



## Relationship Between Stress Levels and Eating Disorders Among Adolescents A Cross-Sectional Study

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Received: 31 March 2025/Accepted: 31 July 2025/Published Online: 01 August 2025

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### Abstract

Stress is defined as a state of mental and emotional turmoil. Stress can lead to abnormal eating behaviors and eating disorders. Eating disorder is defined as an eating disorder caused by a person's anxiety. Reactions to stress can cause increased appetite or vice versa. The purpose of this study was to identify the relationship between stress levels and eating disorders in adolescents. The research method used was a cross sectional study with a sample size of 224 respondents. the sample method used was random sampling which was carried out during July 2023. Data were collected through the DASS-42 questionnaire and the EAT-26 questionnaire. The results of the Spearman Rank correlation analysis show that  $p = 0.000$  or smaller than  $\alpha = 0.005$  so it can be concluded that there is a relationship between stress levels and eating disorders in adolescents. Teenagers are expected to know how to manage stress and can consult with parents, teachers, or peers. Take time for a vacation to tourist attractions / entertainment, this is expected so that adolescents are not too stressed with practice preparation, many tasks and personal problems.

**Keywords:** Stress Level; Eating Disorders; Adolescents

### INTRODUCTION

Stress can be defined as a condition that causes mental and emotional instability and distress or disturbance. Stress can lead to abnormal eating behaviors and eating disorders (Noe et al., 2019). Eating disorders can be grouped into 3 types, namely bulimia nervosa (bulimia), anorexia nervosa (anorexia), and binge eating disorders (Angelika, 2021). These eating disorders can be caused by biological, psychological, family environment, and socio-cultural factors (Qalbya et al., 2022). Some of the things that can cause anorexia nervosa based on psychological factors include acceptance of physical condition, body perception, self-belief, and perfectionism (Mccarthy, 2022). When most people

hear the term eating disorder, they typically picture extremely thin individuals. However, a person can have an eating disorder even if they are of normal weight, or even overweight. One important aspect that is often overlooked is that eating disorders are serious and potentially life-threatening mental health issues (Herstory, 2022). Eating disorders can affect and impair various bodily functions, and in some cases, can be fatal. Among the various types of eating disorders, anorexia nervosa is known to carry the highest risk of death (Institute of Mental Health, 2024).

According to the National Institute of Mental Health, the prevalence rate of anorexia is 0.56% per year, or 5.6% per decade. The annual all-cause mortality rate in the general population of women aged

15 to 24 years is twelve times higher (Lau, 2018). The overall rate increased from 3.5% in 2000-2006 to 7.8% in 2013-2018 (Fitriana, 2022). It was reported from the Institute of Health Metrics and Evaluation (IHME) in 2019 that there were 41,605 cases of people with eating disorders in East Java (Jessica & Asri, 2022). Eating disorders rank third, including chronic diseases of adolescents after asthma and obesity with a maximum age limit between 14-19 years (Sindy Astri Pratiwi et al., 2021).

Eating disorders are signs of unusual eating behavior disorders. Eating disorders are defined as eating disorders caused by the person's anxiety (Noe et al., 2019). Stress and emotional states affect eating patterns. Reactions to stress can cause appetite to increase or vice versa (Luh et al., n.d.). The phenomenon of eating disorders among adolescents is quite alarming, so this stressful condition can cause abnormal eating patterns. Someone who experiences emotional eating does not eat because they are hungry, but only to restore emotional state and reduce discomfort due to stress (Mentari Nur Pertiwi & Wahyuni Ulandari, 2023).

Eating disorder screening is done in the hope that if eating disorders are found early, sufferers will get better treatment to prevent physical and psychological problems that can even cause death (Siregar, 2017). The first step in healing is psychotherapy with the patient, their family, and the environment in which they live. Nutritional therapy emphasizes attention on 3 aspects, namely calorie intake, micronutrients, and macro nutrients. For this reason, not only therapy to restore consumption levels is needed, but counseling is also needed to provide psychological guidance to sufferers (krisnani et al., n.d.). There has been no research related to the relationship between stress levels and eating disorders in adolescents at SMK Bustanul Falah. Therefore, researchers are interested in conducting research

related to the relationship between stress levels and eating disorders in adolescents at SMK Bustanul Falah Genteng.

## METHOD

This research is a quantitative study using a correlational, with stress level as the independent variable and eating disorders in adolescents as the dependent variable. Univariate analysis was conducted using descriptive statistics, while bivariate analysis used the Spearman Rank test. The study was carried out from August to September 2023. Sampling was performed using a simple random sampling technique, drawn from the total population of students at Bustanul Falah Vocational High School. All research respondents received an explanation of the study protocol and signed a consent form, which was co-signed by their homeroom teacher acting as the students' guardian during school hours. Data were collected directly by administering the Eating Attitude Test 26 (EAT-26) questionnaire to measure eating disorder variables, and the Depression Anxiety Stress Scales (DASS-42) questionnaire to assess stress levels. The EAT-26 questionnaire used in this study demonstrated a combined Cronbach's alpha of 0.85 (95% CI: 0.81–0.88) with a standard error (SE) of 0.02 and a standard score ( $Z = 43.99$ ). Meanwhile, the DASS-42 questionnaire used to measure stress levels had been tested for internal validity and reliability, with item-total correlation coefficients in the moderate to high range (0.42–0.85). Bivariate analysis employed the Spearman Rank test because the research variables did not meet the parametric assumption of data normality. The research has obtained permission or approval from the ethics commission No : 128/03/KEPK-STIKESBWI/VIII/2023

## RESULT

### 1. Characteristics of Respondents

**Table 1 Frequency Distribution of Respondents Based on Age**

Characteristics of respondents	Frequency	presentation
15 years old	42	19%
16 years old	59	26%
17 years old	84	38%
18 years old	39	17%
Total	224	100%

The results of the study in table 1 of 224 respondents showed that most of them were 17 years old, namely 85 people (38%), 16 years old 59 people (26%), 15 years old 42 people (19%) and 18 years old 38 people (17%).

**Table 2 Frequency Distribution of Respondents Based on Gender**

Characteristics of respondents	Frequency	Persentation
Male	77	34%
Female	147	66%
Total	224	100%

The results of the study in table 2 of 224 respondents, the gender of the most respondents were women totaling 147 people (66%) and men totaling 77 people (34%).

### 2. Stress Levels

**Table 3 Frequency Distribution Stress Level of Respondents**

Stress levels	Frequency	Persentation
Normal	27	12%
Light	6	3%
Medium	23	10%
Weight	168	75%
Total	224	100%

The results of the study in Table 4 indicate that the average level of stress is the frequency of severe stress levels with a total of 168 people (75%), the frequency of normal stress levels with a total of 27 people (12%), the frequency of moderate stress levels with a total of 23 people (10%), and the frequency of mild stress levels with a total of 6 people (3%).

### 3. Eating Disorders

**Table 4 Distribution of Eating Disorders among Respondents**

<i>Eating Disorders</i>	Frequency	Presentation
At risk	69	31%
Not at risk	155	69%
Total	224	100%

The results of the study in table 5 indicate that the average eating disorders are mostly not at risk, namely a total of 155 people (69%) and at risk of 69 people (31%).

### 4. Distribution of the relationship between stress levels based on eating disorders in adolescents at SMK Bustanul Falah Kembiritan

**Table 5 Distribution of Relationship between Stress Level Based on Eating Disorders**

Stess level	Eating Disorders			
	Not at Risk		At risk	
	Frequency	Persentation	Frequency	Persentation
Normal	25	11%	2	1%
Light	6	3%	0	0%
Medium	18	8%	5	2%
Weight	106	47%	62	28%
Total	155	69%	69	31%

The results of the study in table 6 indicate that the average normal stress level is not at risk of eating disorders as many as 25 people (11%) and those at risk of eating disorders are 2 people (1%). Mild stress levels that are not at risk of eating disorders are 6 people (3%) and no one is at risk of eating disorders. Moderate stress levels that are not at risk of eating disorders are 18 people (8%), and at risk are 5 people (2%). The level of severe stress that is not at risk of eating disorders as many as 106 people (47%), and at risk as many as 62 people (28%).

**5. Hypothesis Test of Relationship between Stress Level and Eating Disorders in Adolescents**

**Table 6 Hypothesis Test of Relationship between Stress Level and Eating Disorders in Adolescents**

Variable	N	Sig.	correlation coefficient
Stress level Eating Disordes	224	0,000	0,237**

The results of the study with the Spearman Rank correlation test obtained a p value = 0.000 <0.05. So it means that H0 is rejected and Ha is

accepted or there is a relationship between stress levels and eating disorders in adolescents.

**DISCUSSION**

**1. Stress levels in adolescents at SMK Bustanul Falah Kembiritan**

The findings indicate that most adolescents in the study experienced severe levels of stress, with 168 students (75%) affected. Based on age and gender, stress was predominantly found among female adolescents aged 15–18 years.

Two types of symptoms-physical and psychological-can be used to identify stress conditions. First, physical health: stress can cause fatigue, headaches, muscle tension, or even loss of appetite. Second, psychological symptoms include feelings such as anger or irritability, nervousness or sadness, lack of motivation, disinterest, or even a tendency to cry (Patricia, 2021). Adolescents usually have unstable emotions and high energy, but their self-control is not yet fully developed (Noe et al., 2019). A meta-analysis of 55 studies suggests that pubertal hormones specifically estradiol (estrogen) and testosterone are associated with the risk of mental health problems in adolescents, including mood disorders (Li, 2024).

The high level of severe stress found among the respondents in this study may be due to adolescents' inability to manage stress effectively. As a result, they may become overly concerned about events happening in their environment. Many adolescents feel pressured to achieve good grades and worry about not being able to meet the expectations of their parents or teachers. The high level of stress in respondents, most of whom are female adolescents, can be assumed to be because female adolescents experience pressure from several stress-triggering

factors, including: biological (hormonal), psychological (how to think and manage emotions), and social pressure (gender norms, body image, social relations). Adolescent girls tend to be at risk of experiencing eating disorders due to their perfectionist nature when dealing with stress (Peleg et al., 2023).

## **2. Eating disorders in adolescents at SMK Bustanul Falah Kembiritan**

The results of this study indicate that of the 224 respondents, 155 students (69%) were categorized as not at risk for developing an eating disorder. The majority of respondents not at risk for eating disorders were male adolescents. Meanwhile, 69 students (31%) were at risk for developing an eating disorder, mostly female adolescents.

In someone who experiences stress there is emotional instability such as anger, boredom, stress and depression. This will lead to the risk of increased food consumption (Rahim & Prasetya, 2022). Many of them consider that food is a source of temporary stress-relieving comfort (Noe et al., 2019). Although eating disorders are related to food, eating patterns and weight. This problem has more to do with feelings and self-expression than food (Lestari, 2017).

The low risk of eating disorders observed in this study may be influenced by economic factors, as most respondents have sufficient financial means. This enables adolescents to afford the food they want and to maintain a balanced diet, reducing the likelihood of engaging in extreme or unhealthy dieting practices. As a result, they are better able to meet their nutritional needs and maintain healthy eating habits. However, the fact that nearly one-third of respondents were categorized as being at risk

predominantly female students highlights the need for increased awareness and early intervention programs.

## **3. Relationship Between Stress Level and Eating Disorders in Adolescents**

The results of data analysis using the Spearman rank test showed a significance level ( $\rho$ ) (2-tailed) with a value of  $0.00 < 0.05$ , which means there is a sufficient relationship between stress and eating disorders in adolescents.

Many studies have shown that anxiety and stress are closely related to an increased risk of overindulgence (Lim et al., 2021). Adolescents who are unable to cope with stress may be at risk of developing depression. The severity of stress levels can affect eating patterns in unnatural ways, which in turn may lead to eating disorders (Qalbya et al., 2022). The origin of abnormal eating behavior is often linked to the presence of stressors, which can trigger various responses, including an increased desire to eat (Lestari, 2017). Stress can also increase appetite because a low mood may drive the body to consume more food for comfort (Khoiroh, 2022).

Stress is the body's response to mental pressure or life challenges experienced by an individual. The respondents' high levels of stress are caused by demands from their surrounding environment. Eating disorders can be influenced by both psychological and environmental factors. Previous research shows that there is a relationship between stress levels and eating disorders in adolescents; however, this study also indicates that not everyone who experiences stress will develop an eating disorder (Kusumowati, 2023). It is likely that some adolescents cope with stress by distracting themselves through excessive food consumption, which helps them temporarily

escape from their problems. There are also several other factors that can help prevent eating disorders, most of which are related to psychological resilience and supportive environmental conditions.

This result supports the notion that female adolescents are generally more vulnerable to developing disordered eating patterns, which may be influenced by factors such as body image concerns, social pressures, and higher levels of stress. Therefore, schools, parents, and health professionals should pay closer attention to the early signs of eating disorders, especially among female students, to prevent more serious health problems in the future.

## CONCLUSION

The research results can be concluded as follows:

1. Most of the female students experienced normal stress levels with a percentage of 12% (27 people), at a mild stress level there were 6 students (3%), who experienced moderate stress levels amounted to 23 students (10%) while those who experienced severe stress levels amounted to 168 students (75%).
2. The majority of eating disorders are not at risk, namely a total of 155 people (69%) while those at risk of eating disorders are 69 people (31%).
3. In accordance with the results of the Spearman rank statistical test, the  $p$  value = 0.000 < 0.05. So it can be concluded that the results between these 2 variables indicate a significant relationship between the stress level variable and eating disorders.

Future researchers are advised not to use 'eating disorders' as a general dependent variable, but rather to focus on more specific types of eating disorders such as anorexia nervosa or binge eating disorder, so that the results obtained can be more meaningful and detailed. Respondents are encouraged to seek more information

about stress management to help prevent the development of eating disorders. For the research site, it is recommended to provide additional information and education for adolescents about eating disorders, including factors that can influence eating behavior and the underlying causes.

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