' ( $p < 0.05$ ); the group contacting family and friends 'less than once a week' had a lower score compared to the group contacting them '1-3 times a week' and the statement was 'I feel a sense of fulfillment in life' ( $p < 0.05$ ); the group contacting family and friends 'less than once a week' had a lower rate compared to the group '1 to 3 times a week', and the statement was 'I enjoy my life' ( $p < 0.05$ ); The group that contacted family and friends

'less than once a week' had a lower sense of positive well-being compared to the group that contacted them 1 to 3 times a week, and the statement was "I feel at ease" ( $p < 0.05$ ); The group that contacted family and friends 'less than once a week' had a lower sense of positive well-being compared to the group that contacted them 'more than 4 times a week'.

The analysis of the average scores of unmet care recipients based on negative well-being regarding the frequency of contact with family and friends showed significant differences between groups ( $p < 0.05$ ). The results of post-hoc analysis (Duncan) showed that negative well-being was significantly higher in the group contacting family and friends 'less than once a week' compared to the group contacting them 'more than 4 times a week'.

Among the sub-items of negative well-being, the item that was significantly higher based on the frequency of contact with family and friends was 'I feel that people dislike me' ( $p < 0.001$ ). The results of the post-hoc analysis (Duncan) are as follows: The group contacting family and friends 'less than once a week' had a higher negative sense of well-being compared to the '1-3 times a week' and 'more than 4 times a week' groups, and the statement was 'I feel unable to bring myself to do anything' ( $p < 0.05$ ); The group contacting family and friends 'less than once a week' had a higher negative sense of well-being compared to the group contacting them 'more than 4 times a week,' and the statement was 'I feel quite depressed' ( $p < 0.05$ ); The group contacting family and friends 'less than once a week' had a higher sense of negative well-being compared to the group contacting them 'more times 4 times a week,' and the statement was 'These days, I tend to have trouble sleeping' ( $p < 0.05$ ); The group contacting family and friends 'less than once a week' had a higher level of negative well-being compared to the group contacting them 'more times 4 times a week.'

This indicates that the frequency of contact with family and friends is a key factor significantly affecting both the increase in positive well-being and the decrease in negative well-being. In particular, the 'less than once a week' group showed a worsening pattern characterized by an overall decrease in positive well-being and an increase in negative well-being. This implies that social relationships act as a major protective factor for psychological health beyond mere emotional elements. Furthermore, the result showing a significant increase in positive well-being with a contact frequency of more than 1 to 3 times a week implies that there is a minimum contact standard, rather than simply whether there is contact or not. In other words, it implies the importance of securing a certain level of interaction frequency. This indicates that it is necessary to establish

**Table 4. Psychological well-being by family and friend contact frequency in unmet care recipients**

Item	Frequency of contact with family/ friends			p	Post hoc (Duncan)	
	Less than once a week <sup>a</sup> n=52	About 1 to 3 times a week <sup>b</sup> n=12	More than 4 times a week <sup>c</sup> n=6			
Positive well-being	1. I find life interesting	2.4 ± 0.96	3.2 ± 0.72	2.8 ± 0.98	<0.05	a<b
	2. I am satisfied with my life	2.2 ± 0.80	3.1 ± 0.67	2.7 ± 0.82	<0.05	a<b
	3. I have something particularly fun and interesting in my life	2.3 ± 0.96	3.3 ± 0.87	2.7 ± 1.03	<0.05	a<b
	4. I feel a sense of fulfillment in life	2.3 ± 0.97	3.3 ± 0.75	2.7 ± 0.82	<0.05	a<b
	5. I enjoy my life	2.3 ± 1.05	3.2 ± 0.94	2.8 ± 0.98	<0.05	a<b
	6. Things I plan to do generally go the way I intend.	2.3 ± 1.06	2.3 ± 0.89	2.7 ± 1.03	0.644	
	7. I feel at ease.	2.3 ± 0.82	2.9 ± 0.90	3.0 ± 1.26	<0.05	a<c
Subtotal	2.3 ± 0.80	3.0 ± 0.66	2.8 ± 0.92	<0.05	a<b	
Negative well-being	8. I feel lonely these days.	3.3 ± 1.07	3.2 ± 0.83	3.0 ± 1.10	0.782	
	9. These days, I feel like I don't want to do anything.	3.2 ± 1.07	3.2 ± 0.94	3.0 ± 1.55	0.903	
	10. I feel that people dislike me	3.0 ± 0.90	2.3 ± 0.45	1.5 ± 0.55	<0.001	a>b>c
	11. I feel unable to bring myself to do anything	3.4 ± 1.16	2.7 ± 0.89	2.3 ± 1.21	<0.05	a>c
	12. I feel quite depressed.	3.5 ± 1.09	3.0 ± 0.85	2.3 ± 1.37	<0.05	a>c
	13. These days, I tend to talk less than usual	3.5 ± 1.02	3.4 ± 0.79	2.5 ± 1.38	0.097	
	14. These days, I tend to have trouble sleeping.	3.6 ± 0.95	3.0 ± 0.95	2.7 ± 1.21	<0.05	a>c
Subtotal	3.4 ± 0.75	3.0 ± 0.46	2.5 ± 0.90	<0.05	a>c	

p-value calculated by independent t-test or one way ANOVA and post-hoc Analysis is *Duncan*  
Psychological well-being (scale1-5) 1: Absolutely no, 2: No, 3: Moderate, 4: Yes, 5: Absolutely yes

a specific standard of 'maintaining relationships at least 1 to 3 times a week,' rather than merely maintaining contact when designing policies and interventions to improve the psychological well-being of unmet care recipients.

The analysis of the sub-items of positive well-being showed a close correlation with emotional quality of life, including joy of life, life satisfaction, perception of interesting activities, reward of life, joy of life, and emotional stability, indicating that social relationships play a key role in constructing meaning in life and maintaining identity beyond the mere reduction of loneliness.

The analysis of the sub-items of negative well-being shows that factors such as the perception of rejection from others, helplessness, depression, and sleep problems significantly increase in the 'less than once a week' group with low contact frequency, indicating that social isolation leads to negative cognitive distortion and emotional deterioration, followed by functional decline. Given that the subjects of this study are unmet care recipients, a lack of social relationships may be considered not merely loneliness, but a factor that further exacerbates the care gap.

### 3.5. Psychological Well-Being by Social Leisure Activities in Unmet Care Recipients

The analysis of the average scores of unmet care recipients regarding positive well-being based on social leisure activities showed significant differences between groups

( $p < 0.001$ ). The results of post-hoc analysis (Duncan) showed that the group that 'does not engage in social leisure activities at all' had a lower sense of positive well-being compared to the groups that 'do it occasionally' and 'do it often'.

Among the detailed items of positive well-being, the item that was significantly lower according to social leisure activities was 'I find life interesting' ( $p < 0.001$ ). The results of the post-hoc analysis (Duncan) are as follows: The 'not at all' group had a lower positive well-being compared to the 'occasional' and 'often' groups, and the statement was 'I am satisfied with my life' ( $p < 0.001$ ); the 'not at all' group had a lower positive well-being compared to the 'often' group, and the statement was 'I have something particularly fun and interesting in my life' ( $p < 0.05$ ); the 'not at all' group had a lower positive well-being compared to the 'occasional' group, and the statement was 'I feel a sense of fulfillment in life' ( $p < 0.05$ ); the 'not at all' group had a lower positive well-being compared to the 'occasional' and 'often' groups, and the statement was 'I enjoy my life' ( $p < 0.05$ ); The 'not at all' group had a lower sense of positive well-being compared to the 'occasional' and 'often' groups, and the statement was 'I feel at ease.' ( $p < 0.05$ ); the 'not at all' group had a lower sense of positive well-being compared to the 'occasional' and 'often' groups.

The analysis of the average scores of unmet care recipients regarding negative well-being based on social leisure

Table 5. Psychological well-being by social leisure activities in unmet care recipients

Item	Social leisure activities			p	Post hoc (Duncan)	
	Not at all <sup>a</sup> n=25	Occasional <sup>b</sup> n=41	Often <sup>c</sup> n=4			
Positive well-being	1. I find life interesting	1.9 ± 0.86	2.9 ± 0.82	3.0 ± 0.82	<0.001	a<bc
	2. I am satisfied with my life	1.9 ± 0.83	2.7 ± 0.72	2.8 ± 0.50	<0.001	a<c
	3. I have something particularly fun and interesting in my life	1.8 ± 0.85	2.9 ± 0.91	2.5 ± 0.58	<0.001	a<b
	4. I feel a sense of fulfillment in life	1.9 ± 0.95	2.8 ± 0.80	3.3 ± 0.96	<0.001	a<bc
	5. I enjoy my life	1.8 ± 1.00	2.8 ± 0.92	3.3 ± 0.96	<0.001	a<bc
	6. Things I plan to do generally go the way I intend.	1.6 ± 0.76	2.7 ± 0.96	2.5 ± 1.29	<0.001	a<bc
	7. I feel at ease.	1.9 ± 0.91	2.8 ± 0.80	2.8 ± 0.50	<0.05	a<bc
Subtotal	1.8 ± 0.78	2.8 ± 0.64	2.9 ± 0.63	<0.001	a<bc	
Negative well-being	8. I feel lonely these days.	3.4 ± 1.29	3.2 ± 0.89	3.0 ± 0.00	0.610	
	9. These days, I feel like I don't want to do anything.	3.4 ± 1.29	3.1 ± 0.97	3.0 ± 0.82	0.601	
	10. I feel that people dislike me	2.9 ± 1.04	2.6 ± 0.89	2.5 ± 0.58	0.430	
	11. I feel unable to bring myself to do anything	3.6 ± 1.26	2.9 ± 1.04	2.8 ± 0.96	<0.05	a>c
	12. I feel quite depressed.	3.9 ± 1.04	3.0 ± 1.06	3.3 ± 0.96	0.091	
	13. These days, I tend to talk less than usual	3.8 ± 1.08	3.2 ± 0.97	2.8 ± 0.50	<0.05	a>c
	14. These days, I tend to have trouble sleeping.	3.8 ± 0.99	3.2 ± 1.01	3.5 ± 0.58	0.062	
Subtotal	3.5 ± 0.87	3.0 ± 0.66	3.1 ± 0.27	0.070		

p-value calculated by independent t-test or one way ANOVA and post-hoc Analysis is Duncan  
Psychological well-being (scale1-5) 1: Absolutely no, 2: No, 3: Moderate, 4: Yes, 5: Absolutely yes

activities showed no significant differences between groups. On the other hand, among the detailed items regarding negative well-being, the item with significantly higher negative well-being according to social leisure activities was "I feel unable to bring myself to do anything" ( $p < 0.05$ ). The results of post-hoc analysis (Duncan) showed that the "not at all" group had higher negative well-being than the "often" group, with the statement "These days, I tend to have trouble sleeping." ( $p < 0.05$ ), and that the 'not at all' group had a higher negative sense of well-being compared to the 'often' group.

Given that the group engaging in no social leisure activities at all showed significantly lower levels of positive well-being, what matters more is not how much one participates, but whether one is participating. Furthermore, groups without social leisure activities show characteristics such as 'no fun,' 'decreased satisfaction,' and 'reduced sense of fulfillment,' and the lack of social activity leads to a decline in positive well-being due to a reduction in meaningful experiences caused by a lack of stimulation. There were significant differences in positive well-being related to social leisure activities between groups, but there were no significant differences in negative well-being. These results imply that social leisure activities act strongly on factors that increase positive well-being but act relatively limitedly on factors that decrease negative well-being. Among the detailed items related to negative well-being, the significantly high levels of helplessness and sleep prob-

lems imply that social leisure activities have a more direct impact on behavioral energy and the regulation of daily life rhythms rather than generally lowering depression.

### 3.6. Multiple Regression Analysis of Self-Esteem in Unmet Care Recipients

The results of a multiple regression analysis on the effects of self-esteem as the dependent variable on various independent variables of unmet care recipients showed that the selected independent variables were suitable for explaining the dependent variable, and this regression model was statistically significant ( $F = 22.783$ ,  $p < 0.001$ ). The independent variables included in the model explain self-esteem by approximately 29.9% (Adjusted  $R^2 = 0.299$ ). On the other hand, the Durbin-Watson statistic is 2.020, a value generally close to 2, indicating no problem with the independence of the residuals, and all the Variance Inflation Factors (VIFs) are less than 10, suggesting no problem with multicollinearity.

The results of the significance test for regression coefficients regarding self-esteem showed that the non-standardized coefficient of economic anxiety ( $\beta = -0.248$ ,  $p < 0.001$ ) was the lowest, indicating that higher economic anxiety was significantly associated with the lowest self-esteem and unemployment ( $\beta = -0.140$ ,  $p < 0.05$ ) also significantly lowered self-esteem. Conversely, more active social leisure activities ( $\beta = 0.240$ ,  $p < 0.001$ ), frequent contact

**Table 6. Multiple regression analysis of self-esteem in unmet caregivers**

Item	Non-standardized coefficient		Standardized coefficient	t	p	Collinearity statistics	
	B	Standard error	Beta			Tolerance	VIF
(Constant)	2.577	0.209		12.320	<0.001		
Gender	0.081	0.053	0.065	1.516	0.130	0.925	1.082
Age group	0.077	0.030	0.152	2.587	<0.05	0.498	2.009
Level of education	0.114	0.045	0.106	2.504	<0.05	0.948	1.054
Employment status	-0.140	0.060	-0.100	-2.344	<0.05	0.949	1.054
Marital status	0.085	0.079	0.062	1.072	0.284	0.519	1.928
Economic anxiety	-0.248	0.037	-0.288	-6.761	<0.001	0.944	1.060
Frequency of contact with family/friends	0.161	0.034	0.212	4.801	<0.001	0.879	1.137
Social leisure activities	0.240	0.047	0.224	5.155	<0.001	0.907	1.102

F = 22.783, p < 0.001, R<sup>2</sup> = 0.312, Adjusted R<sup>2</sup> = 0.299, Durbin-Watson = 2.020

p-value calculated by Multiple Regression Analysis

with family and friends ( $\beta = 0.161, p < 0.001$ ), higher education level ( $\beta = 0.114, p < 0.05$ ), and older age ( $\beta = 0.081, p < 0.05$ ) significantly increased self-esteem. In other words, self-esteem can be enhanced most effectively when economic stability is combined with social connections and participation in social activities. To enhance the self-esteem of single-person households receiving unmet care, policies supporting economic stability through income-centered interventions are required, going beyond the resolution of simple income issues such as basic livelihood security and emergency support, as well as caregiving humanities. These measures include customized jobs linked to employment, socially participatory jobs, and re-employment programs for the elderly and middle-aged. Also, to enhance self-esteem, it is necessary to expand community-based clubs, self-help groups, and community care programs through social networks, and to establish a regular monitoring sys-

tem at the local government level to prevent isolation. Rather than simple academic background, it is necessary to provide continuous learning opportunities, such as life-long education and digital education that can improve self-efficacy and problem-solving skills.

### 3.7. Multiple Regression Analysis of Positive Psychological Well-Being of Unmet Care Recipients

The results of a multiple regression analysis of the effects of positive psychological well-being as the dependent variable on various independent variables of unmet care recipients showed that the selected independent variables were suitable for explaining the dependent variable, and this regression model was statistically significant (F = 28.117, p < 0.001). The independent variables included in the

**Table 7. Multiple regression analysis of positive psychological well-being in unmet caregivers**

Item	Non-standardized coefficient		Standardized coefficient	t	p	Collinearity statistics	
	B	Standard error	Beta			Tolerance	VIF
(Constant)	2.076	0.265		7.843	<0.001		
Gender	0.059	0.067	0.036	0.876	0.382	0.925	1.082
Age group	0.038	0.038	0.058	1.017	0.310	0.498	2.009
Level of education	0.085	0.057	0.060	1.472	0.142	0.948	1.054
Employment status	-0.054	0.076	-0.029	-0.708	0.479	0.949	1.054
Marital status	0.055	0.100	0.030	0.543	0.588	0.519	1.928
Economic anxiety	-0.354	0.046	-0.314	-7.621	<0.001	0.944	1.060
Frequency of contact with family/ friends	0.193	0.042	0.194	4.551	<0.001	0.879	1.137
Social leisure activities	0.485	0.059	0.346	8.244	<0.001	0.907	1.102

F = 28.117, p < 0.001, R<sup>2</sup> = 0.359, Adjusted R<sup>2</sup> = 0.347, Durbin-Watson = 1.924

p-value calculated by Multiple Regression Analysis

model explain positive psychological well-being by approximately 34.7% (Adjusted  $R^2 = 0.347$ ). On the other hand, the Durbin-Watson statistic was 1.924, a value generally close to 2, indicating that there are no problems with the independence of the residuals, and all the Variance Inflation Factors (VIFs) were less than 10, indicating that there are no problems with multicollinearity.

The results of the significance test for regression coefficients regarding positive psychological well-being showed that the non-standardized coefficient for social leisure activities ( $\beta = 0.486$ ,  $p < 0.001$ ) was the highest, indicating that active social leisure activities were the most significant factor in increasing positive well-being. Furthermore, the higher the frequency of contact with family and friends ( $\beta = 0.193$ ,  $p < 0.001$ ), the more significantly positive psychological well-being increased. On the other hand, the non-standardized coefficient for economic anxiety ( $\beta = -0.354$ ,  $p < 0.001$ ) was the lowest, indicating that higher economic anxiety was a significant factor in decreasing positive psychological well-being. To enhance the positive psychological well-being of unmet care recipients, support at the local and national policy development levels is required to develop and apply education and programs so that unmet care recipients in care blind spots can actively engage in social leisure activities.

### 3.8. Multiple Regression Analysis of Negative Psychological Well-Being of Unmet Care Recipients

The results of a multiple regression analysis of the effects

of various independent variables on unmet care recipients with negative psychological well-being as the dependent variable showed that the selected independent variables were suitable for explaining the dependent variable, and this regression model was statistically significant ( $F = 13.949$ ,  $p < 0.001$ ). The independent variables included in the model explain negative psychological well-being by approximately 20.2% (Adjusted  $R^2 = 0.202$ ). On the other hand, the Durbin-Watson statistic was 2.055, a value generally close to 2, indicating that there were no problems with the independence of the residuals, and all the Variance Inflation Factors (VIFs) were less than 10, indicating that there were no problems with multicollinearity.

The results of the significance test for regression coefficients regarding negative psychological well-being showed that the non-standardized coefficient of economic anxiety ( $\beta = 0.315$ ,  $p < 0.001$ ) was the highest, indicating that higher economic anxiety is the factor increasing negative psychological well-being most significantly. In addition, active social leisure activities ( $\beta = -0.225$ ,  $p < 0.001$ ), frequent contact with family and friends ( $\beta = -0.136$ ,  $p < 0.05$ ), and being female ( $\beta = -0.213$ ,  $p < 0.05$ ) were factors that significantly reduced negative psychological well-being. In order to increase the perceived level of welfare for unmet care recipients who have the highest level of economic anxiety, the most effective policy is to provide practical economic stability to unmet care recipients who feel economically isolated by increasing access to emergency living support stabilization funds, which can alleviate psychological and economic anxiety beyond simple welfare benefits.

**Table 8. Multiple regression analysis of negative psychological well-being in unmet caregivers**

Item	Non-standardized coefficient		Standardized coefficient	t	p	Collinearity statistics	
	B	Standard error				Beta	Tolerance
(Constant)	3.345	0.287		11.662	<0.001		
Gender	-0.213	0.073	-0.134	-2.915	<0.05	0.925	1.082
Age group	-0.079	0.041	-0.121	-1.926	0.055	0.498	2.009
Level of education	-0.075	0.062	-0.055	-1.205	0.229	0.948	1.054
Employment status	0.047	0.082	0.026	0.576	0.565	0.949	1.054
Martial status	0.011	0.109	0.006	0.103	0.918	0.519	1.928
Economic anxiety	0.315	0.050	0.285	6.259	<0.001	0.944	1.060
Frequency of contact with family/ friends	-0.136	0.046	-0.139	-2.951	<0.05	0.879	1.137
Social leisure activities	-0.225	0.064	-0.164	-3.527	<0.001	0.907	1.102

$F = 13.949$ ,  $p < 0.001$ ,  $R^2 = 0.218$ , Adjusted  $R^2 = 0.202$ , Durbin-Watson = 2.055

p-value calculated by Multiple Regression Analysis

## 4. Summary and Suggestions

To explore the impact of unmet care on self-esteem and psychological well-being in single-person households, an online survey was conducted through a professional survey company with approval from the Institutional Review Board (IRB).

This study identified the factors affecting self-esteem, positive psychological well-being, and negative psychological well-being mainly for unmet care recipients, through multiple regression analysis.

First, the analysis of self-esteem showed that the model was statistically significant (Adjusted  $R^2 = 0.299$ ), showing an explanatory power of approximately 29.9%. Among the major influencing factors, economic anxiety ( $\beta = -0.248$ ) was found to be the most significant negative factor, and unemployment also decreased self-esteem. Conversely, social leisure activities ( $\beta = 0.240$ ), frequency of contact with family and friends ( $\beta = 0.161$ ), education level, and age were found to be the factors that significantly increased self-esteem.

Second, the analysis of positive psychological well-being revealed that the model was statistically significant (Adjusted  $R^2 = 0.347$ ) and showed an explanatory power of approximately 34.7%. In particular, social leisure activities ( $\beta = 0.486$ ) were found to be the most powerful influencing factor, and the frequency of contact with family and friends also had a positive effect. Conversely, economic anxiety ( $\beta = -0.354$ ) was a major factor that reduces positive well-being.

Third, the analysis of negative psychological well-being revealed that the model was statistically significant (Adjusted  $R^2 = 0.202$ ), showing an explanatory power of approximately 20.2%. Economic anxiety ( $\beta = 0.315$ ) was the strongest factor increasing negative well-being, while social leisure activities, frequency of contact with family and friends, and factors decreasing negative well-being in the case of women.

In summary, the psychological state of unmet care recipients is explained by the complex interaction of economic and social factors. Especially economic anxiety was found to be a core risk factor across all sectors, while social leisure activities and social relationships function as protective factors.

In this study, economic anxiety was found to be the strongest factor in decreasing self-esteem and positive well-being, while increasing negative well-being. This means that economic stability is a core foundation for an individual's psychological well-being. Rather than merely providing livelihood benefits, therefore, income-based stability policies are required, such as expansion of emergency

livelihood stabilization fund support, customized job placement, and strengthening of re-employment programs for middle-aged and elderly people. This is consistent with research findings reporting that socioeconomic status has a significant impact on health and psychological well-being [17].

It was found that social leisure activities are the most powerful factor in increasing positive well-being. Given that participation itself is important, it is necessary to expand participation-centered programs such as low-burden participatory programs, community-based clubs and self-help groups, and activities linked to community care. This is consistent with research findings reporting that social participation improves life satisfaction and psychological well-being [18].

The frequency of contact with family and friends had a significant effect on improvement in self-esteem and positive well-being and reduction in negative well-being. Therefore, policies to prevent social isolation are needed through the establishment of a regular well-being check system, door-to-door and non-face-to-face relationship programs, and community network-based care systems. Social relationships are reported to be an important factor that affects health and survival rates [19].

The level of education was found to be a significant factor that affects the improvement of self-esteem. This implies that education plays a role in enhancing self-efficacy, problem-solving skills, and social adaptability simply beyond academic attainment. Therefore, it is necessary to provide continuous learning opportunities through life-long education programs, digital competency enhancement training, and real life problem-solving education. This is consistent with research findings reporting that self-efficacy plays an important role in an individual's psychological health [20].

The results of this study show that economic support, social relationships, and social participation should be integrated to resolve the psychological problems of unmet care recipients. Therefore, it is necessary to establish an "economic, social, and psychological integrated care model" away from existing fragmented welfare services.

This study is significant in that it analyzed the multi-dimensional structure of psychological well-being for unmet care recipients and empirically identified the interaction between economic and social factors. In future studies, it is recommended that longitudinal analyses be performed to investigate the effects of different social leisure types and the specific impact of social relationship quality and frequency.

## Author Contribution

Hye-Jeong Hwang: Conceptualization, Formal analysis, Writing-original draft, Supervision.

Sook-Hee Im: Methodology, Validation, Writing – review & editing, Project administration.

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## Conflicts of Interest

The authors declare no conflict of interest.

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