

# Correlation between Level of Stress and Risk of Eating Disorder Symptoms in Early Adult Individuals

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## ABSTRACT

Stress can be experienced by anyone, including early adult individuals. The many demands to fulfil developmental tasks as an early adult individual can also lead to varying level of stress, leading to health problems such as reluctance to eat or overeating to lead to eating disorders. People with eating disorders use food and diet as a way to deal with problems in life. This study aims to determine the relationship between level of stress and risk of eating disorders symptoms in early adult individuals. This type of research is a quantitative research design with correlational research involving 172 participants with a sampling technique using nonprobability sampling, namely purposive sampling. Data collection using google form online questionnaire and data processing using SPSS version 24 for windows program. The assumption test using the One-Sample Kolmogorov-Smirnov, obtained a significance value on the stress level variable, that is 0.019,  $p < 0.05$  with the Kolmogorov-Smirnov Z value = 0.075 and the significance value for the risk of eating disorder symptoms variable, that is 0.002,  $p < 0.05$  with the Kolmogorov-Smirnov Z value = 0.089 so the data is not normally distributed. Data analysis used Spearman Correlation and different test using Kruskal-Wallis Test because the data proved not normally distributed. The results showed a significant relationship between level of stress and risk of eating disorders symptoms with a significance value of 0.000,  $p < 0.05$  with  $r = 0.511$  so that the hypothesis is accepted.

**Keywords:** Level of stress, risk of eating disorder symptoms, early adulthood, health problem

## 1. INTRODUCTION

Stress can be experienced by anyone, including early adult individuals [1]. The many demands to fulfill developmental tasks as an early adult individual such as choosing a life partner, achieving social roles, being responsible, achieving emotional independence, learning to build a home life with a spouse, raising children, and being a good citizen can also cause stress. 2]. This period is a period of emotional tension that raises stress factors such as internal factors and external factors. From internal factors include behavior, emotional, conflict, and physical condition. While external factors include the work environment, family environment, physical environment, community environment, and legal and economic problems. Psychosocial factors such as losing someone, divorce in the household, and pressure from the environment such as stereotypes about ideal body standards are one of the sources that rank high in stress. In one study, based on the age of the participants (N = 101), it was found that individuals aged 18-22 years experienced more dominant stress with 35.6% of mild stress, 57.4% of moderate stress, and 6.9% of severe stress. The highest stress level was experienced by the female sex with moderate stress results of 33.6%, and severe stress levels of 4.0%. This study [3] showed that stress levels in early adulthood were higher than the results of other studies [4] which stated that stress disorders in children and

adolescents aged 8-17 years were 19.9% or as many as 171 people (N = 859).

Stress in early adulthood is more common in women than men. Women are twice as likely to experience stress. The reason is that there are hormonal differences and differences in psychosocial stressors for women and men [5]. Stress is also a motivation needed by individuals to move and an energy that can be used effectively, short-term stress may have beneficial and positive consequences, but if stress lasts continuously then the consequences will be negative because it can interfere with health and other aspects of life [6].

Stress has the effect of making a person reluctant to interact with other people, getting angry which is sometimes difficult to control, becoming a smoker or smoking excessively, consuming excessive alcoholic beverages, abusing narcotic drugs, and being reluctant to eat or overeat to cause eating disorders. 7]. According to one study, eating disorder (ED) is a mental disorder that, although related to eating patterns and weight, is not about food, but about feelings and self-expression. Eating disorders consist of anorexia nervosa, bulimia nervosa, binge eating disorder, and eating disorder not otherwise specified (EDNOS). Eating disorders are caused by having low self-confidence, feeling helpless, and feeling not comparable to others, as well as the desire to have an ideal body such as by making changes to eating habits that are generally deviant [8]. Eating disorders are commonly

experienced by early adult individuals and are more experienced by women than men, this is evidenced by a study which found that the estimated prevalence of anorexia nervosa was 0.9%, bulimia nervosa 1.5%, and binge eating disorder was 3.5% among women, while among men anorexia nervosa is 0.3%, bulimia nervosa is 0.5%, and binge eating disorder is 2.0% [9].

The results of research conducted on UNITRI students, especially PSIK (Nursing Science Study Program) who live in the 2016 Women's Dormitory Malang, amounting to 42 people show that stress levels occur in all respondents with the moderate stress category as many as 37 people (88.1%), eating disorders occur on all respondents with no eating disorder category as many as 36 people (85.7%), and the results of data analysis obtained a significance value of 0.000 ( $p < 0.05$ ), meaning that there is a relationship between stress levels and eating disorders in students living in the UNITRI girls' dormitory. In this study [10] showed that there was a relationship between stress levels and eating disorders. Meanwhile, the results of another study [11] showed that stress levels did not have a relationship with eating disorders in early adulthood. Therefore, further research is needed on the relationship between stress levels and the risk of eating disorder symptoms in early adult individuals to prove whether or not there is a relationship between stress levels and the risk of eating disorder symptoms in early adult individuals.

Based on the background of the problems found above, the formulation of the problem in this research is, is there a relationship between stress levels and the risk of eating disorder symptoms in early adult individuals? Theoretically, this research is expected to increase knowledge and broaden deeper insights in the field of psychology, especially in clinical psychology, namely the relationship between stress levels and the risk of eating disorder symptoms in early adult individuals. Practically, this research can provide information to readers to identify behaviors that indicate the presence of stress and its relationship with the risk of eating disorder symptoms or eating disorder in early adult individuals. This research is also useful to find out if there is a risk of experiencing an eating disorder, so it is advisable to immediately seek professional help related to medical treatment. The hypothesis of this study is that there is a significant relationship between stress levels and the risk of eating disorder symptoms in early adult individuals.

**2. METHODS**

Participants in this study were male/female aged 18-22 years, experiencing symptoms of an eating disorder, and domiciled in Greater Jakarta. The study was conducted in November 2020. The research sample amounted to 172 people. The minimum number of samples in correlation research is 30 people per variable [12]. Symptoms of eating disorders include: 1) Dietary restrictions; 2) Frequent changes in weight or being very thin; 3) Negative body image; 4) Overeating or binge-eating; 5) Excessive exercise; 6) Purging or cleaning the stomach contents with laxatives or diuretics; 7) Having excessive thoughts about food, body image, and weight [13]. The sampling technique used in the research is non-probability sampling,

namely purposive sampling. Nonprobability sampling is a technique to get a sample by not looking at the number of variables. The sample obtained from the nonprobability technique, the test results on the sample are not related to the population. The use of this sampling technique is due to the relevance of the material to be tested. While purposive sampling is a way to be able to make decisions on the sample to be used based on the provisions or research conditions [14].

This research method is quantitative research on correlational research design. Quantitative research is a method based on the explanation used for the sample test, using test equipment in collecting data, analyzing data, and aiming to be able to test pre-determined hypotheses. Correlation study is a study that determines the level of linkage or relationship between variables by not making efforts that affect the variables used, so that no operations will be carried out on these variables [15]. The research was conducted online using a google form with a link that can be accessed via a cell phone or smartphone, smartphone tablet, laptop, or computer so that participants can access it from anywhere and anywhere, the research tool used is a questionnaire. The measuring instrument used to measure stress levels is the Kessler Psychological Distress Scale (K10) with 10 questions about a person's emotional state, each with five levels of response scale, this measuring instrument was developed by Kessler in 1996 at Harvard Medical School, USA. Each item is rated from one 'none of the time' to five 'all of the time'. The scores of the 10 items are then added together, resulting in a minimum score of 10 and a maximum score of 50. A low score indicates a low level of psychological distress and a high score indicates a high level of psychological distress. The K10 questionnaire was developed to generate a global measure of psychosocial distress, based on questions about a person's level of nervousness, agitation, psychological exhaustion, and depression in the past four weeks [16].

Table 1  
Severity of psychological distress according to score K10

K10 score	Psychological Pressure Level
10-15	Low
16-21	Medium
22-29	High
30-50	Very High

While the measuring tool for eating disorder risk uses the Eating Attitudes Test (EAT-26) with 26 questions about the possibility of a person experiencing an eating disorder, each with six levels of response scale, this measuring tool was developed by Garner, Olmsted, Bohr, and Garfinkel in 1982. There are three subscales, namely diet, bulimia and food preoccupation, and oral control (related to self-control when eating and other people feel pressure to gain weight). Individuals who score 20 or more on the test should be interviewed by a qualified professional to

determine whether they meet the diagnostic criteria for an eating disorder [17].

**Table 2**  
EAT-26 scoring system

item number	EAT-26 scoring					
	Always	Oft en	Qui te Oft en	Somet imes	Rare ly	Neve r
1-25	3	2	1	0	0	0
26	0	0	0	1	2	3

The validity and reliability test of the measuring instrument was carried out on 100 participants using an online questionnaire with google form media and the data was processed using the IBM SPSS Statistics program or the Statistical Package for the Social Sciences (SPSS) version 24. The measuring instrument will be translated through an expert judgment process before being tested for validity. and its reliability. Data processing was carried out using the IBM SPSS Statistics software program or the Statistical Package for the Social Sciences (SPSS) version 24 for windows. Analysis of the data measuring instruments K10 and EAT-26 using Spearman correlation because the data are not normally distributed. The measuring instrument test (try out) was carried out on a sample of 100 people (N=100) with an r-table value = 0.195, and Cronbach's alpha was used if the significance level was 0.05 or 5%. In the validity test, if the calculated r value is greater than the r table value, the item is declared valid, and if the calculated r value is less than the r table value, the item is declared invalid. In the reliability test, if the cronbach alpha value is greater than the r table value, the item is declared consistent, and if the cronbach alpha value is less than the r table value, the item is declared inconsistent [18]. In the K10 measuring instrument, all items are proven to be consistent, because all the calculated r values are greater than the r table (0.195) and the Cronbach Alpha value (0.898) is greater than the r table value (0.195), so that all items in the K10 measuring instrument have been proven consistent. From a total of 26 items on the EAT-26 measuring instrument, there were 6 items that were proven invalid, namely items 4, 5, 8, 13, 15, and 26 so that the items had to be removed from the smallest calculated r value. After items 13, 26, 8, 15, 4, and 5 were removed, out of a total of 20 items on the EAT-26 measuring instrument, all items proved valid. Cronbach's Alpha value (0.901) is greater than the value of r table (0.195) so on the EAT-26 measuring instrument all items are proven to be consistent after items 13, 26, 8, 15, 4, and 5 are discarded.

### 3. RESULTS AND DISCUSSION

This study recruited 318 participants online and obtained 272 participants who met the criteria. Of the 272 participants, there were 172 participants who were analyzed as the main data and 100 participants as the tryout data.

**Table 3**  
Description of participants by gender

Gender	Frequency	Percentage (%)
Male	62	36
Female	110	64
Total	172	100

Based on 172 data obtained by gender, the most participants were women with a total of 110 participants.

**Table 4**  
Description of participants by age

Age	Frequency	Percentage (%)
18	17	9.9
19	14	8.1
20	46	26.7
21	48	27.9
22	47	27.3
Total	172	100

Based on 172 data obtained by age, the most participants were at the age of 21 years, namely 48 participants.

**Table 5**  
Description of participants based on eating disorder symptoms

Symtomps	Frequency	Percentage (%)
Dietary restrictions	74	43.0
Frequent weight changes or being very thin	69	40.1
Negative body image	59	34.3
Overeating or binge-eating	86	50.0
Exercising too much	61	35.5
Purging or cleaning the contents of the stomach with laxatives or diuretics	65	37.8
Having excessive thoughts about	101	58.7

food, body image, and weight

Total	N = 172	100
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Based on 172 data obtained according to eating disorder symptoms, participants may choose more than one symptom experienced. The most chosen symptom was having excessive thoughts about food, body image, and weight, which were 101 choices.

Table 6

Participant description based on stress level

Level of Stress	Frequency	Percentage (%)
Low	10	5.8
Medium	12	7.0
High	57	33.1
Very High	93	54.1
Total	172	100.0

Based on 172 data obtained based on the level of stress experienced, the highest stress level was experienced by 93 participants with the category of very high stress level.

Table 7

Participants description based on the possibility of having an eating disorder

Risk	Frequency	Percentage (%)
No Risk	59	34.3
At Risk	113	65.7
Total	172	100.0

Based on 172 data obtained according to the tendency to experience eating disorders, there were 113 participants who were proven to be at risk of experiencing eating disorders.

The assumption test or normality test on the two research variables, namely the level of stress (IV) and the risk of eating disorder symptoms (DV) on the K10 and EAT-26 measuring instruments uses the One-Sample Kolmogorov-Smirnov. Based on the Kolmogorov-Smirnov One-Sample normality test, the significance value for the stress level variable was 0.019 ,  $p < 0.05$  with the Kolmogorov-Smirnov Z value = 0.075 and the significance value for the risk variable for eating disorder symptoms was 0.002 ,  $p < 0.05$  with the Kolmogorov-Smirnov value. Smirnov Z = 0.089. Because the two variables have a significance value below 0.05, the data are not normally distributed so that for the correlation test or hypothesis testing, a nonparametric correlation is used, namely the Spearman Correlation. Based on the normality test, it was concluded that the data were not normally distributed. Therefore, in testing the hypothesis, we will use the Spearman Correlation. Based on the hypothesis test with the Spearman Correlation, the significance value was 0.000,  $p$

$< 0.05$  with  $r = 0.511$ . Because the significance value is less than 0.05, it can be concluded that the hypothesis is accepted and there is a significant relationship between the stress level variable and the risk variable for eating disorder symptoms.

#### 4. CONCLUSIONS AND SUGGESTIONS

Based on the analysis of 172 participants, it was concluded that early adult female participants aged 20-22 years were more stressed than men, with very high stress levels. Participants also experienced symptoms of eating disorders, namely having excessive thoughts about food, body image, and weight experienced by 113 participants who were at risk for eating disorders. These results indicate that stress levels are proven to have a significant relationship with the risk of experiencing eating disorder symptoms. This study aimed to examine the relationship between stress levels and the risk of eating disorders in early adult individuals. Based on the Spearman correlation hypothesis test, a significance value of 0.000,  $p < 0.05$ ,  $r = 0.511$  was obtained. Because the significance value is less than 0.05, it can be concluded that the hypothesis is accepted and there is a significant relationship between stress levels and the risk of eating disorder symptoms. In this study using nonparametric analysis, namely Spearman correlation because the data are not normally distributed, namely participant answers are too inclined to one side of the scale, unlike parametric analysis where the data is normally distributed or participants' answer choices tend to be balanced, not too inclined to one side of the scale [19] . The tryout data of 100 participants was used to test the validity and reliability of the measuring instrument items, while the main data of 172 participants was used for the data that was processed and analyzed in this study.

The advantage of this study is that although the time given is quite limited, the number of participants collected can meet the minimum number of samples needed because it uses online questionnaires on social media, this study also offers a number of prizes for lucky participants in the form of e-money totaling Rp. 200,000,- to 10 lucky participants. To minimize the presence of respondents who participated only to get research gifts/souvenirs, the researcher controlled the data by asking short questions on the questionnaire such as about age, domicile, and symptoms of eating disorders that had been experienced before continuing to fill out the questionnaire items because participants who did not meet the criteria would directly directed to the thank you page without being able to fill out the questionnaire items. The limitation of this study is that the criteria that require participants to have one or more eating disorder symptoms make it quite difficult to find suitable participants if there are large numbers of them, the short time constraints are also quite hampering the data collection process. The measuring instrument used for stress levels, namely K10, is only to determine the level of stress experienced in general, not to find out what types of stress are experienced. The EAT-26 measuring instrument is also used only to determine whether or not there is a risk of a person experiencing an eating disorder in general from the symptoms experienced, not to determine what type of eating disorder is experienced.

Therefore, an unsuitable measuring instrument is also a limitation in this study so that it is not possible to classify the type of stress with the type of eating disorder experienced because the level of stress and eating disorder in question is in general and is still a symptom, not a related professional diagnosis. The number of samples that meet the research criteria would also be better if the number was larger in order to better represent early adult individuals in Jabodetabek who may be at risk for eating disorders.

For further research, it is recommended to look for a larger research sample with more varied participant criteria, for example in adult individuals, not only early adults. The measuring instrument used should also be more adjusted so that its validity and reliability are guaranteed without having to throw out a lot of items. For early adult individuals or all readers, it is better to maintain health by being able to divide time between study/work/activity and rest because health is a very important thing. For those who experience symptoms of eating disorders, you should immediately see a health professional or related professional so that they can get medical attention immediately. Rest and eat nutritious food should be done regularly, try to be more confident, accept your own shortcomings and strengths. It's better to be able to know your own limits, no need to force everything, accept and love yourself as you are, no need to force yourself to be like other people.

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