



## ORIGINAL ARTICLE

## Self-esteem as a risk factor of anxiety in senior high school students

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### ABSTRACT

#### BACKGROUND

Adolescence is a dynamic period of significant physical, emotional, and cognitive development, where individuals shape their identities and influence their mental health. Being vulnerable to various risk factors, including anxiety, adolescents often face mental disorders that can affect their overall well-being. With anxiety being a major concern in the global context as well as in Indonesia, this study aimed to determine self-esteem as a risk factor of developing anxiety among senior high school students.

#### METHODS

A cross-sectional study was conducted involving 162 senior high school students, using proportionate stratified cluster simple random sampling. Data were collected through the Rosenberg Self Esteem Scale and the Hamilton Anxiety Rating Scale questionnaires to measure self-esteem and anxiety levels, respectively. The full score for self-esteem was 10–40 points. The higher the score, the greater the self-esteem. Data was analyzed using multiple logistic regression.

#### RESULTS

The research findings indicate that adolescents experiencing anxiety amount to 51.9% and most of them indicated high self-esteem (61.1%). Multiple logistic regression test showed that low self-esteem (OR=2.21; 95% CI: 1.15-4.24) was the most influential risk factor of anxiety. However, there were no significant associations between anxiety and demographic factors such as gender, grade level, major of study, and parental income.

#### CONCLUSION

Most senior high school students experience anxiety, and lower self-esteem was the most influential risk factor of anxiety. The findings highlight the need for targeted interventions to boost self-esteem as a preventive measure against anxiety among senior high school students.

**Keywords:** Adolescent, anxiety, senior high school, self-esteem, students

## INTRODUCTION

Adolescents are a crucial asset to any nation, because they make up almost 20% of the population in the countries of the South-East Asia Region.<sup>(1)</sup> The developmental stage of adolescence occurs after childhood and before entering adulthood, typically between 10 and 19 years of age, according to the World Health Organization. Adolescence is a crucial stage in a person's life, marked by extensive physical, emotional, and cognitive changes. This period brings about substantial shifts in physical, cognitive, and social aspects of an individual's identity. It is during this time that individuals undergo significant development of their identity, which can greatly influence their well-being and mental health.<sup>(2)</sup> During this period, teenagers are more vulnerable to risks such as increased anti-social behavior, juvenile crime, drug use, and school dropout,<sup>(3)</sup> which can significantly impact their self-esteem and overall well-being.<sup>(4,5)</sup>

Self-esteem, as a reflection of an individual's self-worth, is crucial for adolescent mental health and development.<sup>(6)</sup> Research has indicated that low self-esteem in adolescents correlates with negative outcomes such as depression, anxiety, suicidal thoughts, disordered eating, violent and risky behaviors, as well as lower academic achievement and social functioning.<sup>(4,5,7)</sup> Numerous studies have explored the connection between self-esteem and different mental health outcomes, such as anxiety. High self-esteem has been consistently linked to lower levels of anxiety, while low self-esteem is associated with higher levels of anxiety.<sup>(7)</sup>

Anxiety is a condition characterized by unpleasant feelings, including discomfort, confusion, tension, and fear. These feelings can be experienced at varying levels and in different situations.<sup>(8)</sup> A person's anxiety is a natural response that warns of potential danger and helps prepare for a possible threat. However, excessive anxiety that interferes with daily functioning can have a detrimental impact on overall well-being.<sup>(8,9)</sup>

Anxiety is a common mental health disorder found frequently in Indonesia and worldwide. The World Mental Health Surveys in 21 countries estimated that 9.8% people were affected by anxiety disorders.<sup>(10)</sup> According to the Information Centre of the Indonesian Ministry of Health, as reported by the Institute for Health Metrics and Evaluation, mental disorders rank among the top

ten diseases with high Disability Adjusted Life Years globally as well as in Indonesia<sup>(11)</sup> where anxiety disorders rank as the second most common mental disorder. The prevalence of emotional mental disorders such as depression and anxiety in the age group of 15 years and over has increased from 6% in 2013 to 9.8% in 2018.<sup>(11)</sup>

The rationale behind the present study is the need to further investigate the relationship between self-esteem and anxiety in high school students, as previous research has yielded inconsistent results. Some studies have found that high self-esteem is associated with lower levels of anxiety in high school students<sup>(4,5,7)</sup>, while others found that higher self-esteem can increase anxiety levels in university students, as it negatively impacts trait emotional intelligence, which can in turn promote higher anxiety levels.<sup>(12)</sup> This study aimed to determine the relationship between levels of self-esteem and levels of anxiety among senior high school students.

## METHODS

### Research Design

The study was of cross-sectional design and was conducted in a public senior high school in Jakarta, Indonesia, from June to July 2020.

### Research subjects

The sample size was determined using the formula for a cross-sectional study:

$$n = Z_{\alpha}^2 \times p \times (1-p) / e^2$$

where  $Z_{\alpha} = 1.96$ ,  $p$  (prevalence of anxiety in senior high school students) = 19.4%<sup>(13)</sup>,  $e$  = error = 0.05.

The adjusted sample size using the population of the high school students ( $N=990$ ), was 162.

This research was conducted on high school students from one of the public high schools in Jakarta, Indonesia. In this research, we used proportional stratified cluster random sampling. Respondents were stratified into three class level strata (10, 11, and 12), then for each stratum, cluster random sampling was used to select class groups (science consists of 5 classes (A-E) and social studies consists of 4 classes (A-D) for each stratum). Next, from each selected class, simple random sampling was used to select the subjects. A proportional sample size was used to determine the sample size for each selected class. The total population was 990 students consisting of 321

respondents from the 10th-grade level (science 179 students, social studies 142 students), 323 respondents from the 11th-grade level (science 179 students, social studies 144 students), and 346 respondents from the 12th-grade level (science 186 students, social studies 160 students).

Therefore the total sample selected was 162 respondents who were obtained according to the aforementioned formula, comprising 54 respondents from the 10th-grade level (science 29, social studies 23), 53 respondents from the 11th-grade level (science 29, social studies 24), and 55 respondents from the 12th-grade level (science 31, social studies 26). The inclusion criteria for the respondents required them to be active students aged between 15-18 years, while the exclusion criteria were students with severe or chronic physical illnesses, physical disabilities, or those facing threats/pressures.

### **Instruments**

Data were collected through the Rosenberg Self Esteem Scale (RSES) questionnaire to assess self-esteem and the Hamilton Anxiety Rating Scale questionnaire (HARS) to measure anxiety levels. The RSES includes ten self-declaration items evaluated on a four-category scale, from "Strongly Agree" to "Strongly Disagree." The scoring system ranked "Strongly Agree" (SA) highest and "Strongly Disagree" (SDA) lowest, with "Agree" (A) and "Disagree" in between. Scores were then calculated based on the proportion of items with SA=4, A=3, DA=2, SDA=1. The validity and reliability test showed that all questions were valid with a Cronbach alpha value of 0.840. The total score reflects self-esteem ranging from 28-40 for highest and < 28 for lower values.<sup>[14]</sup>

The HARS comprises fourteen items. Each item is assigned a value on a scale of 0 to 4, based on the severity of symptoms. A higher total score indicates more severe anxiety (14-56), whereas a lower score suggests no anxiety (<14). The validity and reliability test of the HARS questionnaire demonstrates that all questions are valid, with a Cronbach alpha value of 0.89.<sup>[15]</sup>

The present study also collect data about the participants' gender, age, grade levels, major of study (science or social studies), and their parents' income level.

### **Statistical analysis**

In this study, the Kolmogorov-Smirnov test of normality showed that the data distribution was

not normal. Multiple logistic regression was performed to control for possible confounding factors and to identify factors that are independently associated with anxiety. A p value of less than 0.05 was used to declare the presence of a statistically significant association between variables.

### **Ethical clearance**

The study protocol was approved by the Research Ethics Committee of the Faculty of Medicine, Universitas Trisakti, under no. 82/KER-FK/10/2020.

## **RESULTS**

### **Characteristics of respondents**

As seen in Table 1, the numbers of participants were proportionate according to school grade. The majority (54.9%) specialized in science while 45.1% focused on social studies. Female respondents made up the majority at 66.7%, almost twice the number of male respondents at 33.3%. Similarly, more than twice as many parents reported an income of over 5 million rupiah (66.7%) compared to those earning less (33.3%).

### **Self-esteem and anxiety**

Most of the participants indicated high self-esteem (61.1%), while 51.9% reported experiencing anxiety (Table 1). The multiple logistic regression showed no significant relationship of anxiety with age, gender, major of study, and parental income ( $p > 0.05$ ) Self-esteem was the major risk factor for anxiety (OR=2.21; 95% CI=1.154.24) (Table 2). This suggests that the risk of anxiety in lower self-esteem senior high school students was 2.21 times higher compared to senior high school students with high self-esteem.

## **DISCUSSION**

The research findings indicate that adolescents experiencing anxiety amount to 51.9%. This result is higher compared to the national prevalence of anxiety in Indonesian adolescents of 9.8%.<sup>(11)</sup> This finding is consistent with the prevalence of anxiety in elementary school children in Bandung, Indonesia, which was found to be over 50% in a recent study.<sup>(16)</sup> The high prevalence of anxiety among senior high school students is concerning because it can have

detrimental effects on their academic performance, social relationships, and overall well-being.<sup>(17)</sup> It is important to note that several factors may contribute to the high prevalence of anxiety among senior high school students, possibly including academic pressure, social expectations, family dynamics, and personal experiences.<sup>(18-20)</sup>

Emotional dysregulation is one of the important factors that affect self-esteem and can cause feelings of anxiety in response to stimuli that the students receive from the surrounding environment.<sup>(21)</sup> Students with low self-esteem were detected in Vietnamese secondary school students at a prevalence of 19.4%. High educational stress and physical and emotional abuse by parents or other adults in the household are major risk factors correlated to low self-esteem.<sup>(4)</sup>

In addition, the influence of socioeconomic and parent-adolescent relationships on self-esteem and anxiety where students from a high socioeconomic level and living in prosperity depend on the choice of occupation, the importance of being successful in university examinations, the fierce competition amongst students, and the high level of concern over exams can be better understood.<sup>(22)</sup> All of these factors cause serious pressure on students and their families, leading to high test anxiety, lack of self-esteem, or decreased self-esteem.<sup>(22)</sup>

Besides socio-economic factors, family relationship also plays an important role, where lower family self-esteem was associated with more symptoms of depression in adolescents.<sup>(6,23)</sup> Positive relationships between peers will have an influence on students whereas lower peer self-esteem is associated with more anxiety symptoms.<sup>(20)</sup>

The use of social media throughout the day until late at night can reduce sleep quality which will also affect anxiety. In addition, emotions or small actions that someone does in cyberspace without the intention to hurt others can subconsciously cause anxiety in adolescents.<sup>(23)</sup>

The components that support mental health include the physical and social components namely physical exercise, nutrition, friendship, and love relationships.<sup>(24)</sup> These things are necessary for an individual to be physically and socially healthy. Yoga, gratitude, non-theistic spiritual experiences, closeness to God, and positive coping were positively associated with self-rated health and also with better emotional functioning.<sup>(25)</sup>

Table 1. Characteristics of the study sample (n-162)

Characteristics	n (%)
Age (years)	
15-16	98 (60.4)
17-18	64 (39.6)
Gender	
Male	54 (33.3)
Female	108 (66.7)
Grade	
X	54 (33.3)
XI	53 (32.7)
XII	55 (34.0)
Major of Study	
Social studies	73 (45.1)
Science	89 (54.9)
Parent's income (Rupiah)	
< 5.000.000	54 (33.3)
≥ 5.000.000	108 (66.7)
Self-esteem	
Lower-moderate self-eEsteem	63 (38.9)
Higher self-esteem	99 (61.1)
Anxiety	
No anxiety- mild anxiety	78 (48.1)
Moderate-severe anxiety	84 (51.9)

Table 2. Multiple logistic regression of several risk factors of anxiety

	$\beta$	p value	OR	95% CI for OR	
Age	0.06	0.842	1.06	0.55	2.05
Parent's income	0.12	0.176	1.12	0.58	2.17
Gender	0.12	0.707	1.13	0.58	2.21
Majoring	0.19	0.543	1.21	0.64	2.29
<b>Self-esteem*</b>	<b>0.79</b>	<b>0.017*</b>	<b>2.21</b>	<b>1.15</b>	<b>4.24</b>

There is a relationship between different domains of self-esteem and a variety of health outcomes in an adolescent population. In addition, there are other creative components, which consists of several factors such as thoughts, emotions, self-control, work arrangements, and positive humor that can help a person to manage their anxiety and avoid excessive stress.<sup>(26)</sup>

The integrated model presented suggests a crucial link between self-esteem and anxiety through the appraisal of stressful events and subsequent stress responses. Individuals with higher self-esteem may be more likely to appraise stressors as controllable challenges rather than uncontrollable threats, leading to more adaptive stress responses. This positive mindset not only influences their immediate reactions to stress but also shapes their long-term coping strategies. Conversely, individuals with lower self-esteem may be prone to appraising stressors as harmful and uncontrollable, perpetuating a cycle of negative affect and avoidance behavior associated with anxiety.<sup>(27)</sup>

However, in this study no significant relationship was found of age, gender, study major, and parental income with anxiety. These findings suggest that factors other than demographic characteristics may play a more crucial role in the development of anxiety among senior high school students.

Despite the valuable insights gained from our study, several limitations should be acknowledged. First, the study relied on self-report questionnaires, which are subject to response bias and may not capture the full spectrum of participants' experiences. Second, the design was cross-sectional which would not be able to determine a causal relationship. Future research could address these limitations by employing longitudinal designs such as cohort studies and incorporating diverse samples from various cultural backgrounds.

The clinical implications of this research highlight the importance of paying attention to the level of self-esteem in senior high school students as a factor that can influence their anxiety levels. By recognizing the link between self-esteem and anxiety, mental health professionals can design interventions aimed at increasing adolescents' self-esteem to reduce their anxiety levels. A holistic approach involving psychosocial approaches and social support also needs to be considered in designing interventions to help adolescents overcome their self-esteem and

anxiety problems. It is important to note that each individual has unique needs and challenges, therefore, intervention approaches must be tailored to individual needs. Thus, the results of this study provide a basis for clinical practitioners to develop effective intervention programs in dealing with self-esteem and anxiety problems in high school adolescents.

## **CONCLUSIONS**

This study demonstrated that self-esteem plays a significant role in predicting anxiety levels among senior high school students. Thus, the mental health of senior high school students especially their self-esteem and anxiety should be the first priority because it will affect all aspects of their lives, especially their academic-related responsibilities.

### **Conflict of interest**

The authors declare no conflict of interest.

### **Acknowledgement**

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### **Author Contributions**

All authors take public responsibility for the content of the manuscript submitted to *Universa Medicina*. YP and PT: conceived and designed the study; YP: data collection; PT: data analysis and interpretation of the results; YP, PT: writing of the manuscript. All authors have read and approved the final manuscript.

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### **Data Availability Statement**

The data used to support the findings of this study is available from the corresponding author upon request

### **Declaration of Use of AI in Scientific Writing**

Nothing to declare

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