
THE RELATIONSHIP BETWEEN STRESS LEVELS AND NUTRITIONAL STATUS IN THE ELDERLY IN BAKI SUKOHARJO HEALTH CENTER

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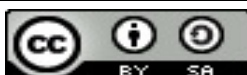
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ABSTRACT

Aging is a natural biological process characterized by deterioration of physical, psychological, and social functions. These changes often cause stress in the elderly, which can negatively impact diet, appetite, and nutritional status. Poor nutritional status can trigger malnutrition, decreased immunity, degenerative diseases, and poor quality of life. This research aims to determine the relationship between stress levels and nutritional status in the elderly at the Baki Sukoharjo Community Health Center. This study uses a quantitative design with a cross-sectional approach. A sample of 64 respondents was selected using purposive sampling. Research instruments include the Perceived Stress Scale (PSS) to assess stress levels and the Mini Nutritional Assessment Short-Form (MNA-SF) to evaluate nutritional status. Data analysis used the Chi-Square test with a significance level of $p < 0.05$. The results showed that most respondents experienced mild stress, as many as 56 people (87.5%), while a small number experienced severe stress. The nutritional status of most respondents was at risk of malnutrition, namely 28 people (43.8%). The Chi-Square test results showed a significant relationship between stress levels and nutritional status in the elderly ($p = 0.003$). The results confirmed that high stress levels increase the risk of nutritional disorders, especially malnutrition. Therefore, effective stress management and education about balanced nutrition through health programs, family support, and community activities are needed to improve the quality of life of the elderly.

KEYWORDS

Elderly, Level of Stress, Nutritional Status, Community Healty Center



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INTRODUCTION

The introductory section mainly contains the reasons for conducting the research which is supported by a literature review (theoretical). The introductory section is expected to contain as many quotes from scientific journals (preferably from national and international journals). To make it easier for the author, technically the author can use this template in full. Authors can customize the entire contents of this template (overwritten) section by section. So, overall it is hoped that the articles submitted are in accordance with the expected guidelines. We recommend deleting as needed to avoid mistakes in other parts. The aging process is a natural stage experienced by every individual and characterized by various physiological, psychological and social changes. As we get older, elderly people tend to experience decreased organ function, metabolism, endurance and mental condition (Esprensa, Handayani, & Yusuf, 2022). These changes can cause various health problems, one of which is stress. Stress in the elderly can arise due to changes in roles in the family, feelings of loneliness, chronic illness, or limited daily activities (Sutioningsih, Astuti, & Lestari, 2019). Stressful conditions experienced by the elderly not only does it affect mental health, but it also impacts diet and nutritional status. Nutritional status is a picture of the balance between nutritional intakes with the body's needs. Elderly people who experience stress often show irregular eating, reduced appetite, or even overeating. This can cause nutritional status to be deficient or vice versa excessive. Undernutrition can cause physical weakness, susceptibility to infection, and decreased quality of life, while overnutrition can trigger degenerative diseases such as diabetes, hypertension, or heart problems (Damayanti, Hidayat, & Utami, 2020; Fariqi, 2021).

The World Health Organization (2020) notes that more than 50% of elderly people in the world there is a risk of experiencing malnutrition due to psychological factors, including stress. In Indonesia, data from the Ministry of Health of the Republic of Indonesia (2019) shows that around 20% of elderly people experience malnutrition, while 13% experience more nutrition. This condition is a warning that nutritional problems in the elderly are still quite high and need special attention. The Sukoharjo Regency Health Service report (2023) also shows there is an increase in cases of elderly people with nutritional disorders and psychological problems, including stress. In the work area of the Baki Sukoharjo Community Health Center itself, the results of a preliminary study from December 2024 to January 2025 found that 71 elderly people experienced malnutrition, 76 elderly people had more nutrition, and 34 elderly people experienced stress. This fact shows that there is a link between stress conditions and nutritional status in the elderly which needs to be studied further. Seeing this phenomenon, it is important to conduct research regarding relationship between stress levels and nutritional status in the elderly. This research is expected to provide a scientific picture of the extent to which stress levels affect the nutritional status of the elderly, especially in the Baki Sukoharjo Community Health Center area. In addition, the results of this study can serve as a basis for health professionals to design appropriate interventions, both in the form of stress management measures and improving nutritional patterns, so that the quality of life of the elderly can be improved.

RESEARCH METHOD

A. Research Design

The research design used in research is quantitative using associative approaches and approaches *cross sectional*. According to Sugiyono in the book (Balaka, 2022),

quantitative research is using research methods that are based on philosophy *positivism*, which is used to examine certain populations or samples, data collection using research instruments, analysis of quantitative or statistical data with the aim of testing predetermined hypotheses. Meanwhile, according to (Berlianti *et al.*, 2024). Associative research is a formulation of a research problem that asks about the relationship between two or more variables, namely research that aims study the relationship between stress levels and nutritional status in the elderly through observation and data collection at one time. Each respondent was observed only once, and measurements were taken of the stress and nutritional status variables at the same time (Notoatmodjo, 2012). The population in this study is all elderly people registered in the working area of the Baki Sukoharjo Community Health Center in 2025. Based on data from health centers, the population in January was 140 elderly people. The sample size is calculated using Slovin's formula:

$$n = \frac{N}{1 + N(d^2)}$$

Based on these calculations, the minimum number of samples in this study was 58 samples. In this study, a drop out value of 10% of the total sample was added so that $58 + 6 = 64$ samples. So, the total samples used by this researcher were 64 samples. Sampling technique uses *purposive sampling*. The inclusion criteria in this study were elderly people aged ≥ 60 years, registered as patients at the Baki Sukoharjo Community Health Center, able to communicate verbally and nonverbally, and willing to be respondents. Elderly people with severe cognitive impairment or acute medical conditions were excluded from the study. The research was carried out at the Baki Sukoharjo Community Health Center in June – July 2025. Inclusion: Elderly people aged ≥ 60 years who are registered at the Baki Sukoharjo Community Health Center, are willing to be respondents, able to communicate in a manner verbal or nonverbal. Exclusion: Elderly people with severe cognitive impairment, elderly with acute medical conditions that impede the completion of the questionnaire.

Research Place: The research was carried out in the work area of the PHC

Baki Sukoharjo. **Research Time:** Research in June – July 2025. **Validity Test and Reality Test:** Validity tests are studies that use questionnaire instruments and must pass data quality testing. The research instrument was used to measure the study variables (Sugiyono, 2014). The measuring instrument in question is the question in the questionnaire. A questionnaire is valid if the question is able to express (accuracy) according to the measuring instrument. A significant test is carried out by comparing the calculated *r* value with the *r* table. If *r* counts $>$ *r* table and is positive, then the question item or indicator correlates with the total score or is declared valid (Slamet and Wahyuningsih, 2022). Based on the validity test carried out with the following steps: Deploying a coroner and conducting interviews with 64 respondents in the Baki Sukoharjo Community Health Center Area, with a total of: Including *Perceived Stress Scale* (PSS-10) as many as 10 questions and *Mini Nutritional Assessment Short-Form* (MNA- SF) with 6 questions, after conducting an interview and get the results of filling in the questionnaire, then the questionnaire is processed using tabulation and a validity test is carried out. The question item for the variable Relationship between Stress Levels and Nutritional Status in the Elderly at the Baki Sukoharjo Community Health Center has a validity coefficient value with a critical point corrected item total correlation > 0.4821 (*r* table $N=16$.significant 5%= 0.4821) can be declared valid and for question items that have validity coefficient values

with critical correlation items total correlation < 0.4821 declared valid (Slamet and Wahyuningsih, 2022).

Table 1. Stress Levels Quisinary Validity Results

No. Soal	r Hitung	r Tabel	Keterangan
1.	0.782	0.4821	Valid
2.	0.913	0.4821	Valid
3.	0.913	0.4821	Valid
4.	0.701	0.4821	Valid
5.	0.918	0.4821	Valid
6.	0.918	0.4821	Valid
7.	0.918	0.4821	Valid
8.	0.782	0.4821	Valid
9.	0.665	0.4821	Valid
10	0.664	0.4821	Valid

Sumber : Data Priner, 2021.

No. Soal	r Hitung	r Tabel	Keterangan
1.	0.944	0.4821	Valid
2.	0.950	0.4821	Valid
3.	0.535	0.4821	Valid
4.	0.950	0.4821	Valid
5.	0.950	0.4821	Valid
6.	0.950	0.4821	Valid

Analysis univariate this is done on each variable from the research results, generally in analysis it only produces a frequency distribution of each variable, there is no relationship yet. Variables that are analyzed directly univariate in this study, the relationship between stress levels and nutritional status in the elderly was. Analysis Bivariate is analysis carried out to determine the interest of two variables (Sugiyono, 2019). The hypothesis test uses a non- parametric analysis test using the Chi-Square test because the data is ordinal and the data distribution is abnormal (Lobo & Guntur, 2018). Analysis Bivariate in this research, it was to find out whether there was a relationship between stress levels and nutritional status in the elderly at the Baki Sukoharjo Community Health Center. To prove whether there is a relationship or not, Chi- Square ui is carried out with a degree of confidence of 95% ($\alpha = 0.05$). The results of this calculation are then seen for attachment, using the following correlation coefficient interpretation guidelines:

Table 2. Guidelines for Interpretation of Correlation Coefficiency

Categories	Closeness Level
0.00-0.199	Very lov
0.20- 0.399	Low
0.40- 0.599	Moderate
0.60-0.799	Strong
0.80- 0.1000	Very strong

Source: (Sugiyono, 2009)

In this study, data processing uses a statistical data processing software program, which will then obtain the π -value. The π -value will be compared with the α value. With the following provisions: $\pi \leq \alpha$ value: Ho is rejected (Ha is accepted). $\pi > \alpha$ value: Ho fails to be rejected (Ha is rejected)

RESULT AND DISCUSSION

This assessment was clearly carried out on the elderly at the Baki Community Health Center Sukoharjo with a total of 64 respondents with the aim of determining the relationship between stress levels and nutritional status in the elderly at the Baki Sukoharjo Community Health Center.

A. Univariate Analysis

1 Respondent Characteristics

a. Distribution of Respondent Characteristics by Age

Table 3. Frequency Distribution of Respondents by Sex Gender Frequency (n)

Percentage (%)		
Gender	Frequency (n)	Presentation (%)
Male	27	42.2
Female	37	57.8
Total	64	100.0

Source: Primary Data, 2025

The frequency distribution of respondents by gender in Table 3 above shows that 37 elderly female respondents (57.8%) and 27 elderly male respondents (42.2%).

b. Frequency Distribution of Respondents by Age

Table 4. Frequency Distribution of Respondents by Age

Age	Frequency (n)	Percentage (%)
60-74 Years	53	82.8
75-90 years	10	15.6
>90 years	1	1.6
Total	64	100.0

Source: Primary Data, 2025.

Frequency distribution of respondents by age in Table 4 the above shows that elderly respondents with age ranges 60-74 years old with 53 respondents (82.8%), 10 respondents aged 75-90 (15.6%) and 1 respondent aged >90 years (1.6%).

c. Frequency Distribution of Respondents by Education

Table 5. Frequency Distribution of Respondents by Education

Education	Frekuensi (n)	Persentase (%)
Elementary School	6	9.4
Junior High School	15	23.4
High School	40	62.5
University	3	4.7
Total	64	100.0

Source: Primary Data, 2025.

The frequency distribution of respondents based on education in Table 5 above shows that the elderly respondents with the highest education level of the elderly were elementary school as many as 6 respondents (9.4%), junior high school as many as 15 respondents (23.4%), high school as many as 40 respondents (62.5%) and college as many as 3 respondents (4.7%).

d. Frequency Distribution of Respondents by Occupation

Table 6. Frequency Distribution of Respondents by Occupation

Occupation	Frekuensi (n)	Persentase (%)
Housewife	3	4.7
Self-Employed	8	12.5
Farmer	6	9.4
Retiree	28	43.8
Trader	3	4.7
Not Working	16	25.0
Total	64	100.0

Source: Primary Data, 2025.

The frequency distribution of respondents based on occupation in Table 6 above shows that elderly respondents with elderly occupations are as housewives as many as 3 respondents (4.7%), self-employed as many as 8 respondents (12.5%), farmers as many as

6 respondents (9.4%), retirees as many as 28 respondents (43.8%), traders as many as 3 respondents (4.7%) and unemployed as many as 16 respondents (25.0%).

e. Frequency Distribution of Respondents Based on Chronic Disease History

Table 7. Frequency Distribution of Respondents Based on Chronic Disease History

History	Frequency (n)	Percentage (%)
There	40	62.5%
Any	24	37.5%
Total	64	100.0

Source: Primary Data, 2025.

Frequency distribution of respondents by history of disease chronicity in Table 7 above shows that elderly respondents with a history of chronic disease were 40 respondents (62.5%) and there was no history of chronic disease as many as 24 respondents (37.5%).

f. Frequency Distribution of Respondents by Stress Level

Table 8. Frequency Distribution of Respondents by Stress Level

Stress Level	Frequency (n)	Percentage (%)
Normal Light	4	6.3
stress Heavy	56	87.5
Stress	4	6.3
Total	64	100.0

Source: Primary Data, 2025.

Distribution of respondent frequency based on stress level in Table 8 above shows that elderly respondents experience the stress level in the category is normal for 4 respondents (6.3%), mild stress for 56 respondents (87.5%) and severe stress for 4 respondents (6.3%).

g. Frequency Distribution of Respondents by Nutritional Status.

Table 9. Frequency Distribution of Respondents by Nutritional Status

Nutritional Status	Frequency (n)	Percentage (%)
Normal	13	20.3
Risks malnutrition	28	43.8
Malnutrition	23	35.9
Total	64	100.0

Source: Primary Data, 2025.

Frequency distribution of respondents by nutritional status in Table 9 above shows that 13 elderly respondents with nutritional status in the normal category (20.3%) are at risk of malnutrition there were 28 respondents (43.8%) and malnutrition as many as 23 respondents (35.9%).

B. Bivariate Analysis

The results of the data normality test show that the data distribution is abnormal. Therefore, the hypothesis test in this study uses non-parametric analysis **Chi-Square**. The selection of the Spearman Rank test was based on the characteristics of the study data, which were ordinal in scale. A relationship is declared significant if the value *p value* smaller than the set significance level, which is 0.05. This research aims to determine whether there is a relationship between stress levels and nutritional status in the elderly in the work area of the Baki Sukoharjo Community Health Center.

Table 10. Relationship between Stress Level and Nutritional Status in the Elderly at the Baki Sukoharjo Community Health Center

Frequency (n)	Correlation (r)	Value (p)
64	0.432	0.02

In Table 10 it can be seen that the significance value of 0.002 is less than 0.05 ($0.002 < 0.05$). This shows that the hypothesis is accepted, meaning that there is a significant relationship between stress levels and nutritional status in the elderly at the Baki Sukoharjo Community Health Center. The Spearman Rank correlation value is 0.432, which means the close relationship is in the category **medium** (0.40–0.599) according to Sugiyono's interpretive guidelines (2009).

DISCUSSION

Respondent Characteristics

Gender: The results of the frequency distribution of respondents based on gender in Table 4.1 above show that there were 37 respondents with an elderly female gender (57.8%) and 27 respondents with a male gender (42.2%). The frequency distribution of respondents by sex shows that the majority of respondents were elderly women, namely 37 people (57.8%). The relationship between gender, stress levels, and nutritional status is complex and influences each other. In general, men and women can experience stress in different ways, and these stressful conditions can have an impact on diet which ultimately affects nutritional status. According to theory, stress levels are experienced more by women than men. This is because women are more susceptible to experiencing hormonal changes throughout their life cycle, such as during menstruation, pregnancy, childbirth and menopause. These hormonal changes can affect emotional stability, thereby increasing the risk of stress. In elderly women, stress can also be triggered by hormonal imbalances that occur naturally due to the aging process (Siwi et al., 2025). **Age:** The frequency distribution of respondents based on age in Table 4.2 above shows that elderly respondents aged 60-74 years were 53 respondents (82.8%), aged 75-90 were 10 respondents (15.6%) and aged >90 years were 1 respondent (1.6%). The age-specific distribution of respondent frequencies showed that most of the respondents in the study were elderly with age ranges 60-74 years as many as 53 respondents (82.8%). The results of the research in line with research conducted by (Pardede, 2023) which shows that the majority of elderly people who experience stress are ≥ 60 years. The relationship between age and nutritional status in the elderly is complex and dynamic. This shows that along with As we get older, the elderly tend to experience it decreased muscle mass and increased fat mass can affect calorie and nutritional needs. Apart from that, physiological changes such as decreased appetite, indigestion and decreased sense function (taste, smell and vision) also greatly contribute to changes in nutritional status. **Education:** The frequency distribution of respondents based on education in Table 4.3 above shows that there were 6 elderly respondents with the last education being elderly, namely elementary school respondents (9.4%), middle school respondents with 15 respondents (23.4%), high school respondents with 40 respondents (62.5%) and college with 3 respondents (4.7%). The distribution of the frequency of respondents based on education shows that the majority of respondents in this study with

the last education of the elderly, namely high school, were 40 respondents (62.5%). Education has a significant relationship with nutritional status in the elderly. Elderly people with higher levels of education tend to have more knowledge about nutrition and health so they are better able to maintain a healthy and balanced diet. This can have a positive impact on their nutritional status (Hanifa *et al.*, 2021). **Work:** The frequency distribution shows that elderly respondents working as housewives were 3 (4.7%), self-employed 8 (12.5%), farmers 6 (9.4%), retirees 28 (43.8%), traders 3 (4.7%), and not working 16 (25.0%). Most respondents were retirees (43.8%). Work can influence the nutritional status of the elderly. Those still working, especially in physically demanding jobs, may have different nutritional needs compared to those not working. Work also affects access to nutritious food and the ability to meet nutritional needs (Pardede, 2023). Observations indicate that many elderly people are not working because they are no longer productive or have retired, leading to low physical activity and less attention to nutrition. **History of Chronic Illness:** The frequency distribution shows that 40 elderly respondents (62.5%) had a history of chronic disease, while 24 respondents (37.5%) did not. Most elderly respondents in this study had chronic diseases. According to Agustiningrum *et al.* (2021), there is a significant relationship between nutritional status and chronic degenerative diseases in the elderly. Elderly individuals with chronic diseases tend to have poorer nutritional status because such conditions can affect appetite, digestion, absorption, and increase nutritional needs, all of which contribute to malnutrition in the elderly.

Relationship between Stress Level and Nutritional Status in the Elderly at the Baki Sukoharjo Community Health Center: Based on the results of the cross tabulation in Table 4.8 above, it is explained that the stress level with nutritional status shows that the stress level is normal with nutritional status in the good nutritional category as many as 3 respondents (4.70%). The level of mild stress with nutritional status in the good nutrition category was 10 respondents (15.63%). Stress levels are normal with nutritional status, malnutrition risk category a total of 28 respondents (43.8%). Stress levels are normal with malnutrition category nutritional status as many as 1 respondent (1.57%). The level of mild stress with nutritional status in the malnutrition category was 18 respondents (28.12%). The level of severe stress with nutritional status in the malnutrition category was 4 respondents (6.3%). Test results *Chi-square* obtained the value P- value namely $0.003 < 0.05$ so H_0 was rejected and H_1 was accepted which can be concluded that there is a relationship between stress levels and nutritional status in the elderly at the Baki Sukoharjo Community Health Center. Value *Odd Ratio* what was obtained was 0.167, which means that the stress level has a risk of 0.167 times on the nutritional status of the elderly at the Baki Sukoharjo Community Health Center

CONCLUSION

The results of this study show that most of the elderly in the region the work of the Baki Sukoharjo Community Health Center experienced a level of stress in the light category, namely 56 respondents (87.5%). In terms of nutritional status, the majority of the elderly were in the category at risk of malnutrition with 18 respondents (28.1%). Statistical tests using Chi-square proved a significant relationship between stress levels and nutritional status in the elderly, indicated by the values p value of 0.003 ($p < 0.05$). This means that

the higher the level of stress experienced by the elderly, the greater the likelihood of impaired nutritional status. Based on these findings, there are several recommendations that can be made. For future research, it is recommended that the research design be stronger, for example by using case control as well as considering other variables that can influence it, such as cognitive function, chronic disease, and social support. More in-depth research is also needed to explain the mechanisms by which stress can affect nutritional status, both through changing patterns eating, metabolism, and absorption of nutrients. For the elderly, it is important to recognize symptoms and signs of stress early in order to avoid trigger factors and carry out stress management with the right coping strategy. In addition, maintaining a balanced nutritious diet and an ideal body weight are important steps to prevent the onset of health complications. As for health workers, especially nurses, it is hoped that the results of this study will serve as a reference in improving the quality of care. These findings can be used as a basis for preparing mental nursing care plans, especially those related to managing stress and nutritional status in the elderly at the Baki Sukoharjo Community Health Center.

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