



## **Analysis Of Psychological Factors Associated With Decreased Appetite In The Elderly**

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### **Abstract**

Appetite loss ( anorexia of aging ) is a common condition among older adults and is associated with an increased risk of malnutrition , muscle loss , frailty , reduced quality of life , and higher morbidity and mortality . In addition to biological factors and chronic diseases , psychological conditions such as depression , anxiety , loneliness , psychological stress , and inadequate family support are considered important contributors to appetite decline. To analyze psychological factors associated with appetite loss among community dwelling older adults. A total of 306 older adults were selected using proportionate stratified random sampling. Appetite loss was assessed using the Simplified Nutritional Appetite Questionnaire (SNAQ). Independent variables included depression , anxiety , loneliness , psychological stress , family support , social support , physical activity , nutritional status, chronic diseases , and sleep quality. Appetite loss was identified in 38.9% of participants, anxiety ( $p=0.003$ ), loneliness ( $p=0.001$ ), psychological stress ( $p=0.005$ ), family support ( $p<0.001$ ), physical activity ( $p=0.002$ ), nutritional status ( $p=0.001$ ), and sleep quality ( $p=0.008$ ). Multivariate analysis revealed that depression was the strongest associated factor ( $OR=4.32$ ; 95%  $CI=2.31-8.09$ ), followed by poor family support ( $OR=3.47$ ; 95%  $CI=1.88-6.40$ ) and loneliness ( $OR=2.85$ ; 95%  $CI=1.54-5.28$ ). Psychological factors are significant associated with appetite loss among community dwelling older adults . Depressed , inadequate family support , and loneliness were the most influential Mental health factors screening , strengthening family support , and promoting social engagement is recommended to prevent malnutrition and improve the quality of life of older adults .

**Keywords :** Older Adults ; Appetite Loss ; Depression ; Loneliness ; Family Support

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## 1. Introduction

The increase in the number of elderly people is one of the demographic changes occurring in almost all countries. Advances in health services, improved nutritional status, improved sanitation, and developments in science and technology have increased life expectancy, resulting in a continued increase in the proportion of elderly people each year. According to the World Health Organization (WHO), According to the World Health Organization (WHO) , the number of people aged 60 and over is estimated to reach more than 2.1 billion by 2050, or approximately 22% of the world's total population. The increase in the elderly population is an indicator of successful health development, but also presents new challenges because this age group is more vulnerable to physiological decline, chronic disease, psychological disorders, malnutrition, and a reduced quality of life.

Indonesia is a country that is experiencing an aging process. Population . Based on data from the Central Statistics Agency (BPS) , the proportion of the elderly population continues to increase and has exceeded 10% of the total population. This condition has an impact on the increasing need for comprehensive health services, especially promotive and preventive services aimed at maintaining the health status and independence of the elderly. One health problem often found in the elderly group is decreased appetite ( *anorexia*). of aging ), which is a reduced desire to eat food without deliberate dietary restrictions. This condition often goes unnoticed, but it can cause energy and nutrient deficits that lead to malnutrition, weight loss, sarcopenia , frailty , a weakened immune system, and an increased risk of hospitalization and death.

Decreased appetite in the elderly is a multifactorial problem . Physiological changes due to aging, such as decreased sensitivity to taste and smell, delayed gastric emptying, changes in hormones that regulate hunger, and digestive system disorders, are known to contribute to reduced food intake. Furthermore, chronic diseases such as hypertension, diabetes mellitus, chronic kidney disease, heart failure, chronic obstructive pulmonary disease, and cancer can exacerbate the condition. The use of multiple medications ( *polypharmacy* ) also often causes side effects such as nausea, changes in food taste, or dry mouth, which can impact appetite.

Depression is one of the most common psychological disorders found in older adults. Changes in social roles after retirement, the loss of a spouse, limited activity, chronic illness, and decreased physical function can increase the risk of depression. Physiologically, depression affects the regulation of neurotransmitters such as serotonin and dopamine , which play a role in regulating hunger, resulting in decreased appetite. Various studies have shown that older adults with depression have a higher risk of anorexia, malnutrition, and weight loss compared to older adults without depression.





Anxiety is also associated with changes in eating behavior in older adults. Excessive worry about health, financial problems, or dependence on family can affect stress hormone regulation, reducing appetite. In some older adults, anxiety is also accompanied by sleep disturbances and fatigue, further worsening nutritional status.

Loneliness is a psychosocial problem increasingly experienced by older adults, especially those who live alone or have lost a spouse. *Loneliness* not only impacts mental health but also affects eating behavior. Older adults who feel lonely tend to lose motivation to prepare meals, eat smaller amounts, and have irregular eating patterns. Research shows that eating with family or friends can increase appetite compared to eating alone.

Psychological stress is also a factor that can potentially influence appetite. Activation of the hypothalamic–pituitary–adrenal (HPA) axis due to stress increases the production of the hormone cortisol, which can alter hunger regulation. In older adults, chronic stress is often associated with chronic illness, financial difficulties, the loss of a family member, or changes in social environment. These conditions can gradually reduce food intake and increase the risk of malnutrition.

Several previous studies have examined the relationship between depression and loneliness and the nutritional status of older adults. However, most studies have only assessed one or two psychological factors separately. Furthermore, many studies have focused on nutritional status as the primary outcome, while decreased appetite, an early stage of malnutrition, remains relatively understudied. Research integrating multiple psychological factors such as depression, anxiety, loneliness, psychological stress, family support, and social support into a single analytical model remains limited, particularly in community-dwelling older adults.

The novelty of this study lies in its comprehensive analysis of various psychological factors, including depression, anxiety, loneliness, psychological stress, family support, and social support, in relation to decreased appetite in community-dwelling older adults. Furthermore, this study used multiple logistic regression analysis to identify the most dominant factors after controlling for confounding variables such as physical activity, nutritional status, chronic diseases, and sleep quality. This approach is expected to provide stronger scientific evidence regarding the psychological determinants of decreased appetite in older adults.

The research findings are expected to serve as a basis for healthcare workers, particularly in primary care, in developing mental health screening programs, psychological counseling, family education, and community-based interventions to prevent decreased appetite and malnutrition in the elderly. The findings are also expected to support the achievement of the concept of healthy living, aging, namely maintaining the functional abilities and quality of life of the elderly through a holistic approach, covering physical, psychological and social aspects.





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Based on this description, this study aims to analyze psychological factors related to decreased appetite in the elderly in the community, as well as to identify the most dominant psychological factors after controlling for other factors that have the potential to influence this condition.

## 2. Research Methods

This study used an observational analytical design with a cross-sectional approach. The design was selected because it allows researchers to identify the relationship between psychological factors and decreased appetite among the elderly by measuring the independent and dependent variables simultaneously during a single observation period. This approach is considered efficient for describing the prevalence of decreased appetite and identifying associated factors among the elderly community population. The research was conducted in the working area of a Community Health Center (Puskesmas) in Indonesia that has a large elderly population and actively organizes the Elderly Integrated Health Post (Posyandu Lansia) program. The location was selected based on the high number of elderly residents and accessibility to the target population. The research was conducted from January to May 2026, including instrument preparation, questionnaire trials, data collection, data processing, statistical analysis, and preparation of the research report.

The target population consisted of all elderly people aged  $\geq 60$  years living in the working area of the Community Health Center, while the accessible population consisted of 1,245 elderly people registered in the Posyandu Lansia program. The sample size was calculated using the Lemeshow formula for analytical research with population proportions, assuming a 95% confidence level ( $Z = 1.96$ ), an occurrence proportion of 0.50, and a precision level of 0.05, resulting in a minimum sample size of 278 respondents. To anticipate dropouts or incomplete data, the sample size was increased by approximately 10%, resulting in a final sample of 306 elderly people. Sampling was conducted using proportionate stratified random sampling based on the Posyandu Lansia area. The sampling process involved identifying all Posyandu Lansia in the research area, determining the number of samples proportionally for each Posyandu, compiling a list of eligible elderly people, and selecting respondents using simple random sampling. This technique provides equal opportunities for eligible elderly people to participate and increases the representativeness of the sample. The inclusion criteria were elderly people aged  $\geq 60$  years, residing in the research area for at least one year, able to communicate verbally, without severe hearing loss, and willing to participate by signing informed consent. The exclusion criteria were elderly people experiencing severe cognitive impairment that interfered with the interview process, currently undergoing inpatient treatment, or experiencing an acute condition requiring immediate treatment.





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The dependent variable in this study was decreased appetite among the elderly, while the independent variables included depression, anxiety, loneliness, psychological stress, family support, social support, physical activity, chronic disease, nutritional status, and sleep quality. Decreased appetite was defined as decreased appetite during the previous month and measured using the Simplified Nutritional Appetite Questionnaire (SNAQ). Depression was measured using the Geriatric Depression Scale-15 (GDS-15), anxiety using the Geriatric Anxiety Scale (GAS), loneliness using the UCLA Loneliness Scale, psychological stress using the Perceived Stress Scale (PSS-10), family support using the Family APGAR, social support using the Multidimensional Scale of Perceived Social Support (MSPSS), physical activity using the International Physical Activity Questionnaire-Elderly (IPAQ-E), nutritional status using the Mini Nutritional Assessment (MNA), and sleep quality using the Pittsburgh Sleep Quality Index (PSQI). All variables were measured using ordinal scales according to their respective instruments.

Data were collected using structured questionnaires consisting of respondent characteristics and standardized instruments, including SNAQ, GDS-15, GAS, UCLA Loneliness Scale, PSS-10, Family APGAR, MSPSS, IPAQ-E, MNA, and PSQI. These instruments have been widely used in geriatric research and are reported to have good validity and reliability. Before the main study, an instrument trial was conducted among 30 elderly people outside the research location. Validity was assessed using Corrected Item-Total Correlation, with a calculated  $r$  value greater than the  $r$  table value of 0.361 considered valid, while reliability was assessed using Cronbach's Alpha, with a value of  $\geq 0.70$  considered reliable. Data collection was conducted through face-to-face interviews by trained enumerators. The process included coordination with the Community Health Center and Posyandu Lansia cadres, explanation of the research objectives to respondents, obtaining informed consent, conducting interviews using structured questionnaires, checking data completeness, and verifying the results before data entry.

Data analysis was performed using IBM SPSS Statistics version 27. Univariate analysis was used to describe respondent characteristics and the distribution of each research variable using frequencies, percentages, means, and standard deviations. Bivariate analysis was conducted to examine the relationship between psychological factors and decreased appetite using the Chi-Square test. When cells had an expected count of less than five, Fisher's Exact Test was used. A  $p$ -value  $< 0.05$  was considered statistically significant. Variables with a  $p$ -value  $< 0.25$  in the bivariate analysis were entered into a multiple logistic regression model using the Backward Likelihood Ratio method. The results were presented as Odds Ratios (OR), 95% Confidence Intervals (95% CI), and  $p$ -values to identify the most dominant factors associated with decreased appetite among the elderly. The study received approval from the Health Research Ethics Committee. All respondents were informed about the purpose, benefits, procedures, potential risks, and their right to refuse or





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discontinue participation without consequences. Participation was confirmed through informed consent. Respondent confidentiality was maintained using identity codes, and all data were used solely for research purposes in accordance with the principles of respect for persons, beneficence, non-maleficence, and justice.

### 3. Research Results And Discussion

This study involved 306 elderly people who met the inclusion criteria within the community health center (Puskesmas) working area. All respondents were successfully interviewed, resulting in a 100% response rate. Analysis was conducted to determine the relationship between psychological factors and decreased appetite in the elderly.

#### a. Research result

##### 1) Respondent Characteristics

**Table 1.** Respondent Characteristics (n = 306)

| Characteristics    | n   | %    |
|--------------------|-----|------|
| Age (years)        |     |      |
| 60–69              | 181 | 59.2 |
| 70–79              | 90  | 29.4 |
| ≥80                | 35  | 11.4 |
| Gender             |     |      |
| Man                | 119 | 38.9 |
| Woman              | 187 | 61.1 |
| Education          |     |      |
| No school          | 26  | 8.5  |
| Elementary School  | 116 | 37.9 |
| Junior High School | 73  | 23.9 |
| Senior High School | 63  | 20.6 |
| College            | 28  | 9.1  |
| Marital status     |     |      |
| Marry              | 194 | 63.4 |
| Widow/Widower      | 112 | 36.6 |
| Chronic Disease    |     |      |
| Yes                | 176 | 57.5 |
| No                 | 130 | 42.5 |

Most respondents were in the 60–69 age group (59.2%), indicating that the majority of elderly people are still in the young *-old category*. Respondents were predominantly female (61.1%), reflecting the higher life expectancy of women compared to men. Respondents' education levels were relatively low, with the largest proportion having primary school education (37.9%). More than half of respondents (57.5%) had at least one chronic disease, primarily hypertension, diabetes mellitus, and osteoarthritis.



**Table 2.** Distribution of Psychological Factors and Decreased Appetite (n = 306)

| Variables            | n   | %    |
|----------------------|-----|------|
| Decreased Appetite   |     |      |
| Yes                  | 119 | 38.9 |
| No                   | 187 | 61.1 |
| Depression           |     |      |
| Yes                  | 92  | 30.1 |
| No                   | 214 | 69.9 |
| Anxiety              |     |      |
| Yes                  | 84  | 27.5 |
| No                   | 222 | 72.5 |
| Lonely               |     |      |
| Tall                 | 97  | 31.7 |
| Low                  | 209 | 68.3 |
| Psychological Stress |     |      |
| Tall                 | 88  | 28.8 |
| Low                  | 218 | 71.2 |
| Family Support       |     |      |
| Good                 | 196 | 64.1 |
| Not enough           | 110 | 35.9 |
| Sleep Quality        |     |      |
| Good                 | 171 | 55.9 |
| Bad                  | 135 | 44.1 |

As many as 38.9% of elderly people experienced a decrease in appetite based on measurement results using the Simplified Nutritional Appetite Questionnaire (SNAQ) . Furthermore, nearly a third of respondents experienced depression (30.1%), high levels of loneliness (31.7%), and high levels of psychological stress (28.8%). These conditions indicate that psychological problems are still quite common among older adults in the community and have the potential to impact eating behavior and nutritional status.



**2) Bivariate Analysis****Table 3. Relationship between Psychological Factors and Decreased Appetite**

| Variables              | Decreased Appetite n (%) | No n (%)  | p- value |
|------------------------|--------------------------|-----------|----------|
| Depression             | 59 (64.1)                | 33 (35.9) | <0.001   |
| Anxiety                | 47 (56.0)                | 37 (44.0) | 0.003    |
| High loneliness        | 55 (56.7)                | 42 (43.3) | 0.001    |
| High stress            | 46 (52.3)                | 42 (47.7) | 0.005    |
| Lack of family support | 64 (58.2)                | 46 (41.8) | <0.001   |
| Low physical activity  | 51 (53.7)                | 44 (46.3) | 0.002    |
| Malnutrition status    | 48 (57.8)                | 35 (42.2) | 0.001    |
| Poor sleep quality     | 61 (45.2)                | 74 (54.8) | 0.008    |

Bivariate analysis showed that all psychological factors studied were significantly associated with decreased appetite ( $p < 0.05$ ). Elderly individuals experiencing depression, loneliness, psychological stress, and inadequate family support had a higher proportion of decreased appetite than other groups. These findings indicate that psychological conditions play a significant role in influencing eating behavior in the elderly.

**3) Multivariate Analysis****Table 4. Logistic Regression Analysis of Factors Associated with Decreased Appetite**

| Variables              | OR   | 95% CI    | p- value |
|------------------------|------|-----------|----------|
| Depression             | 4.32 | 2.31–8.09 | <0.001   |
| Lack of family support | 3.47 | 1.88–6.40 | <0.001   |
| High loneliness        | 2.85 | 1.54–5.28 | 0.001    |
| Malnutrition status    | 2.49 | 1.33–4.66 | 0.004    |
| Low physical activity  | 2.28 | 1.24–4.18 | 0.008    |
| Anxiety                | 2.07 | 1.10–3.91 | 0.024    |
| Poor sleep quality     | 1.89 | 1.01–3.53 | 0.046    |

Logistic regression results showed that depression was the most dominant factor associated with decreased appetite in the elderly ( $OR = 4.32$ ;  $p < 0.001$ ). Elderly individuals with depression were approximately 4.3 times more likely to experience decreased appetite than those without depression. Furthermore, insufficient family support, loneliness, poor nutritional status, low physical activity, anxiety, and poor





sleep quality were also significantly associated with decreased appetite after controlling for other variables.

## **b. Discussion**

### **1) The Relationship Between Anxiety and Decreased Appetite in the Elderly**

The study results showed that anxiety was significantly associated with decreased appetite in the elderly ( $p=0.024$ ). Elderly individuals experiencing anxiety were approximately twice as likely to experience decreased appetite as those without anxiety. This suggests that emotional distress not only impacts mental health but also impacts eating behavior and nutritional status. These results are consistent with previous research reporting that anxiety increases the risk of malnutrition through decreased appetite and altered eating behavior. Elderly individuals experiencing anxiety are more likely to skip meals, consume smaller amounts of food, and have irregular eating patterns. Therefore, early detection of anxiety disorders through psychological screening in primary healthcare is a crucial step in preventing malnutrition in the elderly.

### **2) The Relationship Between Loneliness and Decreased Appetite in the Elderly**

Loneliness was one of the psychological factors significantly associated with decreased appetite in this study. Elderly individuals with high levels of loneliness were almost three times more likely to experience decreased appetite than those who did not feel lonely.

Interviews during the study showed that some older adults reported feeling less enjoyable when eating alone. Some respondents admitted to preferring to eat smaller meals because they lacked companionship during meals. This finding supports the theory that eating is influenced not only by biological needs but also by social and emotional factors.

Research in various countries also shows that eating with family members or friends can increase daily energy intake compared to eating alone. Therefore, community-based interventions such as Posyandu Lansia (Lansia Integrated Service Posts), exercise groups, religious studies, and senior clubs have the potential to reduce loneliness and increase appetite.

### **3) The Relationship Between Family Support and Decreased Appetite in the Elderly**

Research results show that family support is one of the most influential factors in reducing appetite in the elderly. Elderly individuals with





insufficient family support are 3.47 times more likely to experience decreased appetite than those with adequate family support.

Family is a primary support system that plays a role in maintaining the physical and psychological health of older adults. This support includes emotional, informational, and rewarding support, as well as instrumental support such as helping prepare meals, reminding them of meal times, accompanying them to meals, and taking them to health check-ups. The presence of family provides a sense of security and appreciation, which increases the motivation of older adults to meet their nutritional needs.

The findings of this study strengthen the concept of *family-centered Care*, namely that the family is an integral part of efforts to maintain the nutritional status and quality of life of the elderly. Therefore, educating family members about the importance of monitoring diet, selecting nutritious menus, and psychosocial support should be part of elderly health services.

#### **4) The Relationship Between Physical Activity and Decreased Appetite in the Elderly**

Physical activity has also been shown to be significantly associated with decreased appetite. Elderly individuals with low physical activity have a higher risk of experiencing decreased appetite than physically active older adults.

Physical activity also provides psychological benefits by increasing the production of endorphins and serotonin, which can improve mood, reduce depression, and enhance social interaction. Thus, physical activity acts as a protective factor against decreased appetite and malnutrition in the elderly.

#### **5) The Relationship Between Nutritional Status and Decreased Appetite in the Elderly**

This study shows that nutritional status is significantly associated with decreased appetite. Elderly individuals with poor nutritional status are more likely to experience decreased appetite than those with normal nutritional status.

This condition is known as *vicious cycle of Malnutrition*, which is a mutually exacerbating cycle of decreased appetite, malnutrition, loss of muscle mass, and decreased functional ability. Therefore, regular monitoring of nutritional status using instruments such as *the Mini Nutritional Scale is essential. Assessment* (MNA) is very important to be carried out at the primary service level.

#### **6) The Relationship Between Sleep Quality and Decreased Appetite in the Elderly**





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Poor sleep quality is also significantly associated with decreased appetite. Sleep disturbances cause an imbalance in the hormones ghrelin and leptin, which regulate hunger and affect energy metabolism. Furthermore, sleep deprivation increases physical fatigue and decreases motivation to engage in activities, including eating.

Sleep disorders in the elderly are often associated with chronic pain, nocturia, depression, and anxiety. Therefore, addressing sleep issues through pharmacological and non-pharmacological approaches is expected to improve psychological well-being and increase appetite.

#### 4. Conclusion And Suggestions

##### a. Conclusion

This study shows that psychological factors are significantly associated with decreased appetite in community-dwelling older adults. Bivariate analysis revealed that depression, anxiety, loneliness, psychological stress, family support, physical activity, nutritional status, and sleep quality were significantly associated with decreased appetite ( $p < 0.05$ ).

Logistic regression analysis identified that depression was the most dominant factor associated with decreased appetite in the elderly (OR=4.32; 95% CI=2.31–8.09), followed by low family support (OR=3.47; 95% CI=1.88–6.40), loneliness (OR=2.85; 95% CI=1.54–5.28), poor nutritional status (OR=2.49; 95% CI=1.33–4.66), low physical activity (OR=2.28; 95% CI=1.24–4.18), anxiety (OR=2.07; 95% CI=1.10–3.91), and poor sleep quality (OR=1.89; 95% CI=1.01–3.53).

These findings indicate that decreased appetite in the elderly is a condition influenced by the interaction of psychological, social, and physical factors. Therefore, preventive efforts should not only focus on meeting nutritional needs but also include early detection of psychological disorders, strengthening family support, increasing physical activity, and optimizing primary health care for the elderly. A multidisciplinary approach is expected to prevent malnutrition, maintain nutritional status, and improve the quality of life of the elderly in accordance with the concept of healthy eating. aging

##### b. Suggestion

The Health Office is expected to strengthen elderly health programs through routine mental health screening and education on psychological well-being, nutritional intake, and malnutrition prevention. Community Health Centers and healthcare workers should conduct regular screening for depression, anxiety, loneliness, nutritional status, and decreased appetite, followed by appropriate intervention and continuous education. Families are encouraged to provide emotional, social, and instrumental support through meal assistance, provision of nutritious food,





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effective communication, and encouragement to participate in social activities. The community should support elderly-friendly activities such as Elderly Integrated Health Posts (Posyandu Lansia), elderly exercise, religious activities, and recreational programs to reduce loneliness and improve quality of life. Future researchers are recommended to use longitudinal or cohort designs and consider other factors such as cognitive function, quality of life, oral health, polypharmacy, and inflammatory biomarkers.

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