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# Association between family assessment tools and depression in adolescents: a cross-sectional

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## Abstract

**Purpose:** Adolescents are very vulnerable to depression because adolescence is a period of psychological development. Research on family function in adolescents experiencing depression is still limited. This study aims to determine the association of family assessment tools with depression in adolescents. **Methods:** This study was an observational, cross-sectional analysis conducted from October to December 2024. The population of this study was all high school students at SMAN 4 Palembang, and the sample was all 3rd-grade students who met the inclusion and exclusion criteria. A total of 177 respondents were included. The independent variable studied was the family assessment tools, and the dependent variable was depression. The Family function examination is assessed using the APGAR score, which consists of adaptation, partnership, growth, affection, and resolve. In contrast, the SCREEM consists of social, cultural, religious, economic, educational, and medical. Adolescent mental health was measured using the Children's Depression Inventory Questionnaire. The data were then analyzed using the chi-square test, and the Fisher test if the chi-square test did not meet its assumptions. **Results:** There were significant relationships between APGAR score (*p*-value=0.000), social (*p*-value=0.001), culture (*p*-value=0.003), religion (*p*-value=0.000), and education (*p*-value=0.003) and adolescent depression. There is no relationship between the economy (*p*-value 0.387) and access to health (*p*-value=0.797) in depression in adolescents. **Conclusion:** APGAR scores can be integrated into family folders within health services to facilitate practitioners' involvement of families in depression management. Families are expected to play a greater role, especially in the social, cultural, religious, and educational spheres.

**Keywords:** adolescent; depression; family assessment

## INTRODUCTION

Adolescence is a crucial formative period where the transition from childhood to adulthood begins. Young people must have access to comprehensive support in all areas of their lives, including their mental health and well-being. Mental illness poses a significant burden to young people around the world. In 2019, an estimated 1 in 7 young people suffered from mental illness [1]. 450 million people worldwide suffer from mental disorders, neurological disorders, and substance abuse. These disorders contribute to 14% of the global burden of disease. Approximately 154 million of them suffer from depression. One in seven adolescents aged 10–19 years experiences psychological problems. The prevalence of depression across various ages in Indonesia reached 1.4%. The highest prevalence of depressive symptoms was found in the young age group (15–24 years). A survey on adolescent mental

health in Indonesia showed that 5.5% of adolescents aged 10 to 17 years experienced mental disorders. Depression can lead to suicide, and suicide is the fourth leading cause of death among adolescents worldwide. Many people experience psychological disorders but are unaware of them and do not receive appropriate treatment. Untreated and delayed depression can lead to death by suicide. Therefore, it is very important to screen the mental health status of adolescents to prevent more severe cases [2,3].

Family circumstances affect adolescents' behavior and mental health. Parents are the key to family success [4,5]. Mental health is a state of emotional, mental, and social well-being. It incorporates how an individual considers, feels, and goes about daily life [6]. Emotional support from family plays a crucial role in preventing or reducing the risk of depression in adolescents. Various factors, such as academic pressure, bullying, and family problems, can be better managed with the support of a loving family environment. Families that provide emotional support through acceptance, understanding, and open communication can help adolescents cope with the emotional stress they experience [7-9]. A positive family environment and strong parent-child bonds can help adolescents feel loved and help prevent them from developing a sensitive, withdrawn personality. This can help them avoid depression caused by a lack of security and trust in social interactions [10,11]. The burden of depression on adolescent health and social functioning is severe and can affect adult life. Signs of depression are often perceived, overlooked, or deliberately ignored by family members and primary health care providers, especially in younger children and adolescents. This factor can represent a major barrier in establishing effective and timely preventive measures [12,13].

Research on family function has not yet been fully explained, and some studies examine APGAR scores alone rather than assessing other family functions, such as SCREEM, simultaneously in adolescents. Assessing family dysfunction requires the family APGAR and SCREEM, which are the primary assessments in healthcare. APGAR stands for adaptability, growth, affection, and resolve, while SCREEM stands for social, cultural, religious, educational, economic, and medical. Family support has significant potential to improve the quality of life for older adults, particularly when assessed using the family APGAR [14,15]. The Family APGAR is a way to assess how a family functions internally by observing how each member interacts with others. Using SCREEM, we can assess a family's ability to cope with problems or crises and to access healthcare. By combining these two assessment methods, family functioning can be strengthened [16].

With the increasing number of adolescents experiencing psychological disorders, the role of family assessment tools through APGAR scores and SCREEM can affect adolescent health; by identifying family functions, the government or schools can provide interventions to parents to reduce depression in adolescents. This study aims to determine the association of family assessment tools with depression in adolescents. This study uses a quantitative methodological approach, drawing on family medicine's family-centered management and school health's increased collaboration among schools, health professionals, and families in health interventions and the early detection of psychological problems in adolescents within adolescent mental health practice.

## METHODS

### Study design and setting

This study was an observational analytic study with a cross-sectional design, conducted from October to December 2024. The research was conducted at SMAN 4 Palembang because it is a state school with a large student population and diverse socioeconomic backgrounds, making it representative of the general adolescent population. The data began by identifying the outcome, namely adolescent depression status, and assessing risk factors using family assessment tools (APGAR, SCREEM). The sample consists of all 3rd-grade students at SMAN 4 Palembang who meet the inclusion and exclusion criteria, totaling 177 respondents. Inclusion criteria are willingness to participate, while exclusion criteria are taking psychiatric medication and failure to complete the questionnaire. The sample technique uses total sampling.

### Variables

The independent variable studied was the family assessment tools, and the dependent variable was depression. The family assessment tool used is the APGAR score, which consists of family satisfaction with affection, cooperation, development, adaptation, and togetherness. SCREEM consists of social, cultural, religious, economic, educational, and medical functions in the family. Adolescent mental health was measured using the Children's Depression Inventory questionnaire (CDI), which has been tested for validity and reliability.

### Data analysis

Data were collected through direct interviews and questionnaires. The APGAR score is obtained if the

respondent answers that they always get a score of 2, sometimes get a score of 1, and never get a score of 0. Scores 0-6 indicate non-functional, scores above 7 are functional [17]. SCREEM is classified as adequate if there are no problems in each aspect. CDI is a questionnaire to measure the level of depression in children and adolescents. This questionnaire consists of 27 questions that are rated on a 3-point scale. A score >13 indicates the patient is depressed, and a score <13 indicates not depressed. Some dimensions of the CDI include negative emotions, such as sadness, worry, guilt, crying, dependence, and indecision in questions 1,6,3,10, 11 and 26, interpersonal problems about negative self-talk, withdrawal, social problems, and self-blame in questions 5,12,27,8, inefficiency about incompetence, motivation, feelings of failure, and inability in questions 23,15,2,24, and anhedonia about moodiness, sleep disturbance, fatigue, and appetite, health, loneliness, boredom, friendship in questions 4,16,17,18,19,20,21,22, negative self-esteem about decisions, self-hatred, suicide, appearance, feelings of love in questions 13,7,9,14,25 [18]. Univariate analysis was explained using frequencies and percentages. To assess the relationship between the two categories of variables, a chi-square test was conducted; if the data did not meet the chi-square test assumptions, Fisher's exact test was used. All analyses were performed using SPSS version 27. If the p-value is less than 0.05, the null hypothesis is rejected, indicating a statistically significant relationship between the family assessment tool variable and the depression variable among adolescents.

## RESULTS

The results of this study cover the characteristics of 177 respondents based on age and sex, living with family, APGAR score, and depression. Table 1 shows that the adolescents who experienced depression (46.3%) were also almost close to the percentage of adolescents who did not experience depression (53.7%). Table 2 shows that, in the negative emotion dimension, the highest mean is for indecision at 0.82, with a median of 1.00. In the interpersonal problems dimension, the highest mean is for withdrawal at 0.45, with a median of 0.00. In the dimension of inefficiency, the highest mean is incompetence, with a median of 0.00. In the dimension of anhedonia, the highest mean for sleeping disturbance with a mean of 0.82 with a median of 1.00. In the dimension of negative self-esteem, the highest mean is suicide of 0.65 with a median of 0.00.

**Table 1. Characteristics, APGAR score, SCREEM, and depression of respondents**

| Characteristics | n | % |
|---|---|---|
| **Age (years)** | | |
| 16 | 7 | 4.0 |
| 17 | 97 | 54.8 |
| 18 | 73 | 41.2 |
| **Sex** | | |
| Male | 80 | 45.2 |
| Female | 97 | 54.8 |
| **Living with family** | | |
| No | 5 | 2.8 |
| Yes | 172 | 97.2 |
| **APGAR score** | | |
| Functional | 98 | 55.4 |
| Not functional | 79 | 44.6 |
| **Social, cultural, religious, educational, economic, and medical (SCREEM)** | | |
| **Social** | | |
| Adequate | 165 | 93.2 |
| Inadequate | 12 | 6.8 |
| **Culture** | | |
| Adequate | 158 | 89.3 |
| Inadequate | 19 | 10.7 |
| **Religion** | | |
| Adequate | 167 | 94.4 |
| Inadequate | 10 | 5.6 |
| **Economic** | | |
| Adequate | 152 | 85.9 |
| Inadequate | 25 | 14.1 |
| **Education** | | |
| Adequate | 161 | 91.0 |
| Inadequate | 16 | 9.0 |
| **Medical** | | |
| Adequate | 161 | 91.0 |
| Inadequate | 16 | 9.0 |
| **Depression** | | |
| Yes | 82 | 46.3 |
| No | 95 | 53.7 |

**Table 2. Depression among adolescents**

| Demension | | Mean | Median |
|---|---|---|---|
| **Negative emotion** | Sadness | 0.27 | 0.00 |
| | Worry | 0.44 | 0.00 |
| | Guilt | 0.48 | 0.00 |
| | Crying | 0.45 | 0.00 |
| | Dependence | 0.52 | 0.00 |
| | Indecision | 0.82 | 1.00 |
| **Interpersonal problems** | Negative self-talk | 0.32 | 0.00 |
| | Withdrawal | 0.45 | 0.00 |
| | Social problems | 0.44 | 0.00 |
| | Self-blame | 0.29 | 0.00 |
| **Inefficiency** | Incompetence | 0.67 | 0.00 |
| | Motivation, | 0.54 | 0.00 |
| | Feelings of failure | 0.62 | 1.00 |
| | Inability | 0.66 | 1.00 |
| **Anhedonia** | Moodiness | 0.48 | 0.00 |
| | Sleep disturbance | 0.82 | 1.00 |
| | Fatigue | 0.52 | 0.00 |
| | Appetite | 0.53 | 0.00 |
| | Health | 0.61 | 1.00 |
| | Loneliness | 0.62 | 1.00 |
| | Boredom | 0.00 | 0.00 |
| | Friendship | 0.00 | 0.00 |
| **Negative self-esteem** | Decisions | 0.34 | 0.00 |
| | Self-hatred | 0.28 | 0.00 |
| | Suicide | 0.65 | 1.00 |
| | Appearance | 0.00 | 0.00 |
| | Feelings of love | 0.59 | 0.00 |

**Table 3. Bivariate analysis**

| Variable | Depression | | | | *p*-value | OR |
|---|---|---|---|---|---|---|
| | Yes | | No | | | |
| | n | % | n | % | | |
| **APGAR Score** | | | | | | |
| Not functional | 52 | 29.4 | 27 | 15.3 | 0.000* | 4.365 |
| Functional | 30 | 16.9 | 68 | 38.4 | | |
| **Social** | | | | | | |
| Inadequate | 11 | 6.2 | 1 | 0.6 | 0.001* | 14.563 |
| Adequate | 71 | 40.1 | 94 | 53.1 | | |
| **Culture** | | | | | | |
| Inadequate | 15 | 8.5 | 4 | 2.3 | 0.003* | 5.093 |
| Adequate | 67 | 37.9 | 91 | 51.4 | | |
| **Religion** | | | | | | |
| Inadequate | 10 | 5.6 | 0 | 0 | 0.000** | N/A |
| Adequate | 72 | 40.7 | 95 | 53.7 | | |
| **Economy** | | | | | | |
| Inadequate | 14 | 7.9 | 11 | 6.2 | 0.387* | 1.572 |
| Adequate | 68 | 38.4 | 84 | 47.5 | | |
| **Education** | | | | | | |
| Inadequate | 13 | 7.3 | 3 | 1.7 | 0.003* | 5.778 |
| Adequate | 69 | 39.0 | 92 | 52.0 | | |
| **Medical** | | | | | | |
| Inadequate | 8 | 4.5 | 8 | 4.5 | 0.797* | 1.176 |
| Adequate | 74 | 41.8 | 87 | 49.2 | | |

**Note:** *chi-square test, ** Fisher test
N/A: OR cannot be calculated because there is 1 cell that has a 0 value

Out of 177 respondents, a significant relationship was found between APGAR score (*p*-value = 0.000, OR 4.365, CI 2.318 – 8.22), social (*p*-value = 0.001, OR 14.563, CI 1.837-115.43), culture (*p*-value = 0.003, OR 5.093, CI 1.617-16.040), religion (*p*-value = 0.000) and education (*p*-value = 0.003, OR 5.778, CI 1.58-21.06) to depression in adolescents. There was no relationship between the economy (*p*-value = 0.387) and the medical (*p*-value = 0.797) on depression in adolescents (Table 3).

## DISCUSSION

There was a significant relationship between APGAR score, social, cultural, religious, and educational factors, and adolescent depression. Rojas' research also found that APGAR was positively correlated with depression in adolescents [19]. This is in line with Rahmawati's research, which found that there is a significant relationship between family support and depression levels among adolescents in correctional facilities. Analysis of the relationship between family support and the level of depression in adolescents in correctional institutions showed that adolescents in correctional institutions experienced mild depression despite receiving high support from their families. In contrast, adolescents with low levels of family support were found to suffer from depression [10,11,20]. A previous study of adolescents aged 15 to 18 found differences in depression severity between adolescents with good and poor relationships with their parents [21]. There is a significant relationship between social factors and depression in adolescents. This aligns with Fasha's research. Social support acts as a 'buffer' or cushion against the negative effects of social and environmental pressures that adolescents may face. A strong social support environment can help individuals feel more secure and protected from situations that may lead to depression [22].

There is a significant relationship between culture and depression. Khodijah's research shows that the majority of parents from the Palembang Malay ethnic group tend to adopt authoritarian child-rearing styles. 51% of adolescents reported that their parents used an authoritarian approach, while 48.2% reported a more democratic approach. If children make mistakes or break established rules, parents often impose harsh punishments. This leaves children feeling pressured and unable to make their own decisions [23]. Culturally, there needs to be a transformation in social norms that have hindered open discussions about mental health. Educating the public about the importance of accepting emotional diversity and fostering a positive identity among adolescents can help reduce the social pressures they face. Adolescents need encouragement to accept themselves and appreciate their unique abilities [24].

The SCREEM instrument helps understand the resources that shape family strengths and weaknesses. SCREEM guides the exploration of resources within the family and can be applied to both collectivist and individualist cultures. ANR research using SCREEM to explore cultural factors in collectivist Indonesia found that this instrument can explore emerging risk factors. Culturally, Javanese norms make patient families reluctant to refuse neighbors' gatherings at their homes, which can lead to several illnesses, especially infectious diseases. Obimakinde's research on family functioning using the SCREEM family model found that, in the cultural context, the loss of collectivist attitudes in childcare is a current trend affecting families in the region. Family modernization has led to the loss of collective childcare systems and cultures, thus becoming a risk factor for pathological conditions [25,26].

The results of this educational research provide a strong foundation for implementing educational programmes that develop students' social and emotional skills. Incorporating lessons on the importance of social support into the school curriculum can help promote a more positive outlook and reduce the stigma associated with mental health problems [22,27]. Religion can influence mental health in this research, which is in line with Siagian's research, which finds a significant relationship between levels of students' religiosity and levels of depression in students. Religious maturity makes people pay more attention to themselves; people always follow the right path and adhere to the norms

taught by religion; people maintain the integrity of their religious soul. Religious experiences, such as a sense of receiving a warning or help from God (Effective factor) [28-30]. Resilience theory suggests that adolescents' access to a functioning family helps foster psychological resilience. Good family functioning can foster the development of psychological resilience. Conversely, adolescents who consistently live in a dysfunctional family environment may experience psychological problems, making it difficult for them to cope with negative external influences and ultimately leading to depression [10]. The educational level of older people is an important factor closely related to a warm, functional family. On average, more educated parents spend more time raising their children, demonstrate better communication skills, and maintain healthier family relationships than less educated parents. Parents with higher levels of education tend to spend more time improving their children's social interactions and communication, which may have a greater impact on treating students' mental health problems, such as depression [30,31]. Medical does not have a significant relationship because the average student has access to health insurance, such as BPJS (*Badan Penyelenggara Jaminan Sosial*), which makes it easier for teenagers to seek treatment or consult about their health. Economics is not related to this research, which may be because there are still many factors that can influence mental health in adolescents. Adolescence is often said to be the most difficult transition period for children, as they face unstable emotions and mental states, multiple conflicts, new demands, mood swings, and a lack of problem-solving skills. Mental health problems do not just appear out of nowhere [32].

Research by the WHO on mental health promotion found that communities, families, and schools are among the most crucial social settings for supporting youth mental health and well-being. In addition to providing assistance and support for youth facing mental health issues and challenges, these settings also provide opportunities for improving emotional and social skills and academic achievement. This is a result of the positive relationship between improved mental health outcomes and opportunities for lifelong learning [33]. Collaborative care programs involving primary care providers and mental health experts are more efficient than traditional care and appropriate in treating moodiness among adolescents [34]. Health education for adolescents can be an alternative strategy for building social support. Each group member can share experiences and help each other solve problems. Adolescents need a group approach, specifically designed for adolescent support groups. This intervention aims to enable individuals to express their feelings and provide support to others facing similar challenges. This is expected to help adolescents develop adaptive coping mechanisms [35].

This study has several limitations, including its observational-analytical design, which makes it difficult to quantify the effects reported in experimental research. The lack of multivariate analysis and the resulting selection bias are also limitations. Future research should utilize experimental research with intervention programs designed to reduce depression for adolescents, parents, schools, and healthcare workers.

## CONCLUSION

There is a significant relationship between APGAR score, social status, religion, and education on depression in adolescents. Health facilities, such as community health centers, are expected to integrate the APGAR assessment into family folders and mental health profiles. Schools are expected to provide counseling for at-risk students. Families, schools, and the surrounding community are expected to create an environment conducive to and supportive of adolescent mental development in the context of religion.

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**Authors' contribution**
P.R.A.B.: Conceptualization, Methodology, Writing—original draft; R.A.: Formal analysis, Data curation, Writing—review & editing; D.N.A.: Supervision, Funding acquisition; A.A.: Methodology, Writing-review & editing; E.M.: Methodology, Writing-review & editing; A.G.: Methodology, Writing-review & editing; P.N.M.: Data curation, Writing—review & editing. All authors approved the final manuscript.

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**Data availability**
The data supporting the findings of this study are available from the corresponding author upon reasonable request.

**Ethics statement**
This research has received ethical approval from the ethics commission of the Faculty of Medicine, Universitas Muhammadiyah Palembang (number 027/EC/KBHKI/FK-UMP/X/2024), informed consent from the guardian, and approval from the respondent.

**Conflicts of interest**
The authors declare no conflict of interest regarding the publication of this article.

**Use of artificial intelligence (AI)**
Portions of this article were edited using Mendeley and Grammarly. All AI-assisted content has been reviewed and validated by the authors. The authors are solely responsible for the final product.

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