

# The Influence of School Environment on Students' Mental and Post-Traumatic Growth: A Quantitative Study

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## ABSTRACT

Mental health among adolescents is a critical concern with profound implications for individuals, families, and educational systems. In school settings, the environment can serve as a protective factor that fosters mental well-being and supports post-traumatic growth (PTG), particularly among students exposed to stress or adversity. This study aimed to explore the associative relationship between the school environment, students' mental health, and post-traumatic growth. Employing a descriptive quantitative design, the study involved 210 students from grades XI and XII at MA Taruna Al-Qur'an, selected using simple random sampling. Data were collected through a Likert-scale questionnaire covering perceptions of school environment, mental health, and PTG. Structural Equation Modeling (SEM) was applied using SmartPLS 4.0 to assess the strength of associations without implying causality. The analysis revealed that the school environment accounted for 86.8% of the variance in students' mental health and 89% in post-traumatic growth. Both associations were found to be statistically significant, with strong reliability and validity scores across all measurement constructs. These findings highlight the strategic role of a supportive school environment in promoting adolescents' psychological resilience and recovery. Creating a safe, inclusive, and empathetic school climate can significantly enhance students' capacity to maintain mental well-being and experience positive growth following adversity. Educational institutions are encouraged to integrate social-emotional learning and trauma-informed practices into their environments to further support student development.

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## 1. INTRODUCTION

Mental health issues are of global concern due to their wide-ranging impact on individuals of all ages, and they pose major challenges for families, communities, and healthcare systems (Efstathopoulou & Bungay, 2021). The issue is increasingly prominent among adolescents and children who are susceptible to being affected by social, academic, and environmental pressures. Moitra et al. (2023) mentioned that more than 13% of adolescents worldwide experience mental disorders, this

figure needs to be considered contextually because the quality of the school environment can be an important protector of mental health. In Australia, most children aged 4-17 years experienced mental health problems (Solmi et al., 2022), while in China, around 42.5% of university students are affected by similar issues (H. Wang et al., 2024). In Indonesia, the prevalence of mental disorders increased from 0.6% in 2013 to 9.85% in 2018, and it is estimated that this number will continue to increase over the years (Pham et al., 2024). The latest survey in 2022 even recorded that around 34.9% or 15.5 million Indonesian adolescents experienced mental health disorders. These findings show that the mental health of adolescents and children is now facing a serious crisis in many countries.

Approximately 40% of mental disorders are dominated by anxiety and depression, with prevalence differing by gender, where depression and anxiety are more common in females, while hyperactivity and attention deficit disorder (ADHD) and conduct disorder are more common in males. This condition is a serious concern because it can affect the ability of individuals, especially adolescents, to deal with life pressures and make peace with circumstances (Basu & Banerjee, 2020). Liu et al. (2024) noted that individuals with mental disorders often have traumatic memories that trigger prolonged stress, while N. Wang et al. (2020) added that the impact of the condition is regret, anxiety, and even loss of self-confidence. If left untreated, the condition can have serious consequences, especially for children. Therefore, support from the environment is very important so that they can achieve *post traumatic growth*, which is positive development after trauma (Wen et al., 2020). Henson et al. (2022), state that *post-traumatic growth* is characterised by increased emotional resilience, changes in outlook on life, and strengthened social relationships. Children who receive support from family, school and peers have a greater chance of recovering and thriving after experiencing trauma.

Although post-traumatic growth is often associated with clinical contexts, it is also highly relevant within school settings. Schools function as communities comprising students, educators, and a physical environment that collectively support both educational processes and personal development (Gamala & Marpa, 2022; Nisa, 2022). In their daily lives, students may encounter various traumatic experiences, with bullying being one of the most prevalent. Bullying continues to manifest in multiple forms, ranging from teasing to verbal abuse (Nasti et al., 2023). In Indonesia, more than 20.6% of students aged 13-17 have reported experiencing bullying (Noboru et al., 2021), reflecting a troublingly high prevalence. This reality presents a significant challenge for schools, which must strive to foster a safe, inclusive, and supportive environment that can function as a space for healing. The support provided by schools can serve as a critical catalyst in students' psychological recovery. A favorable school climate not only influences academic achievement and cognitive development but also plays a vital role in safeguarding mental health and preventing further instances of violence or bullying (Wangchuk & Dendup, 2023).

Post-traumatic growth in an educational context is defined as the positive psychological changes that students experience after facing adversity or trauma, manifesting in increased emotional resilience, a more positive outlook on life, and strengthened social relationships with peers and the school community. Understanding *post-traumatic growth* in students is important as it identifies factors that enable them to not only recover, but also grow and develop from their difficult experiences. Samdal et al. (1999) suggested that students' perceptions of the learning environment, including teacher support, the quality of relationships between students, and a sense of security, can significantly affect their well-being. This is reinforced by the findings of Harding et al. (2019) and Fondren et al. (2020) which confirms that the school environment has a major influence on students' mental well-being and *Post-Traumatic Growth*, where an inclusive school environment is able to create a sense of security and comfort, thus supporting students' psychological recovery and trauma and responsive programmes will be effective if supported by structured and adequate support (Fondren et al., 2020).

Concrete efforts that schools can make in supporting students' psychological recovery include the provision of guidance and counseling services by BK teachers who understand children's psychological needs. Guidance and counseling (BK) teachers play an important role in helping students recognise

their problems, provide direction, and create a healthy and positive learning environment (Hsieh et al., 2024). In addition, social Support from peers also contributes to accelerating the recovery of trauma experienced by students. The implementation of the *Social Emotional Learning* (SEL) programme is a strategic step in fostering mental well-being and encouraging *Post-traumatic growth* through strengthening social skills, emotional management, and the ability to establish healthy relationships. Research by Yang et al. (2020), proves that *Social Emotional Learning* (SEL) is able to create a safe, caring school environment, help manage emotions, make ethical decisions, and resolve conflicts peacefully. The *Social Emotional Learning* (SEL) framework is also used to understand *Post-traumatic growth* in education, emphasising social skills, self-awareness and emotion regulation. Therefore, it requires commitment from all elements of the school to integrate SEL to create a safe, inclusive and supportive environment that is comfortable for students.

Based on existing theories, this study assumes that a positive, supportive, and safe school environment not only supports students' academic achievement, but also plays a role in maintaining mental health and encouraging students to achieve *post-traumatic growth*. Teacher support, appropriate counselling services, healthy social relationships, and the implementation of *Social Emotional Learning* (SEL) programs have the potential to be a strategic recovery space for students experiencing psychological distress. Although the concept of *post-traumatic growth* is commonly studied in the clinical domain, this study adapts it to the context of secondary school adolescents, emphasising the importance of the role of teachers and a supportive learning environment. However, a gap remains, as previous studies tend to address mental health and *post-traumatic growth* separately, without highlighting the role of the school environment as a supportive factor for both. The lack of quantitative research at the high school level that directly examines this relationship also prompted an associative study using the *Structural Equation Modeling* (SEM) approach. This case study at MA Taruna Al-Qur'an is expected to enrich the theory of the role of the school environment in students' psychological recovery, as well as become the basis for developing more responsive and sustainable educational policies. The results showed that both variables had a significant effect, which was proven by the results of hypothesis 1 and hypothesis 2 as follows:

H1: A supportive school environment significantly predicts students' mental health.

H2: A supportive school environment significantly predicts students' post-traumatic growth.

## 2. METHODS

### 2.1 Research Design

This research uses quantitative methods with a descriptive quantitative approach. This design is suitable for testing relationships between variables and formulating hypotheses (Wallwey & Kajfez, 2023). The descriptive quantitative approach allows effective data collection and analysis to assess the role of the school environment on mental health and *Post-traumatic growth* in students. With the descriptive quantitative method, which, in understanding, is descriptive in that it provides a description of the situation, event, or individual, in this case, showing that the variables used are either many or one variable (Siedlecki, 2020). It should be noted that this analysis uses *Structural Equation Modeling* (SEM) even though only the relationship between variables is tested, and the descriptive quantitative design indicates that the relationship tested is associative, not direct causation. So in the presentation of the data used to describe that the school environment plays a role in students' mental health and *post-traumatic growth*, it is clear that there is a relationship between the school environment plays a role in students' mental health and *post-traumatic growth*.

## 2.2 Participants

This study aims to examine the relationship between school environment and children's mental health and post-traumatic. Respondents were obtained from MA Taruna Al-Qur'an by analysing data using offline questionnaires and using data collection techniques, namely random sampling techniques that refer to (Noor et al., 2022). The sample results included all grade XI and XII students at MA Taruna Al-Qur'an, resulting in approximately 210 responses. A carefully designed questionnaire was then administered to the respondents, asking them to state their agreement or disagreement with the given statements.

**Table 1.** Population and Sample

Class	Number of Students
XI	115
XII	95
Number of Samples	210

## 2.3 Measurements and Instruments

To obtain significant data, this study used offline questionnaires distributed in schools. This questionnaire contained questions with Likert scale response options (strongly agree, agree, neutral, disagree, and strongly disagree) where respondents ticked the boxes based on their perceptions. The instrument in the questionnaire covers three main variables, namely school environment, mental health, and *post-traumatic growth* (PTG), which are summarised in the questions.

Some of the questions used include: "I feel safe in my school environment", "I feel that the conditions of this school often have a negative impact on my mental health", and "I feel that the school provides effective support to help me struggle to overcome the impact of trauma." These statements were designed to capture students' perceptions of psychosocial factors affecting their well-being and development in the school environment, with the assessment measures used being as follows:

**Table 2.** Likert Scale

Answer	Question	
	Favorable	Unfavorable
Strongly agree	5	1
Agree	4	2
Neutral	3	3
Disagree	2	4
Strongly Disagree	1	5

This study employed primary subscales as research instruments. The characteristics of the school environment were measured using the model developed by Samdal et al. (1999), which focuses on students' perceptions of their school environment, including social relationships and academic achievement. For the purposes of this study, the original indicators were adapted and restructured into a Likert-scale format to capture students' perceptions more precisely. These indicators were translated into clear questionnaire statements that reflect aspects of safety, support, and conduciveness within the school environment. This adaptation enabled students to express their levels of agreement or disagreement with each statement, thereby allowing researchers to assess their perceptions within the specific local context quantitatively.

Measurement of students' mental health, referring to the approach of Franklin et al. (2012) through literature studies and questionnaires. And to test the validity and reliability of this instrument, the *Structural Equation Modeling* (SEM) method was used in accordance with research by Hidayati et al.

(2021), which obtained values between 0.68 and 0.97. Specifically, relevant mental health indicators, based on the approach of Franklin et al. (2012), will be concretised into Likert-scale questions tailored for adolescent students at MA Taruna Al-Qur'an. These indicators include aspects of emotional well-being and psychological distress. Furthermore, the relationship between school environment and mental health and *post-traumatic growth* will be tested using the *Structural Equation Modeling* (SEM) method, as used in the study by Hidayati et al. (2021), and the results will be a reference in this study.

Furthermore, the measurement of *Post-Traumatic Growth* is based on Weinrib et al. (2006). The study involved questionnaires and essays that examined the key areas of stress management, appreciation of relationships, and spiritual growth. This instrument draws on post-traumatic development theory, which explains that individuals can experience positive changes after facing a traumatic event. Through the questionnaires and essays examining three variables, the variable results showed validity values of the indicators of stress (0.83), relationship appreciation (0.89), and spiritual growth (0.97), indicating the instrument is reliable for the student context. Similar to other instruments, the variable indicators from Weinrib et al. (2006) can be adapted into Likert-scale questions to assess positive psychological changes after a traumatic event in students. These questions relate to changes in a more positive outlook on life, increased emotional resilience, and strengthened social relationships after experiencing a traumatic event.

#### 2.4 Procedure

The data collection procedure in this study was carried out offline at MA Taruna Al-Qur'an, involving students in grades XI and XII. This began with an application for permission from the University to conduct research at MA Taruna Al-Qur'an. Then hold a meeting with the school, after coordinating the schedule and technical implementation is determined. Instruments in the form of questionnaires were printed and distributed to students according to the set schedule. Students independently fill out the questionnaire by ticking the available answer choices. Then, the sheets of paper that have been filled in, the author checks the completeness before the data is processed and analysed using relevant measurement methods.

#### 2.5 Data Analysis

This study analysed the data using Smart-PLS software version 4.0. This tool assists researchers in visualising data diagrams that include all research variables. Analysis with Smart-PLS version 4.0 resulted in the finding that the role of the school environment has a significant influence on students' mental health and *post-traumatic growth*. According to Sarstedt et al. (2024), *Partial Least Squares* (PLS) is a composite-based approach used to estimate complex relationships between constructs and their indicator variables through Structural Equation Modeling (SEM). Construct validity was tested using Average Variance Extracted (AVE), with values of all subscales > 0.5 and reliability was tested with Cronbach's Alpha, which resulted in values > 0.7 for all subscales, indicating strong reliability. Thus, Smart-PLS 4 allows researchers to analyse complex data and obtain relevant information, providing statistical analysis that is useful in identifying each variable and understanding the relationships between variables in the research model.

#### 2.5 Theoretical and Hypothetical Models

The conceptual framework used in this study is expressed in the form of a figure, which explains the hypothesis in this study, with the following explanation:

1. The role of the school environment (X) has an influence on mental health (Y1)
2. The role of the school environment (X) has an influence on Post-Traumatic Growth (Y2).

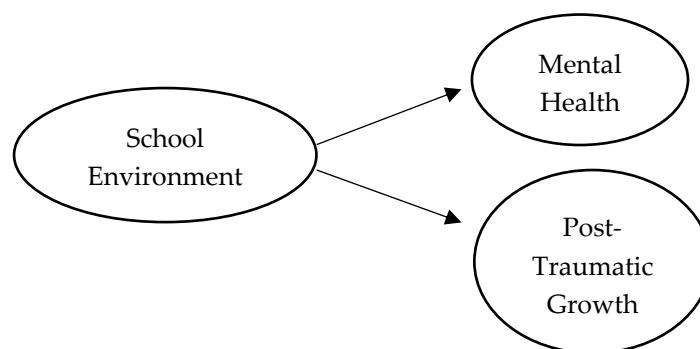


Figure 1. Research Conceptual Model

### 3. FINDINGS AND DISCUSSION

#### 3.1 Findings

This study uses several statistical tests, namely validity tests, discriminant validity, reliability, structural models, and hypothesis testing to ensure the quality of the model and the relationship between its variables. The findings showed that there is an influence of school environment on students' mental health and *post-traumatic growth*. The instrument proved to be valid and reliable, and there was significance among the relationship and constructs. The results of each test are presented in detail in the following sections:

##### 3.1.1 Validity Test

The validity test in this study was carried out by taking into account the value of convergent validity and discriminant validity, which was seen from the value of the results by meeting the criteria for completeness of value above 0.7. If the value of an indicator is less than 0.7, then the indicator needs to be removed. In this study, the results exceeded the value of 0.7; these results indicate that each indicator in the study was not eliminated.

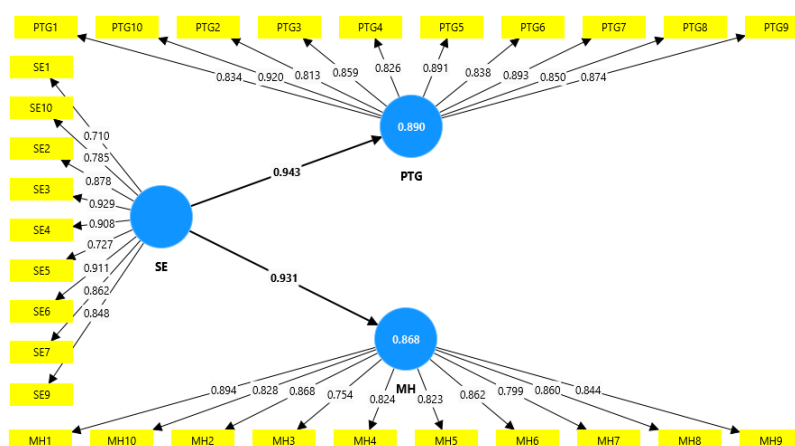


Figure 2. Outer Model Output Display

Figure 2 shows that the SE (School Environment), MH (Mental Health), and PTG ( *Post-Traumatic Growth* ) indicators produced significant results for each indicator, with each indicator exceeding a value of 0.7, indicating the achievement of convergent validity. Convergent validity was assessed by

measuring *Average Variance Extracted* (AVE). Calculating the AVE value shows that if the value of an indicator exceeds 0.50, it signifies that the construct has strong convergent validity. On the other hand, if the AVE value is below 0.50, then the convergent validity is considered low (Yusoff et al., 2020).

Based on the external model output display in Figure 2, there are SE, MH, and PTG construct indicators that have a loading factor value  $> 0.7$  explaining the achievement of convergent validity, and indicating the results of the AVE square value in the table above from each SE indicator (0.700), MH (0.741), and PTG (0.711), which means that results obtained are greater than 0.50 in each construct. These results can ensure that the validity of the indicators used in this study meets the requirements of the convergent validity norms.

### 3.1.2 Discriminant Validity

The discriminant validity test aims to ensure convergent validity and assess the ability of the measurement instrument to distinguish different indicator constructs, so that each construct of each indicator can be measured properly (Cheung et al., 2023). However, to conduct a discriminant validity test, it is necessary to first conduct a construct validity test by looking at the Average Variance Extracted (AVE) value to ensure the presentation of the construct is obtained from each indicator. This study shows the results of the discriminant validity test for the constructs of mental health (0.837), *post-traumatic growth* (0.861), and school environment (0.843). The value of each of these constructs has met the standard AVE value, which is greater than 0.50, which means that these values meet the validity standard.

### 3.1.3 Reliability Test

The reliability test shows the Cronbach's Alpha and Composite Reliability values. The Cronbach's Alpha values for each variable are: school environment (0.952), mental health (0.961), and *Post-traumatic growth* (0.946). Based on the results of these values, it shows that the construct variables in this study can be considered reliable and the measurement results can be trusted. This is reinforced by the Composite Reliability value, which all exceed 0.7, some even exceed 0.9, so that the measures used are reliable. This reliability calculation is done with Smart PLS to assess the suitability between each variable. As stated by Juanamasta et al. (2023), the value of Composite Reliability and Cronbach's Alpha is above 0.7, so it is considered to have a high level of reliability.

### 3.1.4 Structural Model Test

The structural model test shows the R-Square value for each variable. The results of this study show that the R-Square value for mental health is 0.868. This finding indicates that the school environment has a very significant impact on children's mental health, while the remaining 13.2% can be influenced by other factors not included in this study. Furthermore, the effect of school environment on students' *post-traumatic growth* has an R-Square value of 0.890. This implies that there are about 89% of students who say that, in the process of trauma recovery, students are influenced by school environmental factors, such as social support from friends and motivation from teachers. The remaining 11% can be influenced by other factors not included in this study.

### 3.1.5 Hypothesis Test Results

This study conducted hypothesis testing using SmartPLS software version 4.0. The analysis involved bootstrapping to obtain the T-statistic and P-value results. With the T-Statistic value for the results of School environment affects Mental Health with a value of 79.805, and for School Environment affects *Post-Traumatic Growth* with a result of 112.203, and the values of 0.000 are smaller than 0.05, which means that the statistical results are highly significant, and it can be stated that the results are

valid and reliable. Meanwhile, if the result obtained is greater than 0.05, it will be considered unimportant or insignificant (Maheshwarappa & Majumder, 2023). This hypothesis test was conducted to examine the impact of the school environment on children's mental health and traumatic growth tendencies, and the results obtained were very significant. With the formulation of the hypothesis as follows:

Hypothesis 1 states that the role of the school environment has an influence on children's mental health, this is known after conducting an influence test using smart PLS Software version 4.0 with the bootstrapping method in the Smart PLS feature, obtained from the results obtained in the original sample table there is an influence on mental health with a result of 0.931 with the T-Statistic result of 79.805 and P-Values of 0.000, so it is concluded that the T-Statistic value is very high while the P-Values value is very low from 0.05 so that the role of the school environment has a positive and significant effect on student mental health.

Hypothesis 2 also states that the role of the school environment has a significant effect on post-traumatic growth, this is based on testing using Smart PLS version 4.0 with bootstrapping techniques. The analysis results obtained are seen based on the original sample table, with a result of 0.943. These results indicate that there is a very significant effect of the role of the school environment on students' post-traumatic growth, besides that, the T-Statistic value obtained is also high, namely 112.203 with a P-Values value of 0.000, which is lower than 0.05. Based on these results, it can be concluded that the role of the school environment has a positive and significant influence on *Post-Traumatic Growth*.

### 3.2 Discussion

This study aimed to investigate the influence of the school environment on students' mental well-being and post-traumatic growth (PTG) at Madrasah Aliyah Taruna Al-Qur'an. The analysis of responses from 210 students using SmartPLS demonstrated statistically significant findings. The school environment was shown to have a strong positive relationship with both mental health (path coefficient = 0.931) and post-traumatic growth (0.943), supported by high T-statistics (79.805 and 112.203, respectively) and p-values < 0.001. These results confirm the critical role that a supportive school climate plays in shaping students' psychological resilience and post-trauma recovery.

These findings are consistent with prior international research. Laurenzi et al. (2024), through the HASHTAG initiative in Nepal and South Africa, emphasized the role of a positive school environment in promoting emotional well-being and academic engagement. Similarly, Morin (2022) reported positive outcomes from the VIP program in Norway, where school-wide mental health strategies fostered safe and emotionally supportive learning environments. However, as highlighted by Harding et al. (2019), the success of such interventions may vary depending on local school culture, resources, and systemic readiness. This underlines the importance of context-specific implementation.

Furthermore, the significance of the school environment as a protective and recovery-oriented space aligns with studies on trauma and adolescent development. Bryngeirsdottir and Halldorsdottir (2022) found that post-traumatic growth is deeply influenced by social support systems. Brooks et al. (2022) also identified schools as critical agents in promoting mental health literacy, offering trauma-sensitive interventions, and reducing stigma.

Despite its strengths, this study has limitations. The sample was confined to students from a single institution (grades XI and XII), limiting the generalizability of findings to other types of schools or younger age groups. Therefore, further research involving diverse school contexts and longitudinal data is needed to validate and expand on these results.

In addition, student responses revealed that approximately 93% experienced positive growth after trauma, largely attributed to support from peers and teachers. This reinforces the notion that a well-structured school environment functions not only as an academic setting but also as a catalyst for psychological recovery. Nonetheless, some students expressed uncertainty or disengagement, indicating the need for more tailored mental health interventions.

Overall, the findings underscore the vital role of schools in fostering both mental health and post-traumatic growth. Educational stakeholders are encouraged to develop inclusive policies, integrate social-emotional learning (SEL), and provide access to mental health services within the school system. This study provides a valuable foundation for future research and policy development aimed at enhancing the psychosocial well-being of students in post-crisis educational environments.

#### 4. CONCLUSION

This study concludes that the school environment plays a critical role in shaping students' mental health and fostering post-traumatic growth. Supportive peer relationships, empathetic teachers, and a safe, inclusive school climate were found to contribute to students' psychological well-being and resilience. These findings underscore the importance of cultivating school environments that are not only academically conducive but also emotionally supportive. However, this study is limited by its focus on a single institution and grade level, which may restrict the generalizability of the results to other educational settings or age groups. Additionally, the reliance on self-reported data may introduce social desirability bias. Future research should consider expanding the sample to include diverse school types and broader demographic representation, and adopting longitudinal or mixed-method designs to explore causal mechanisms and deeper psychological insights. Schools are encouraged to implement proactive mental health education, integrate trauma-informed practices, and foster student self-awareness to mitigate harmful experiences such as bullying. In doing so, schools can become safe spaces that not only prevent trauma but also actively support student growth and recovery.

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