



## Screening of Eating Disorders Risk with Scoff Tool on Adolescents in Samarinda City

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### Abstract

Adolescents's Eating behavior that generally expects slim body increases the risk of eating disorders which causes poor nutritional needs. The objective was to identify the risk of eating disorder with SCOFF Tools for students in SMAN/S in Samarinda. The design was quantitative descriptive with SCOFF Screening instrument consisting 5 questions namely makin yourself (sick); Worry having lost (Control); Lost more than 6,35kg (One Stone); Believing Yourself (Fat); (Food) dominated your life. The random sampling technique use to selection that located in Samarinda consisting of 10 districts with a total of 39 SMAN/S high schools by measuring changes in eating disorders. The analysis using Pearson correlation test and simple linear regression. The research was obtained by 812 respondents from 19 SMAN/S in Samarinda. The data collection based on age there are 273 students aged 16 years, 25 students aged 14 years and 82 students aged over 17. There are 468 students who have a normal BMI, 35 students are mildly obese and 60 students are mild having overweight status and BMI under 17 as many as 124 students who are underweight. Eating disorder risk screening results with the SCOFF Tool found 57.4% of high school children are at risk of eating disorders. It can be concluded that adolescents in Samarinda tend to be at risk of eating disorders so that early intervention is needed to prevent prolonged malnutrition.

### Introduction

The nutritional value and health aspects are no longer a concern to adults due to maintaining social status which can refer to eating disorders or disordered eating. Growth and development in adolescents have a negative impact due to an eating disorder (Rolfes et al., 1998). For women, teens, slim body is craving (Kjelsås et al., 2004).). Thus, they limit their intake erroneously that can cause not meet nutrient needs. Based on the study of Ho et al (2006) found that the tendency of the increasingly widespread incidence of eating disorders and began to be found in Asian countries, but is still dominated by the West. 140 cases of eating disorders have been reported every year in the State of Singapore and Singapore 7.4% of young women at risk of eating disorders. Eating disorders are also suffered by teenagers in Indonesia based on research Putra (2008) to get the result that SMAN 70 in South Jakarta is more than 80% of respondents had an eating disorder, while the students of Madrasah Aliyah Development UIN

Jakarta gained as much as 47.5% of adolescents with eating disorders (Laila, 2013). In the study, Brown (2005) found that adolescents with a normal nutritional status even skinny also perform weight loss which may cause irregularities in feeding behavior. Based on data from Ministry of Health (2018) issue of wasting (underweight) has not been resolved, the emerging obesity problem began having increased since 2017 in the age group 16-18 years. The nutritional status assessment results based on the anthropometric index of IMT / U in 2007 showed an increase from 1.4% to 7.3% in 2013, although in 2018 there was a decrease to 7.2%. In the East Kalimantan region, there are 11 provinces which have a prevalence above the national prevalence in the case of very obese adolescents.. Based on these data, lead researchers suspect that eating disorders can occur in adolescents with a nutritional status below or above normal. This refers for researchers to screen in the Samarinda City area because basic data related to the prevalence of eating disorder is not yet obtained, so researchers screen for adolescents with a range of 16-17 years old who are registered as High School (SLTA) students / Madrasah Aliyah (MA) throughout Samarinda City using the SCOFF Tool eating disorder screening instrument. The SCOFF Tool is considered efficient for identifying and detecting eating disorders in adolescents among large numbers of respondents.

The purpose of this study is to capture and identify the risk of eating disorder with SCOFF Tools for students in Samarinda City's N / S High School.

## Methods

The instrument used for screening was SCOFF Questioner which has proven its validity (Morgan et al., 1999). The instrument is used for screening eating disorders which contain five questions that use the data Guttman scale with a choice of yes or no answer. The questions are:

S – Do you make yourself Sick because you feel uncomfortably full?

C – Do you worry you have lost Control over how much you eat?

O – Have you recently lost more than One stone (6.35 kg) in a three-month period?

F – Do you believe yourself to be Fat when others say you are too thin?

F – Would you say Food dominates your life?

The category status of respondents by the first answer is, if the respondent answered no to all the questions, tests showed that the respondents do not have an eating disorder. Second, if the respondents answered yes to the question, with the remainder being answered as "no", the test showed the respondents do not have an eating disorder. And third, if the respondent answered yes to at least two questions, then it shows the respondent may have anorexia nervosa or bulimia nervosa. The variables measured in this study were eating disorders namely anorexia nervosa and bulimia.

This research will be carried out in senior high school (SLTA/MA) located in samarinda city which consists of 10 districts. The total number of state and private senior high schools in samarinda is 39 schools (Directorate General of Primary and Secondary Education, 2018). Teenagers in Samarinda City who are in the 12th grade high school. The sampling of this research was carried out in stages with the aim that the research could represent the population, so that the sampling was carried out 3 times, namely the sub-district unit sample, the high school / MA unit sample, and the sample of adolescents / students / i. Following is the formula used in the calculation of sample size

$$n_{district} = \frac{z_{1-\alpha/2}^2 = P(1-P)n}{d^2(N-1) + z_{1-\alpha/2}^2 = P(1-P)}$$

$$\frac{1,96^2 \times 0,60(1-0,60)100}{0,20(100-1) + 1,96^2 \times 0,60}$$

$$= 8 \text{ distric}$$

Then obtained 8 sub-districts, sub-districts included in the study are North Samarinda with a population of SLTA/MA as many as 4 schools, Samarinda Ulu as many as 9 schools, Samarinda Kota as many as 2 schools, Samarinda Seberang as many as 2 schools, Loa Janan Ilir as many as 4 schools, Samarinda Ilir as many as 1 school, Sungai Kukung as many as 4 schools, and Sungai Pinang as many as 6 schools.

The next step is to calculate the required sample size school with the following formula

$$\begin{aligned}
 n_{kecamatan} &= \frac{z_{1-\alpha/2}^2 = P(1-P)n}{d^2(N-1) + z_{1-\alpha/2}^2 = P(1-P)} \\
 &= \frac{1,96^2 \times 0,60(1-0,60)34}{0,20(134-1) + 1,96^2 \times 0,60} \\
 &= 19
 \end{aligned}$$

Based on calculations using the formula Lemeshow et al & World Health Organization. (1990), it was found that the number of schools to be involved in this study were 19 schools from 8 districts. The sample size obtained was North Samarinda with a large sample of 2 schools, Samarinda Ulu 5 schools, Samarinda Kota 2 schools, Samarinda Seberang 1 school, Loa Janan Ilir 2 schools, Sungai Kukung 3 schools, and Sungai Pinang 3 schools.

Multistage random sampling is used in this study. The sampling phase starts from the cluster (unit) which district in the city samarinda. Of the 10 districts, selected by a simple random sampling technique that is 8 districts out of 10 districts. At 8 districts, the number of schools based on data obtained Samarinda Primary and Secondary Education is 33 secondary schools either by public or private status. Calculation of sample size resulting in 25 schools. Selection of 25 schools out of 33 carried out by two techniques that proportional sampling to determine the number of schools per sub-district 9 and simple random sampling to select 25 schools. Respondents in 25 schools still can not be calculated, the student population will be obtained after the permitting process of Samarinda City Education Department to do. One final stages of data collection and analysis techniques.

This research was conducted with descriptive quantitative design approach to engineering surveys collecting observations using the help of the research instruments SCOFF Screening Tool (attached) aims to collect data on adolescent eating disorder in the city of Samarinda. Data will be presented in tabular form obtained from processing using a statistical program with the help of software. The analysis conducted is an analysis of influence or relationship. Large data will then be analyzed using Pearson correlation. Then a simple linear regression test is performed to obtain the best prediction model.

## Results and Discussion

Tabel 1.Characteristics of Respondents

Characteristics	N (%)
Total	812 (100)
Gender	
Male	347 (42,7)
Female	465 (57,3)
BMI	
Severe thinnes	124 (15,3)
Thinnes	125 (15,4)
Normal	468 (57,6)
Overweight	35 (4,3)
Obese	60 (7,4)

Characteristics	N (%)
Age	
14 years old	25(3,1)
15 years old	165 (20,3)
16 years old	273 (33,6)
17 years old	267 (32,9)
>17 years old	82 (10,1)
District	
Samarinda ulu	277 (34,1)
Samarinda sebrang	58 (7,1)
Loa janan ilir	53 (6,5)
Sei pinang	145 (17,9)
Sei kunjang	51 (6,3)
Samarinda utara	81 (10)
Samarinda kota	99 (12,2)
Samarinda ilir	48 (5,9)

Research results for approximately 2 months obtained 812 respondents from 19 SMA N/S in Samarinda city. 347 respondents were male and 465 female. The results of data collection obtained information that 273 respondents were 16 years old, 25 students were 14 years old and there were 82 students aged over 17 years. The division of adolescent phases includes early adolescents (12-14 years), mid-teens (14-18 years), and late adolescents (18-21 years) (Ahmadi and Sholeh, 2005). Based on the table, it was found that most teenagers aged 16 years (33.6%) and 17 years (32.9%).

Table 2. Eating Disorder Risk Category with SCOFF Tool

Characteristics	N (%)
Answer "No" for all question ( semua pertanyaan (tidak mengalami Eating Disorder)	117 (14,4)
Answer "yes" to one of the questions (eating or body image problem)	229 (28,2)
Answer "yes" = 2 questions (Anorexia atau Bulimia)	260 (32)
Answer "yes" = 3 questions	141 (17,4)
Answer "yes" = 4 questions	58 (7,1)
Answer "yes" = 5 questions	7 (0,9)

Table 2 shows the risk of eating disorder occurs when the respondent gives an affirmative response to question. If the respondent answers no to five questions, then there is no indication of an eating disorder. Meanwhile, if the respondent gave a "yes" response to one of the questions, there was no indication of eating disorders but there might be some problems with eating and body image. Giving answers/responses "yes" at least two questions give an indication/sign that anorexia nervosa or bulimia nervosa has occurred. This is not a diagnosis but the respondent likely has an eating disorder that requires further investigation from health professionals (doctors, nurses, and nutritionists).

Based on the table can be describe the incidence of the Eating disorder in high school children in Samarinda City. There are indications that there has been anorexia nervosa or bulimia nervosa by 32% seen from at least two questions with the answer "yes".

In adolescents, there are many physical changes and mental development which go hand in hand with the demands of individual tasks both in the school environment and in the family environment that must be fulfilled to achieve satisfaction, happiness, and acceptance of adolescents in their environment.

Various disturbances can occur when adolescents are unable to complete the demands of tasks according to the development of their age, and still have to adapt to changes in themselves and the environment. As mentioned by Elkind and Postman that at the end of the twentieth century, namely the development of equality of treatment and expectations of children and adults. Nowadays children are expected to play an adult role before they are psychologically ready to face it by the community and the rapid and confusing social changes make children experience stress which causes negative impacts such as failure at school, drug abuse, depression and suicide, somatic complaints and chronic sadness (Retnowati, 2008).

Univariate results showed that 468 students had a normal BMI, 35 students were in mild obese status (light overweight) and 60 students were in overweight status. 124 respondents turned out to have a BMI below 17 with an indication of being underweight. Teenagers are required to have an ideal body by their environment so they are busy with their body shape and body image. Body image is how a teenager views and values his own body. With the wrong view of the body image can trigger dissatisfaction with body shape so that it refers to extreme efforts such as reducing food intake to control his weight (Tumenggung & Talibo, 2018)

In a previous study in Gorontalo (Tumenggung & Talibo, 2018), 32 students from 350 respondents had symptoms of an eating disorder. While in the same study, there were 103 new students in the Nutrition Science Study Program at Bogor Agricultural University (IPB) with 7.8% of women experiencing eating disorders with more risk because they felt they had the desire to eat continuously and could not stop eating (2-3 times a month). While in the United States, the results of Austin et al (2008) on 98 high schools or around 35,000 students showed that nearly 15% of female children indicated that eating disorders occurred. This is also supported by the results of the study of Swanson et al (2011) to 10123 adolescents aged 13-18 years in the United States showed that 0.3% of teens experienced anorexia nervosa, 0.9% bulimia nervosa and 1.6% binge-eating.

Chronic hypotension, bradycardia, hypothermia, salivary gland swelling, anemia, dehydration, alkalosis, and hypochloremia are the result of prolonged eating disorders. Secondary amenorrhea caused by chronic malnutrition as much as 90% is experienced by people with anorexia. Increased risk of bone fractures due to reduced bone density which is a serious problem because it is difficult to treat. Heart failure is the highest risk experienced by people with eating disorders. Nutritional status and eating disorders have a close relationship. As many as 344 respondents (42.4%) were identified as malnourished which consisted of 125 respondents (15.4%) categorized as lightweight, 124 respondents (15.3%) categorized as Skinny, while respondents were categorized as mild and severe obese respectively 35 children (4.3%) and 60 children (7.4%). Inappropriate eating behavior can be caused because a person is not satisfied with his body shape. Adolescents lack food intake because of the wrong diet which affects the nutritional status for self-concept change body image (Istiono et al., 2009).

The experience of having problems with weight makes him always feel fat. This encourages an uncontrolled diet, excessive exercise and ultimately suffers from bulimia (Santoso & Putri, 2018) . Anorexia nervosa sufferers are very afraid of excessive body weight. For the sake of the body that remains ideal, people with eating disorders will exercise excessively and eat very little. Usually, nervous anorexia sufferers experience signs such as refusing to maintain weight and tend to always want to appear thinner, always afraid of increasing weight, even though in reality their weight is getting thinner, stopping menstruation for three consecutive months or more even though in conditions not pregnant, there are several cases of anorexia that are usually suffered by adolescents found in children aged five years and aged 60 years. Anorexia sufferers experience various symptoms. According to Santoso & Putri (2018) that this anorexia can disappear, suddenly improve but can appear worse suddenly in patients, even worse without the possibility of improving at all.

## Conclusion

There are (57.4)% of high school children who are at risk of the eating disorder, while (28.2)% are categorized as body image irregularities and (14.4)% of them are not at risk of eating disorder. Early intervention is needed for eating disorder in adolescents that may have an impact on nutritional status. Further research needs to be done to see the causative factors directly or indirectly related to the incidence of Eating Disorders in high school students.

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