Mental Health Determinants And Risk Behaviors of High School Students

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ABSTRACT

***Background**: According to the Basic Health Research Survey (Riskesdas), the prevalence of depression in the population aged 15-24 years is 6.2%. Adolescents are prone to a variety of risky behaviors, such as drug abuse, unsafe sexual behaviors, and unhealthy diets.* ***Objective**: The purpose of this study was to analyze risky behaviors related to mental health determinants in high school students.* ***Methods**: This cross-sectional study was conducted in North Balikpapan, Samboja, and Sepaku Districts, which serve as buffer zones of the National Capital, particularly at SMAN 9 Balikpapan (n=248), SMAN 2 Samboja (n=110), and SMAN 3 Penajam Paser Utara (n=28), during October-November 2024. The dependent variables measured were health risk behaviors, and the independent variables were determinants of mental health. A multivariate analysis was performed using a binary logistic regression test.* ***Results**: Family mental health status was found to increase the likelihood of smoking behavior by 2.282 times (p=0.005). Meanwhile, psychological pressure on students increased the likelihood of excessive time spent staring at a gadget screen by 2.126 times (p=0.018). Additionally, family mental health status had a protective effect against low physical activity in students (p=0.010, OR=0.198).* ***Conclusion**: Psychological distress and family mental health significantly influence adolescent risk behaviors. Further research is needed to explore the physiological aspects of stress and the impact of family mental health on risky behaviors in adolescents.*

***Keywords**: High School Student, Mental Health, Psychological Distress, Risk Behavior*

INTRODUCTION

Mental health problems often arise at a young age. Globally, mental health issues are estimated to account for 16% of the burden of disease. The World Health Organization (WHO) reports that nearly one billion people worldwide suffer from various mental health disorders. Before the pandemic, a WHO report estimated that approximately 970 million people worldwide lived with mental disorders, of whom 82% reside in low- and middle-income countries. Between 2000 and 2019, it is estimated that there was a 25% increase in the number of people living with mental disorders (WHO, 2022).

Mental health problems are also a significant public health issue in Indonesia. According to the Indonesian Basic Health Survey (RISKESDAS), the prevalence of depression in the population aged 15–24 years is 6.2% (Riskesdas, 2018). Another study indicates that around 7.7% of students in Indonesia experience mental or emotional problems (Suryaputri, 2013).

Based on data from the Directorate General of Disease Prevention and Control (P2P), the number of people with mental disorders in Indonesia currently amounts to approximately 236 million. Of these, 6% experience mild mental disorders, while 0.17% experience severe mental disorders, with 14.3% of severe cases requiring confinement. The 2018 Basic Health Research (Riskesdas) also reports that the prevalence of depression in Indonesia is 6.1% among individuals aged 15 years and older.

Data from studies on adolescents show that anxiety, depression, eating disorders, bipolar disorder, personality disorders, psychosis, addiction disorders, substance abuse, suicide attempts, and self-harm become more frequent within this age group (Sadler *et al.*, 2017)

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(Rohmah, Iswanto and Tri Agustini, 2022). Unfortunately, only 9.2% of adolescents aged 15–24 years who experience depression seek treatment at health facilities. Adolescence is a developmental period that is particularly sensitive to mental health issues. During this time, individuals develop emotional and social skills, habits, and coping strategies that are crucial for maintaining mental well-being, including healthy sleep patterns, regular exercise, problem-solving abilities, and interpersonal skills (Dev *et al.*, 2017).

Many risk behaviors, such as the use of harmful substances, begin during adolescence and can be highly detrimental to mental health. During this period, extreme mood swings are often caused by the burden of homework, school, and daily activities (Supini *et al.*, 2024). Challenges in adapting to a changing environment, difficulty managing time and finances, increased loneliness when migrating far from home, as well as a lack of support from the environment and pressure from surroundings, can cause stress—one of the factors contributing to mental disorders in adolescents (Ningrum et al., 2022). Conversely, adolescents with better mental health tend to demonstrate higher levels of achievement, decision-making ability, problem-solving skills, and academic success (Suldo *et al.*, 2014).

There is a link between risky health behaviors and psychological distress; for example, previous studies have highlighted that the relative risk of smoking associated with psychological distress has increased over the past two decades (Jokela *et al.*, 2020). The study also showed that individuals experiencing psychological distress were less likely to quit smoking compared to those who did not experience such distress (Jokela *et al.*, 2020). Other studies have also found a significant relationship between psychological stress and risky health behaviors, such as tobacco use, not meeting physical activity recommendations, excessive device use (screen time), and inadequate consumption of breakfast and vegetables (Arbour-Nicitopoulos, Faulkner and Irving, 2012).

In the context of the Social Ecological Model (SEM), this framework provides a comprehensive understanding of the interaction between individuals and their surrounding environment in influencing health behavior. The model emphasizes the importance of factors at various levels, including individual, interpersonal, community, and policy (Bronfenbrenner, 1979). This model will be employed in this study to explain factors related to risky behaviors and mental health determinants at different levels: individual (psychological distress), interpersonal (family and peer support, influence of adolescent mental health), and community (school support for mental health). Therefore, the study aims to analyze multivariate determinants of mental health and their impact on risky behaviors among adolescents, particularly high school students.

METHODS

The design of this study is cross-sectional because data collection was conducted at a single point in time to obtain an overview of the population in a shorter period. Data collection took place in East Kalimantan Province during October-November 2024. The population in this study consists of State High School students in the North Balikpapan District (SMAN 2 Balikpapan, SMAN 6 Balikpapan, and SMAN 9 Balikpapan), Samboja District (SMAN 1 Samboja and SMAN 2 Samboja), and Sepaku District (SMAN 3 Sepaku). These areas are influenced by the development of the New Capital City, which also warrants further research into students' behaviors in these schools. Consequently, schools within the buffer zone of the New Capital City were selected: SMA Negeri 9 Balikpapan, SMA Negeri 2 Samboja, and SMA Negeri 3 Sepaku. The sample size was calculated using Krejcie and Morgan's table, based on a total population of 4,097 students (Dapodik, 2024). This resulted in a sample size of 351 students with a 5% margin of error, and with an additional 10% to account for potential non-responses, the total sample size was adjusted to 386 students.

Based on the proportion of students in each city, the sample size was distributed as follows: 248 students from SMAN 9 Balikpapan, 110 students from SMA Negeri 2 Samboja, and 28 students from SMA Negeri 3 Penajam Paser Utara, totaling 386 students. The questionnaire instrument used in this study adopts the Kessler Psychological Distress Scale (K10)

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(Kessler *et al.*, 2003). Other variables, such as health risk behaviors, family mental health influences, family and peer support, and the role of the school community in mental health, will be compiled by referring to relevant sources.

The dependent variable is risky behavior, specifically related to adolescent mental health. It includes smoking, low physical activity, excessive screen time, and low consumption of vegetables and breakfast. These behaviors will be categorized into high-risk and low-risk groups. Each component of the variable will also be classified into high-risk and low-risk behaviors prior to analysis.

Meanwhile, there are four independent variables: (1) psychological distress, which refers to the distress experienced by adolescents and will be categorized as either experiencing psychological distress or not experiencing it; (2) family and peer support, specifically the mental health support provided by family and peers, categorized into support available and no support; (3) family mental health influence, including the history of mental health problems within the family, substance abuse, and violence in the family—both as victims and perpetrators—and categorized as either present or absent; and (4) school support for mental health, which includes support provided by the school, such as educational programs or mental health resources.

Previously, a validity test of the research questionnaire was conducted at SMAN 16 Samarinda, and the questions were adjusted based on the validity results. The online questionnaire was distributed via Google Forms through a link and barcode sent to each respondent's cellphone. While this online data collection method facilitates ease of access, it may introduce data bias if filled out independently by students. To mitigate this, the research team provided offline assistance during the data collection process, even though the questionnaire was administered online.

The analysis used in this study includes a univariate test to examine frequency distributions, followed by a logistic regression test as a multivariate analysis. This research has obtained ethical clearance from the Faculty of Medicine, Mulawarman University, with the approval number 314/KEPK-FK/XII/2024.

RESULTS AND DISCUSSION

Based on the results of this study, data on the characteristics of 386 respondents are presented in the table below.

Table 1. Respondents Characteristics

Characteristics		n (N 386)	%
School	SMAN 2 Samboja	110	28.5
	SMAN 3 Penajam Paser Utara	28	7.3
	SMAN 9 Balikpapan	248	64.2
Gender	Male	114	29.5
	Female	272	70.5

	Mean	SD	Median	Minimum	Maximum
Age	16.42	0.92	16.00	14.00	19.00

The average age of respondents was 16 years old, with the youngest age being 14 years old and the oldest being 19 years old.

Table 2. The Influence of Mental Health Determinants on Smoking Behavior

Smoking Behavior	p-value	OR	95% C.I.for OR	
			Lower	Upper
Psychological Distress	0.468	0.831	0.505	1.370
Family and Peer Support	0.553	1.160	0.710	1.895
Family Mental Health Influence	0.005	2.282	1.291	4.035
School Support	0.454	1.209	0.736	1.985
Constant	0.191	1.452		

The results of the multivariate test showed that family mental health had a significant influence on students' smoking behavior ($p < 0.05$), with an odds ratio (OR) of 2.2. This indicates that adolescents from families with mental health problems are twice as likely to smoke.

Parental smoking behavior has also been identified as a key determinant of adolescent smoking. Several studies have established a strong correlation between parental smoking and the likelihood of teenagers initiating smoking. Systematic review studies further confirmed that parental smoking is one of the strongest predictors of adolescent smoking behavior,

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highlighting that the presence of smoking parents significantly increases the risk of adolescents trying tobacco products (Wang et al., 2018).

Similarly, another study highlighted that family factors, including parental smoking habits, are closely related to substance use among adolescents, suggesting that adolescents tend to imitate their parents' behavior (Loke and Mak, 2013). This modeling effect aligns with the theory of planned behavior, which states that adolescents learn smoking behavior through observation and imitation of parental figures (Tapera *et al.*, 2020). ther significant factors associated with current smoking include school-related problems, binge eating, and having had more than one sexual partner (Lawrence *et al.*, 2022).

Table 3. The Influence of Mental Health Determinants on Excessive Screen Time

Excessive Screen Time	p-value	OR	95% C.I.for OR	
			Lower	Upper
Psychological Distress	0.018	2.126	1.141	3.963
Family and Peer Support	0.326	1.354	0.739	2.479
Family Mental Health Influence	0.322	1.552	0.650	3.710
School Support	0.517	1.227	0.661	2.277
Constant	0.000	0.059		

The table above shows that only the psychological stress variable was significantly related to screen time, with a p-value less than the alpha level (0.018). An odds ratio (OR) of 2.1 indicates that students experiencing psychological distress are 2.1 times more likely to engage in excessive screen time. Other variables, such as family, peer, and school support, as well as the influence of family mental health, were not significantly associated with excessive screen time behavior.

In the study by (Tang *et al.*, 2021), the results indicated a bidirectional and longitudinal relationship between screen time and internalized mental health symptoms in young people. A previous study reported a two-way relationship between screen time and depressive symptoms. This relationship appears to be complex; for example, depression may lead to increased screen time, rather than the reverse (Houghton *et al.*, 2018). Increased screen time is associated with negative outcomes such as lowered self-esteem, higher incidence and severity of mental health issues and addictions, slowed learning and skill acquisition, and an increased risk of premature cognitive decline (Neophytou, Manwell and Eikelboom, 2019).

Other factors, such as lack of physical activity, reduced face-to-face social interaction (Twenge et al., 2019), and sleep disturbances (Martin *et al.*, 2023), can also influence this relationship. Increasing physical activity levels in populations is likely to reduce the mental health burden. Exercise interventions should be incorporated into routine care for individuals with mental disorders due to their multiple benefits for physical and mental health outcomes (Schuch and Vancampfort, 2021). More research is needed to understand the factors that mediate this relationship and how screen time impacts the mental health of young people.

Table 4. The Influence of Mental Health Determinants on Lack of Physical Activity

Lack of Physical Activity	p-value	OR	95% C.I.for OR	
			Lower	Upper
Psychological Distress	0.287	1.423	0.743	2.726
Family and Peer Support	0.070	1.838	0.952	3.550
Family Mental Health Influence	0.010	0.198	0.058	0.678
School Support	0.839	1.072	0.546	2.106
Constant	0.000	17.943		

The table above shows that a p-value greater than 0.05 indicates no significant relationship between psychological distress and physical activity. Although an odds ratio (OR) of 1.423 suggests a tendency for individuals with higher psychological distress to be more physically active, this is not strong enough to establish a significant association. A confidence interval (C.I.) that includes the value 1 indicates that the effect could be positive or negative. The p-value of 0.070, which is close to the significance threshold of 0.05, suggests a

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positive trend between family and peer support and physical activity. An OR of 1.838 indicates that social support may increase an individual's likelihood of engaging in physical activity. However, the confidence interval, which also includes 1, warrants cautious interpretation of this result.

A significant p-value (0.010) indicates a negative relationship between family mental health and physical activity. An OR of 0.198 suggests that individuals from families with good mental health tend to have lower levels of physical activity. This may imply that, under certain conditions, individuals with better mental support may not feel the need to seek physical activity as a coping mechanism. With a p-value of 0.839, no significant association exists between school support for mental health and physical activity. An OR of 1.072 indicates that school support does not significantly affect students' physical activity levels. The confidence interval, which includes 1, confirms that this influence may be negligible.

It can be concluded that the influence of family mental health shows a significant negative relationship with physical activity. In contrast, family and peer support exhibit a positive, although not statistically significant, trend. School support and psychological distress did not significantly affect physical activity. These findings emphasize the importance of mental support within family and social contexts in encouraging physical activity among individuals. Further research is needed to explore other factors that may influence physical activity, particularly in relation to mental health.

Table 5. The Influence of Mental Health Determinants on Lack of Breakfast and Vegetable Consumption

Lack of Breakfast and Vegetable Consumption	p-value	OR	95% C.I.for OR	
			Lower	Upper
Psychological Distress	0.631	0.890	0.552	1.433
Family and Peer Support	0.572	0.871	0.540	1.406
Family Mental Health Influence	0.754	1.098	0.610	1.979
School Support	0.210	1.358	0.841	2.191
Constant	0.003	2.404		

The table shows that psychological distress (p-value = 0.631), family and peer support (p-value = 0.572), the influence of family mental health (p-value = 0.754), and school support for mental health (p-value = 0.210) do not significantly influence or relate to vegetable and breakfast consumption. Although these variables are not directly related in the table, mental health determinants play an important role in influencing dietary behaviors, including low consumption of breakfast and vegetables among adolescents. Poor mental health, such as psychological stress or depression, can reduce awareness of the importance of balanced nutrition and lead to unhealthy eating habits (Fismen *et al.*, 2024).

According to research, infrequent and/or frequent breakfast skipping is associated with depression, lower happiness, posttraumatic stress disorder, loneliness, short sleep duration, long sleep duration, sleep problems, restless sleep, sleep disturbances due to traumatic events, and poor academic performance (Peltzer and Pengpid, 2020). Low fruit and vegetable consumption has been identified as a longitudinal correlate of poor mental health across adolescence (Huang *et al.*, 2019). Teens with poor mental health may prefer instant foods that are high in sugar and fat, which provide temporary comfort but negatively impact nutritional balance.

Studies show that families who provide emotional support and engage in regular meal routines can help adolescents adopt healthier diets (Soto-Salgado et al., 2022). Additionally, support from schools, such as implementing healthy breakfast programs, can also increase the intake of essential nutrients.

Mental health and poor diet during adolescence can have long-term impacts, including an increased risk of chronic diseases such as obesity (Ruiz *et al.*, 2020). Therefore, a holistic intervention is

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necessary to address these two aspects simultaneously.

CONCLUSION

Based on the results of a multivariate analysis examining four dependent variables related to risky behavior and four independent variables of mental health determinants, it was found that family mental health influences smoking behavior, psychological pressure affects excessive screen time, and family mental health has a protective effect against lack of physical activity.

Families should pay attention to mental health conditions within the family, as they influence students' smoking behavior and can support increased physical activity among students. Meanwhile, schools can address psychological pressure in students, as it impacts excessive screen time. Additionally, schools should monitor and promote policies encouraging vegetable consumption and breakfast intake among students.

Researchers and practitioners can further investigate the influence of psychological distress and family mental health on risky behaviors in adolescents with mental health issues.

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