International Journal of Evaluation and Research in Education (IJERE)
Vol. 15, No. 1, February 2026, pp. 102~111
ISSN: 2252-8822, DOI: 10.11591/ijere.v15i1.35568

School stress among Malaysian secondary school students: prevalence and demographic correlates

Tie-Seng Te[1], Hutkemri Zulnaidi[2], Norfaezah Md Khalid[1]
[1]Department of Educational Psychology and Counselling, Faculty of Education, Universiti Malaya, Kuala Lumpur, Malaysia
[2]Department of Mathematics and Science Education, Faculty of Education, Universiti Malaya, Kuala Lumpur, Malaysia

Article Info

Article history:

Received Apr 22, 2025
Revised Oct 17, 2025
Accepted Nov 16, 2025

Keywords:

Measurement
School psychology
School stress
Secondary school
Students' well-being

ABSTRACT

Understanding school stress is essential, given the significant time students spend in school and its impact on well-being. Acknowledging its importance, this study aimed to assess the level of school stress among Malaysian secondary school students. The respondents in this study consisted of 485 Malaysian secondary school students, selected through multistage sampling techniques to ensure national representativeness. Data were collected using a school-related stress questionnaire adapted from the shortened version of the adolescent stress questionnaire (ASQ-S). Data were analyzed using descriptive statistics, Rasch Wright mapping, independent samples t-tests for gender differences, and one-way ANOVA for grade and regional comparisons. The results indicated that, overall, Malaysian secondary school students experience low levels of school stress. Descriptively, female students reported higher levels of school stress than their male counterparts. Among different forms, Form 4 students reported the highest level of school stress, followed by Form 1 students. Regionally, students from the central and southern zones exhibited the highest levels of school stress. This study contributes to a better understanding of school stress among Malaysian secondary school students, providing insights for developing strategies to reduce stress in schools.

This is an open access article under the CC BY-SA license.

Corresponding Author:

Hutkemri Zulnaidi
Department of Mathematics and Science Education, Faculty of Education, Universiti Malaya
50603 Kuala Lumpur, Malaysia
Email: hutkemri@um.edu.my

1. INTRODUCTION

Adolescence is a life stage characterized by numerous transitional challenges, such as detachment from parents, transitioning to tertiary education, or integrating into a wider range of social interactions [1], [2]. These transitions often lead to heightened levels of stress [3]. Those who have high levels of stress are likely to experience psychosomatic problems, emotional disorders, and other illnesses [4], [5], which can subsequently affect their overall life satisfaction [6].

For school-aged adolescents, understanding their stress experience in school is particularly important due to the large portion of time they spend in school [7]. School stress can negatively impact students' mental health, contributing to issues such as burnout, depression, and anxiety [8]–[12]. It also contributes to poor physical health, such as obesity [10], [11]. Moreover, it could result in problematic behaviors, such as school refusal and substance use [9], [11].

Acknowledging the negative consequences of school stress, the Ministry of Education Malaysia has implemented various policies and programs to enhance the well-being of students at school. One such initiative is the implementation of school-based assessment (*Pentaksiran Berasaskan Sekolah* or PBS)

since 2011, with the aim of reducing overemphasis on examinations and unhealthy competition [13], [14]. To ensure PBS can be implemented effectively and to ensure more enjoyable learning, the Primary School Achievement Test (*Ujian Pencapaian Sekolah Rendah* or UPSR) and the Form Three Assessment (*Pentaksiran Tingkatan 3* or PT3) were then abolished in 2021. Additionally, the Healthy Mind Program (*Program Minda Sihat*) has been implemented in all secondary schools since 2014 to promote students' mental health [15].

Despite these initiatives, comprehensive and up-to-date evidence on school stress among Malaysian secondary school students remains limited. Past studies have primarily focused on small, non-representative samples [16], [17], limiting the generalizability of their findings. Furthermore, most of these studies were conducted prior to the COVID-19 pandemic, without accounting for the substantial changes in schooling practices, including protective measures, altered curriculum delivery [5], and the increased use of digital learning in schools [18]. This study seeks to address these gaps by providing a post-pandemic, nationwide assessment of school stress among Malaysian secondary school students. It examines current stress levels across key demographic variables, providing a comprehensive understanding of student well-being within Malaysia's evolving educational landscape.

2. LITERATURE REVIEW

Understanding students' school stress requires examining both the external stressors present in the school environment and how students cognitively and emotionally respond to them. To guide the review and synthesis of the literature, the transactional model of stress and coping [19] was adopted. This model conceptualizes stress as a dynamic process resulting from students' perceptions of the demands within the school environment in relation to their coping resources. In addition, insights from self-determination theory (SDT) [20] are incorporated to highlight how the satisfaction or frustration of students' basic psychological needs, namely autonomy, competence, and relatedness, can further shape their experiences of stress in school settings.

With regard to the perceived demands in the school environment, factors related to academics are often regarded as the most common contributing stressor [10], [16], [17], [21], [22]. These include elements such as demanding learning content, school work, examinations, and attendance at school [17], [23]. Notably, excessive homework is frequently cited as a primary source of stress, even among students who otherwise report lower overall stress levels [24]. From the perspective of SDT [20], academic overload and constant performance monitoring may threaten students' sense of autonomy and competence, thereby reducing intrinsic motivation and increasing stress. Collectively, academic pressures have been consistently linked to decreased school enjoyment and serious consequences for students' mental health and overall well-being [10], [11], [25].

Relationships within the school context represent another significant source of stress for students [21], [23], [26]. Peer-related stress often arises from social conflicts, bullying, or fear of negative judgment [12], [23], [27], [28]. These experiences may threaten the psychological need for relatedness, which refers to feeling socially connected and accepted [20]. Additionally, teacher-student interactions can also be a source of stress [12], [21], [23], [27], [28]. Students may feel stressed when they perceive unfair treatment or experience a lack of autonomy support, especially when there is a mismatch between their desire for independence and the level of control exerted by teachers [26], [27].

In addition to academic and relational factors, the physical school environment also contributes to student stress [17], [29]. The condition of the school environment plays a crucial role in supporting students' comfort and overall well-being. It includes aspects such as good infrastructure and conducive learning spaces [30]. Overcrowded classrooms and inadequate infrastructure create physically uncomfortable conditions that can elevate students' stress levels, contribute to behavioral issues, and ultimately increase tension between students and teachers [26], [29], [31], [32].

According to the transactional model of stress and coping [19], the stress experience is shaped by the individual's coping resources and personal characteristics. Age is a key factor, with older students generally reporting higher stress levels [9], [10], [16], [27], [33]. This is largely due to increasing academic demands as they progress to higher grades, facing more complex curricula and frequent formal assessments [33]–[36]. Older students also face greater performance expectations and pressure to succeed [8], [10], which can undermine perceived competence and autonomy if not paired with adequate support. Moreover, teaching approaches tend to become more serious and less student-centered in upper forms [25], while psychological and social support often diminishes [37]. These factors collectively contribute to elevated stress levels among older students.

Younger students, particularly those in lower secondary school, also experience significant stress, especially during the transition into high school [33], [38], [39]. This transition period is marked by challenges such as limited self-regulation, social adjustment difficulties, and a lack of learning independence [39]. Stress may be intensified by significant changes in school structure, as seen in countries like North America

and the United Kingdom, where students shift from having a single primary teacher to navigating multiple subjects, classrooms, and teachers in secondary school [33]. These shifts often create anxiety and unmet expectations, leading to negative emotional responses toward school [38].

In terms of gender, consistent findings indicate that female students experience higher levels of school stress [9], [16], [21], [27], [28], [33], [40]. One possible explanation is that girls are usually expected to perform well academically [8], [10], [21]. They also tend to internalize these expectations, leading to greater self-imposed pressure [21], [22]. This dynamic may create a motivational climate where students feel controlled rather than autonomous, contributing to frustration and emotional exhaustion [20].

Location and school type also influence stress levels. Students in high-income or competitive urban areas often face more intense academic pressure [8], [41], [42]. In high-performing or elite schools, students may experience a competitive climate that emphasizes rankings and comparisons [8], [16], [43]. Such environments may undermine autonomy and relatedness, especially when student value is tied to performance outcomes rather than personal growth. The external pressure to achieve may further suppress intrinsic motivation and amplify school stress [8], [20], [22].

When students appraise school demands as exceeding their coping resources, the resulting stress may adversely affect their mental health, academic engagement, and overall well-being [6], [10], [11], [23], [36], [44]. Recognizing and addressing these factors is crucial. Schools must provide structural and emotional support, such as fostering positive teacher-student relationships and creating psychologically safe environments, to buffer stress and promote adaptive coping [6], [11]. As proposed by SDT, supporting students' psychological needs for autonomy, competence, and relatedness is essential for reducing stress and enhancing motivation [20].

By applying the transactional model of stress and coping [19], this review integrates the diverse sources of school stress into a unified framework. When interpreted alongside SDT [20], these findings reveal how stress is shaped not only by perceived demands and coping resources, but also by the extent to which the school environment supports or undermines students' basic psychological needs. Integrating both cognitive-appraisal and motivational perspectives offers a richer foundation for understanding school stress and guiding educational policies aimed at promoting students' well-being.

3. METHOD

3.1. Samples and sampling

The population of this study was 1,577,135 secondary students from schools under the administration of the Ministry of Education [45]. Based on Cochran [46], sample size calculation with 95% confidence level, a sample size of 384 students was identified for this study. To address the possibility of nonresponse, the sample size was increased by 30%, resulting in a total of 499 students. A multistage sampling approach was employed to ensure representativeness across Malaysia's geographic regions. First, the population was divided into five zones: the northern zone (326,082; 20.68%), central zone (377,815; 23.96%), southern zone (302,605; 19.19%), east coast zone (250,591; 15.89%), and East Malaysia (320,042; 20.29%). Proportional sampling was used to allocate respondents accordingly, resulting in 103 students from the northern zone, 120 from the central zone, 96 from the southern zone, 79 from the east coast zone, and 101 from East Malaysia. Following this, a simple random sampling technique was adopted to select one state from each zone, and within those states, schools and students were also selected using simple random sampling.

3.2. Instrument

To measure students' school stress, the items related to school in the shortened version of the adolescent stress questionnaire (ASQ-S) [28] were adapted. Permission to use and adapt the scale was obtained before the research was carried out. The original items were translated into the Malay language for better understanding of the subjects. To ensure the items were comprehensible, two experienced language teachers reviewed the translation and the language used in the questionnaire. In total, there were eight items used to measure students' school stress. Respondents were required to indicate their stress levels in school based on a 5-point response scale, ranging from 1=not stressful at all (or is irrelevant to me) to 5=very stressful. The instrument items are presented in Table 1.

Prior to the implementation of the actual study, a pilot study was carried out involving 100 secondary school students in Kuala Lumpur. The pilot survey was conducted to examine the reliability and validity of the adapted instrument. To analyze the data, Rasch analysis was conducted using Winsteps version 5.3.3 software. The Rasch analysis was adopted as it provides a more rigorous framework for psychometric evaluation [47]–[49]. Advantages of the Rasch model include its ability to produce person- and item-level error estimates, identify biased or misfitting items, detect redundancy, and determine the most appropriate number of response categories [48], [50], [51].

The results indicated that the scale demonstrated good unidimensionality, with 60.6% of raw variance explained, which is well above the recommended minimum threshold of 40% [47]. Additionally, the eigenvalue of the first contrast was 1.90, which is below the cut-off value of 2.00, indicating that the instrument largely measured a single underlying construct [52]. In terms of reliability, the person reliability (0.78) and item reliability (0.97) were above 0.70, indicating strong internal consistency [53]. Furthermore, the person separation index was 1.87, surpassing the acceptable minimum of 1.50, suggesting that the instrument was able to distinguish between students with different levels of endorsement tendency [54]. Similarly, the item separation index was 5.63, well above the recommended threshold of 3.00, indicating a strong and stable item hierarchy [54].

Additionally, the effectiveness of the 5-point rating scale was analyzed. Table 2 shows the rating scale effectiveness of the instrument. Each response category had at least 10 observations, satisfying the minimum requirement for category stability. Average measures increased monotonically across categories, indicating appropriate ordering relative to stress levels. Outfit mean square (MNSQ) values were all below 2.00, meeting recommended fit criteria. Thresholds advanced in order, suggesting respondents could reliably distinguish between adjacent categories [51].

Table 1. School stress items

Item label	Items	
	English version	Malay language version
ST1	Having to study things I do not understand	*Terpaksa belajar perkara yang saya tidak faham*
ST2	Keeping up with school work	*Menyiapkan kerja-kerja sekolah*
ST3	Going to school	*Hadir ke sekolah*
ST4	Lack of respect from teachers	*Kurang rasa hormat daripada guru*
ST5	Lack of respect from schoolmates	*Kurang rasa hormat daripada rakan sekolah*
ST6	Getting along with my teachers	*Berinteraksi dengan guru-guru saya*
ST7	Getting along with my schoolmates	*Bergaul dengan rakan sekolah saya*
ST8	Having too much homework	*Mempunyai terlampau banyak kerja rumah*

Table 2. Rating scale effectiveness

Category label	Observed count	Average measure	Outfit MNSQ	Threshold calibration
1	354	-2.66	0.98	None
2	203	-1.45	0.78	-1.56
3	130	-0.46	1.06	-0.60
4	81	0.35	1.35	0.36
5	32	1.17	1.31	1.81

3.3. Data analysis

To identify the level of school stress among Malaysian secondary school students, a descriptive analysis was performed. The mean score of students' school stress was interpreted using the categorization proposed by Nunnally [53], which includes five levels: very low (1.00–1.49), low (1.50–2.49), moderate (2.50–3.49), high (3.50–4.49), and very high (4.50–5.00). In addition, the Wright map from the Rasch analysis was used to obtain a visual representation of the difficulty level of each item. Items located at the bottom of the map indicated those that were easiest for respondents to endorse, while items at the top represented the most difficult to endorse [48]. Inferential statistics were then conducted to determine the differences in students' school stress based on gender, grade level (forms), and geographic zones. Specifically, an independent samples t-test was used to assess gender-based differences, while one-way ANOVA was employed to explore differences across forms and zones.

4. RESULTS AND DISCUSSION

In total, 495 out of 499 distributed surveys returned, resulting in a response rate of 99.48%. A total of 10 outlier responses with all maximum or minimum ratings were first removed. Finally, 485 students' responses were analyzed. Out of the 485 respondents, 99 (20.41%) were from the northern zone, 118 (24.33%) from the central zone, 92 (18.97%) from the southern zone, 77 (15.88%) from the east coast zone, and 99 (20.41%) from East Malaysia. In terms of gender, 222 (45.77%) were male and 263 (54.23%) were female. In terms of form, 124 (25.57%) were Form 1 students, 116 (23.92%) were Form 2 students, 122 (25.15%) were Form 3 students, and 123 (25.36%) were Form 4 students.

4.1. The level of school stress

Descriptive analysis revealed that Malaysian secondary school students generally have a low level of school stress (M=2.00; SD=0.67). Next, the categorization of students based on the interpretation of mean scores by Nunnally [53] shows that 265 (54.64%) students have a low level of school stress, 106 (21.86%) have a very low level of school stress, 93 (19.18%) have a moderate level of school stress, and 21 (4.33%) have a high level of school stress. None of the students displays a very high level of school stress. The low level of school stress among the students could likely be due to the policies and programs implemented by the MoE to promote students' well-being in recent years, which include abolishing major public examinations since 2011 and implementing the "Healthy Mind Program" since 2014 [13]–[15]. Even though this study shows that, generally, the students have a low level of school stress, it is important to acknowledge that about 20% of the students display a moderate to high level of school stress. This subgroup's school stress should not be underestimated, as it can significantly compromise their overall school well-being [6], [10], [11], [23], [36], [44]. Next, the Wright map from Rasch analysis, as in Figure 1, was generated to visually depict the intensity of school-related stressors based on item difficulty levels.

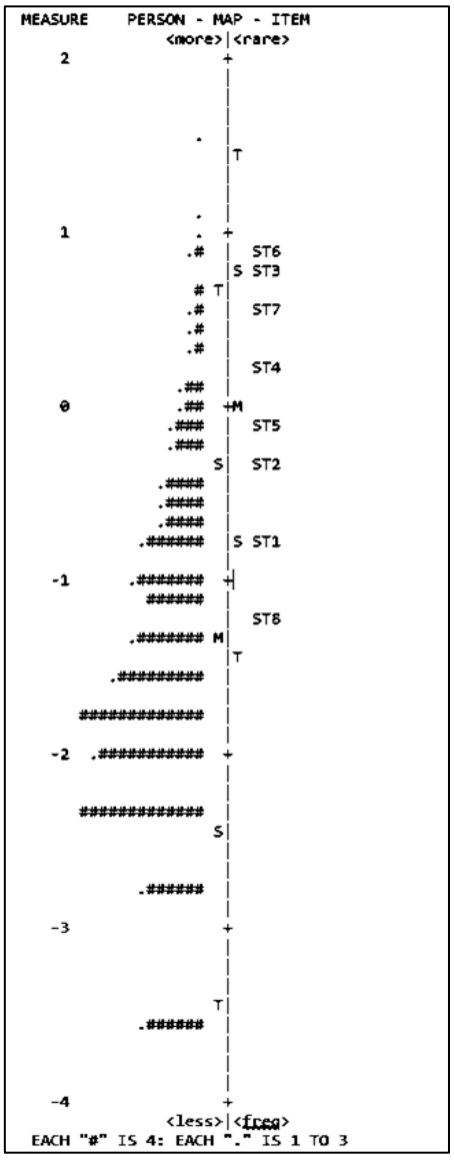

Figure 1. The Wright map

As illustrated in the Wright map, item ST8, "having too much homework," which is positioned at the bottom, is the easiest to be endorsed by the students, followed by ST1, "having to study things I do not

understand," and ST2, "keeping up with school work." This finding indicates that, generally, the students regard having too much homework and dealing with school-related tasks as the main sources of school stress for them. This is in line with past studies which indicated that academic-related matters are the most common contributing stressor [10], [16], [17], [21]–[23].

Conversely, item ST6, "getting along with my teachers," which is positioned at the topmost of the map, is the most difficult item to be endorsed by the students. This finding suggests that, generally, the students do not regard interacting with teachers as stressful for them. It is interesting to note that the item "getting along with my schoolmates" is relatively easier to be endorsed by students as stressful, compared to "getting along with teachers." Moreover, the item "lack of respect from schoolmates" is comparatively easier to be endorsed by students as stressful, compared to "lack of respect from teachers." These findings suggest that students find interactions with schoolmates more stressful, potentially due to disagreements, peer judgments, or disrespectful behaviors from schoolmates [12], [23], [27], [28]. Such experiences can threaten the psychological need for relatedness, which refers to students' desire to feel safe, connected, and accepted by others at school [20].

Moreover, the Wright map illustrates a clear stratification in student experiences, where students with higher overall school stress levels tend to endorse almost all items. This finding suggests that both academic and social experiences are perceived as stressful by this group of students. In contrast, students with low stress levels rarely endorse these items, with the notable exception of item "having too much homework," which appears to be a nearly universal concern. This is consistent with research showing that academic workload, particularly excessive homework, is commonly cited as a stressor even among students who otherwise report lower stress levels [24]. The stratification aligns with the transactional model of stress and coping [19], where students' stress responses depend on how they evaluate multiple stressors in light of their coping capacity. High-stress students likely perceive a greater mismatch between demands and resources, resulting in a generalized stress response across domains. In contrast, low-stress students are largely resilient except in the face of an overwhelming academic workload.

4.2. Differences in school stress based on gender, forms, and zones

4.2.1. Gender

Independent samples t-test was conducted to determine the differences in school stress between males and females. As shown in Table 3, the mean school stress score for males (M=1.98, SD=0.68) was lower than females (M=2.01, SD=0.67). However, the difference was not statistically significant [$t(483)=-0.451$, $p>0.05$].

Despite no significant differences being observed, female students experience a higher level of school stress than their male counterparts. This finding corroborates previous studies that reported higher school stress among female students [9], [16], [21], [27], [28], [33], [40]. Several factors may contribute to this pattern. Female students are often subject to societal and academic expectations to perform well, which can increase pressure and stress [8], [10], [21]. Moreover, research suggests that female students often place higher academic demands on themselves and demonstrate greater conscientiousness in school tasks [21], [22]. From the perspective of SDT [20], both external and internal pressures may undermine students' need for autonomy, as their motivation may feel externally controlled rather than self-directed.

Table 3. Independent samples t-test of school stress by gender

Gender	*n*	Mean	SD	*t*	*df*	*p*
Males	222	1.98	0.68	-0.451	483	0.65
Females	263	2.01	0.67			

4.2.2. Forms

One-way ANOVA was conducted to determine the differences in school stress based on forms. As presented in Table 4, Form 4 students (M=2.09; SD=0.69) exhibited the highest school stress, followed by Form 1 students (M=2.05; SD=0.75), Form 3 students (M=1.93; SD=0.59) and Form 2 students (M=1.93; SD=0.64). However, the differences were not statistically significant [$F(3, 481)=1.951$, $p>0.05$].

Table 4. One-way ANOVA comparing school stress across four forms

Forms	*n*	Mean	SD	*df*	*F*	*p*
1	124	2.05	0.75	(3, 481)	1.951	0.12
2	116	1.93	0.64			
3	122	1.93	0.59			
4	123	2.09	0.69			

Although the differences were not significant, Form 4 students appeared to experience the highest level of stress. This may be attributed to the transition phase they undergo, where they are placed into different academic streams (such as science, arts, or vocational) based on their results and interests. This experience contrasts with that of lower-form students, who follow a common core curriculum without specialized subjects. Additionally, they face increasing academic pressure due to the higher curriculum standards. They also have to start preparing for the Malaysian Certificate of Education (*Sijil Pelajaran Malaysia* or SPM) examination, which is the national examination taken by all Form 5 students in Malaysia. As a result, the students experience greater academic pressure from both the higher standards and more frequent formal assessments [33]–[36]. Furthermore, their learning enjoyment and other psychological needs might also be neglected during this period [25], [37].

Moreover, it should be noted that Form 1 students also experience a relatively higher level of stress as compared to Form 2 and Form 3 students. This may stem from the transitional challenges associated with entering secondary school, such as adapting to new academic expectations, increased independence, and unfamiliar social environments [33], [38], [39]. These findings suggest that both Form 1 and Form 4 students are navigating significant transition phases that can heighten stress levels. The adjustment period for students from these two forms may challenge their sense of competence in navigating new curriculum demands, their autonomy in managing responsibilities, and their relatedness in forming new peer relationships [20]. When these needs are unmet, school can become a source of psychological stress.

4.2.3. Zones

One-way ANOVA was conducted to determine the differences in school stress across different zones. As shown in Table 5, students from the central zone (M=2.07; SD=0.73) and southern zone (M=2.07; SD=0.67) recorded the highest school stress, followed by students from East Malaysia (M=2.01; SD=0.69), the east coast (M=2.00; SD=0.69), and the northern zone (M=1.83; SD=0.55). However, the differences were not statistically significant [$F(4, 480)=2.303$, $p>0.05$].

Table 5. One-way ANOVA comparing school stress across five zones

Zones	*n*	Mean	SD	*df*	*F*	*p*
Northern	99	1.83	0.55	(4, 480)	2.303	0.06
Central	118	2.07	0.73			
Southern	92	2.07	0.67			
East coast	77	2.00	0.69			
East Malaysia	99	2.01	0.69			

Although no significant differences were observed, students from the central and southern zones appeared to experience relatively higher stress levels. This pattern may be attributed to the more developed and urbanized nature of these regions, where schools tend to have greater academic competitiveness [8], [42]. The competitive atmosphere, such as keeping up with peers' achievements and meeting targets set by schools, may frustrate students' basic psychological needs [20]. When these needs are unmet, students may experience reduced school enjoyment and overall well-being [8], [10], [11], [25], [43]. Additionally, many schools in these zones are overcrowded, which may contribute to students' stress due to uncomfortable classroom conditions [29], [31], [32].

5. CONCLUSION

This study provides one of the first post-COVID, nationally representative assessments of school stress among Malaysian secondary school students. By incorporating Rasch analysis, specifically through the use of the Wright map, the study offers a nuanced visualization of the alignment between students' stress levels and the relative intensity of specific stressors, thereby enhancing the clarity and interpretability of the findings. Overall, the results indicate that Malaysian secondary school students generally experience low levels of school stress, with homework and school tasks emerging as the primary stressors. Female students reported higher stress levels than males, and students in Form 1 and Form 4 experienced more stress compared to other grade levels. Regionally, students from the central and southern zones exhibited higher stress levels.

These findings highlight the need for school-level policies that incorporate regular mental health screenings and stress assessments, particularly for high-risk groups such as upper secondary students and those in urbanized areas. The results can also inform the development of targeted, evidence-based interventions. These may include peer support initiatives and teacher-led stress management programs that are tailored to the specific needs and contexts of Malaysian students.

This study is not without limitations. Firstly, the data collection relied solely on self-report questionnaire, which is susceptible to social desirability bias. To obtain a more comprehensive understanding of school stress among Malaysian secondary school students, future research should also incorporate other data collection methods, such as interviews. Furthermore, the study only compared school stress differences based on gender, forms, and zones. Considering Malaysia's diverse student population and school types, future research should also explore other demographic factors, such as ethnicity and school type, to provide a more comprehensive understanding of school stress in the Malaysian context.

FUNDING INFORMATION

The authors received no financial support for the research, authorship, and/or publication of this article.

AUTHOR CONTRIBUTIONS STATEMENT

This journal uses the Contributor Roles Taxonomy (CRediT) to recognize individual author contributions, reduce authorship disputes, and facilitate collaboration.

Name of Author	C	M	So	Va	Fo	I	R	D	O	E	Vi	Su	P	Fu
Tie-Seng Te	✓	✓	✓		✓	✓	✓	✓	✓		✓			
Hutkemri Zulnaidi	✓	✓		✓			✓			✓	✓	✓	✓	
Norfaezah Md Khalid	✓	✓		✓			✓			✓	✓	✓	✓	

C : **C**onceptualization
M : **M**ethodology
So : **So**ftware
Va : **Va**lidation
Fo : **Fo**rmal analysis
I : **I**nvestigation
R : **R**esources
D : **D**ata Curation
O : Writing - **O**riginal Draft
E : Writing - Review & **E**diting
Vi : **Vi**sualization
Su : **Su**pervision
P : **P**roject administration
Fu : **Fu**nding acquisition

CONFLICT OF INTEREST STATEMENT

The authors declared no potential conflicts of interest.

INFORMED CONSENT

We have obtained informed consent from all individuals included in this study.

ETHICAL APPROVAL

This study received ethical clearance by the Universiti Malaya Research Ethics Committee (UMREC) with reference number: UM.TNC2/UMREC_2598.

DATA AVAILABILITY

The data that support the findings of this study are available from the corresponding author, [HZ], upon reasonable request.

REFERENCES

[1] G. Bharara and S. Duncan, "Preliminary development and validation of the positive school transition readiness survey (PSTRS)," *Psychology in the Schools*, vol. 61, no. 3, pp. 1217–1237, 2024, doi: 10.1002/pits.23108.
[2] UNICEF, "Conceptual framework for measuring outcomes of adolescent participation," 2018. [Online]. Available: https://www.unicef.org/media/59006/file
[3] E. A. Skinner and M. J. Zimmer-Gembeck, "Age differences and changes in ways of coping across childhood and adolescence," in *The Development of Coping: Stress, Neurophysiology, Social Relationships, and Resilience During Childhood and Adolescence*, E. A. Skinner and M. J. Zimmer-Gembeck, Eds., Cham: Springer International Publishing, 2016, pp. 53–62, doi: 10.1007/978-3-319-41740-0_3.
[4] M. J. Zimmer-Gembeck, S. van Petegem, and E. A. Skinner, "Emotion, controllability and orientation towards stress as correlates of children's coping with interpersonal stress," *Motivation and Emotion*, vol. 40, no. 1, pp. 178–191, 2016, doi: 10.1007/s11031-015-9520-z.
[5] K. D. Schwartz *et al.*, "COVID-19 and student well-being: stress and mental health during return-to-school," *Canadian Journal of School Psychology*, vol. 36, no. 2, pp. 166–185, 2021, doi: 10.1177/08295735211001653.

[6] M. E. Rodríguez-Rivas, J. Alfaro, M. Benavente, J. J. Varela, R. Melipillán, and F. Reyes, "The negative association of perceived stress with adolescents' life satisfaction during the pandemic period: the moderating role of school community support," *Heliyon*, vol. 9, no. 4, p. e15001, 2023, doi: 10.1016/j.heliyon.2023.e15001.

[7] F. Borgonovi and J. Pal, *Framework for the analysis of students wellbeing in the PISA 2015 study (being 15 in 2015)*, Paris: OECD Publishing, OECD Education Working Papers No. 140, 2016, doi: 10.1787/5jlpszwghvvb-en.

[8] S. C. Krogh, "'It's just performance all the time': early adolescents' accounts of school-related performance demands and well-being," *Scandinavian Journal of Educational Research*, vol. 67, no. 3, pp. 463–476, 2023, doi: 10.1080/00313831.2021.2021446.

[9] A. Simoës-Perlant, M. Barreau, and C. Vezilier, "Stress, anxiety, and school burnout post COVID-19: a study of French adolescents," *Mind, Brain, and Education*, vol. 17, no. 2, pp. 98–106, 2023, doi: 10.1111/mbe.12346.

[10] P. Löfstedt *et al.*, "Trends in perceived school stress among adolescents in five Nordic countries 2002-2014," *Nordic Welfare Research*, vol. 4, no. 2, pp. 101–112, 2019, doi: 10.18261/issn.2464-4161-2019-02-07.

[11] M. C. Pascoe, S. E. Hetrick, and A. G. Parker, "The impact of stress on students in secondary school and higher education," *International Journal of Adolescence and Youth*, vol. 25, no. 1, pp. 104–112, 2020, doi: 10.1080/02673843.2019.1596823.

[12] K. E. Brodar, A. M. L. Greca, M. Hysing, and M. M. Llabre, "Stressors, repetitive negative thinking, and insomnia symptoms in adolescents beginning high school," *Journal of Pediatric Psychology*, vol. 45, no. 9, pp. 1027–1038, 2020, doi: 10.1093/jpepsy/jsaa064.

[13] A. N. Mansor, S. S. Vikaraman, N. I. Medina, and B. S. Alias, "Managing school-based assessment: challenges and solutions for educational practice," *International Journal of Innovation, Creativity and Change*, vol. 7, no. 7, pp. 63–84, 2019.

[14] S. Yoong, "School-based assessments (SBA): implementation and challenges in the Malaysian context," in *Educational Evaluation in East Asia: Emerging Issues and Challenges*, S. S. P. J. C.-K. Lee and S. Peng, Eds., New York: Nova Science Publishers, Inc., 2009, pp. 93–109.

[15] J. E. Lee, M. L. Goh, and S. F. Yeo, "Mental health awareness of secondary schools students: mediating roles of knowledge on mental health, knowledge on professional help, and attitude towards mental health," *Heliyon*, vol. 9, no. 3, p. e14512, Mar. 2023, doi: 10.1016/j.heliyon.2023.e14512.

[16] S. Wahab *et al.*, "Stressors in secondary boarding school students: association with stress, anxiety and depressive symptoms," *Asia-Pacific Psychiatry*, vol. 5, no. SUPPL. 1, pp. 82–89, 2013, doi: 10.1111/appy.12067.

[17] M. Yusoff, "Stress, stressors and coping strategies among secondary school students in a Malaysian government secondary school," *ASEAN Journal of Psychiatry*, vol. 11, no. 2, pp. 1–15, 2010.

[18] Ministry of Education Malaysia, "Malaysia education blueprint 2013-2025 annual report 2022," 2023. Accessed Apr. 11, 2024. [Online]. Available: https://www.moe.gov.my/storage/files/shares/Dasar/PPPM/MEBAnnual Report 2022.pdf

[19] R. S. Lazarus and S. Folkman, *Stress, appraisal, and coping*. New York: Springer Publishing, 1984.

[20] R. M. Ryan and E. L. Deci, "Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being," *American Psychologist*, vol. 55, no. 1, pp. 68–78, 2000, doi: 10.1037/0003-066X.55.1.68.

[21] I. García-Moya, C. Paniagua, and A. Jiménez-Iglesias, "Gender differences in adolescent school stress: a mixed-method study," *Journal of Research on Adolescence*, vol. 35, no. 1, p. e13057, 2025, doi: 10.1111/jora.13057.

[22] OECD, *PISA 2015 results (volume III): students' well-being*. Paris: OECD Publishing, 2017, doi: 10.1787/9789264273856-en.

[23] B. Ertanir, C. Rietz, U. Graf, and W. Kassis, "A cross-national validation of the shortened version of the adolescent stress questionnaire (ASQ-S) among adolescents from Switzerland, Germany, and Greece," *Frontiers in Psychology*, vol. 12, p. 619493, 2021, doi: 10.3389/fpsyg.2021.619493.

[24] M. Galloway, J. Conner, and D. Pope, "Nonacademic effects of homework in privileged, high-performing high schools," *Journal of Experimental Education*, vol. 81, no. 4, pp. 490–510, 2013, doi: 10.1080/00220973.2012.745469.

[25] T. Hascher, "Exploring students' well-being by taking a variety of looks into the classroom," *Hellenic Journal of Psychology*, vol. 4, no. 3, pp. 331–349, 2007.

[26] L. M. Fenzel, P. R. Magaletta, and M. F. Peyrot, "The relationship of school strain to school functioning and self-worth among urban African American early adolescents," *Psychology in the Schools*, vol. 34, no. 3, pp. 279–288, 1997, doi: 10.1002/(SICI)1520-6807(199707)34:3<279::AID-PITS10>3.0.CO;2-7.

[27] D. G. Byrne, S. C. Davenport, and J. Mazanov, "Profiles of adolescent stress: the development of the adolescent stress questionnaire (ASQ)," *Journal of Adolescence*, vol. 30, no. 3, pp. 393–416, 2007, doi: 10.1016/j.adolescence.2006.04.004.

[28] M. K. Anniko, K. Boersma, N. P. L. van Wijk, D. Byrne, and M. Tillfors, "Development of a shortened version of the adolescent stress questionnaire (ASQ-S): construct validity and sex invariance in a large sample of Swedish adolescents," *Scandinavian Journal of Child and Adolescent Psychiatry and Psychology*, vol. 6, no. 1, pp. 4–15, 2018, doi: 10.21307/sjcapp-2018-001.

[29] J. P. Fanshawe and P. C. Burnett, "Assessing school-related stressors and coping mechanisms in adolescents," *British Journal of Educational Psychology*, vol. 61, no. 1, pp. 92–98, Feb. 1991, doi: 10.1111/j.2044-8279.1991.tb00964.x.

[30] UNESCO Office Bangkok and Regional Bureau for Education in Asia and the Pacific, *Happy Schools! A Framework for Learner Well-Being in the Asia-Pacific.* Paris: UNESCO Publishing, 2016.

[31] P. Marais, ""We can't believe what we see": overcrowded classrooms through the eyes of student teachers," *South African Journal of Education*, vol. 36, no. 2, pp. 1–10, 2016, doi: 10.15700/saje.v36n2a1201.

[32] J. West and C. Meier, "Overcrowded classrooms – the Achilles heel of South African education?" *South African Journal of Childhood Education*, vol. 10, no. 1, pp. 1–10, 2020, doi: 10.4102/sajce.v10i1.617.

[33] D. A. Klinger *et al.*, "Cross-national trends in perceived school pressure by gender and age from 1994 to 2010," *European Journal of Public Health*, vol. 25, pp. 51–56, 2015, doi: 10.1093/eurpub/ckv027.

[34] W. Liu, J. Mei, L. Tian, and E. S. Huebner, "Age and gender differences in the relation between school-related social support and subjective well-being in school among students," *Social Indicators Research*, vol. 125, no. 3, pp. 1065–1083, 2016, doi: 10.1007/s11205-015-0873-1.

[35] S. Hossain, S. C. O'Neill, and I. Strnadová, "What really matters for students' school satisfaction in Bangladesh?" *Psychology in the Schools*, vol. 56, no. 5, pp. 670–689, 2019, doi: 10.1002/pits.22226.

[36] F. Hoferichter, R. Hirvonen, and N. Kiuru, "The development of school well-being in secondary school: high academic buoyancy and supportive class- and school climate as buffers," *Learning and Instruction*, vol. 71, p. 101377, 2021, doi: 10.1016/j.learninstruc.2020.101377.

[37] M. Kaya and C. Erdem, "Students' well-being and academic achievement: a meta-analysis study," *Child Indicators Research*, vol. 14, no. 5, pp. 1743–1767, 2021, doi: 10.1007/s12187-021-09821-4.

[38] J. L. Dias-Viana and A. P. P. Noronha, "Validity evidence for the school subjective well-being scale," *Estudos de Psicologia (Campinas)*, vol. 39, p. e200220, 2022, doi: 10.1590/1982-0275202239e200220.

[39] R. M. Shamionov, M. V. Grigoryeva, A. V. Sozonnik, and E. S. Grinina, "The role of junior adolescents' school well-being/ill-being characteristics in school anxiety variations," *European Journal of Investigation in Health, Psychology and Education*, vol. 11, no. 3, pp. 878–893, 2021, doi: 10.3390/ejihpe11030065.
[40] B. Högberg and M. Strandh, "Temporal trends and inequalities in school-related stress in three cohorts in compulsory school in Sweden," *Scandinavian Journal of Educational Research*, vol. 69, no. 4, pp. 667–681, 2025, doi: 10.1080/00313831.2024.2330932.
[41] E. Diener, "Subjective well-being: the science of happiness and a proposal for a national index," *American Psychologist*, vol. 55, no. 1, pp. 34–43, 2000, doi: 10.1037/0003-066X.55.1.34.
[42] P. Löfstedt *et al.*, "School satisfaction and school pressure in the WHO European region and North America: an analysis of time trends (2002–2018) and patterns of co-occurrence in 32 countries," *Journal of Adolescent Health*, vol. 66, no. 6, pp. S59–S69, 2020, doi: 10.1016/j.jadohealth.2020.03.007.
[43] S. S. Luthar, B. C. Suh, A. M. Ebbert, and N. L. Kumar, "Students in high-achieving schools: perils of pressures to be 'standouts,'" *Adversity and Resilience Science*, vol. 1, no. 2, pp. 135–147, 2020, doi: 10.1007/s42844-020-00009-3.
[44] R. Ringdal, G. A. Espnes, M. E. B. Eilertsen, H. N. Bjørnsen, and U. K. Moksnes, "Social support, bullying, school-related stress and mental health in adolescence," *Nordic Psychology*, vol. 72, no. 4, pp. 313–330, 2020, doi: 10.1080/19012276.2019.1710240.
[45] Ministry of Education Malaysia, "Secondary school students enrolment," (in Malay), 2024. Accessed Apr. 15, 2024. [Online]. Available: https://emisonline.moe.gov.my/risalahmap/
[46] W. G. Cochran, *Sampling techniques*, 3rd ed. New York: John Wiley & Sons, 1977.
[47] K. M. Conrad, K. J. Conrad, L. L. Passetti, R. R. Funk, and M. L. Dennis, "Validation of the full and short-form self-help involvement scale against the Rasch measurement model," *Evaluation Review*, vol. 39, no. 4, pp. 395–427, 2015, doi: 10.1177/0193841X15599645.
[48] T. Bond, Z. Yan, and M. Heene, *Applying the Rasch model*, 4th ed. New York: Routledge, 2020, doi: 10.4324/9780429030499.
[49] M. S. Khine, "Objective measurement in psychometric analysis," in *Rasch Measurement: Applications in Quantitative Educational Research*, M. S. Khine, Ed., Singapore: Springer Singapore, 2020, pp. 3–7, doi: 10.1007/978-981-15-1800-3_1.
[50] C. Van Zile-Tamsen, "Using Rasch analysis to inform rating scale development," *Research in Higher Education*, vol. 58, no. 8, pp. 922–933, 2017, doi: 10.1007/s11162-017-9448-0.
[51] J. M. Linacre, "Optimizing rating scale category effectiveness," *Journal of Applied Measurement*, vol. 3, no. 1, pp. 85–106, 2002.
[52] J. M. Linacre, *A user's guide to FACETS Rasch-model computer programs,* 3.87.0 ed. Chicago, IL: MESA Press, 2010.
[53] J. C. Nunnally, *Psychometric theory*, 2nd ed. New York: McGraw-Hill, 1978.
[54] B. D. Wright and O. N. Masters, *Rating scale analysis: Rasch measurement*. Chicago, IL: MESA Press, 1982.

BIOGRAPHIES OF AUTHORS

Tie-Seng Te is a Ph.D. candidate at the Department of Educational Psychology and Counselling, Faculty of Education, Universiti Malaya, Kuala Lumpur, Malaysia. His research focuses on instrument development, measurement, and evaluation. He can be contacted at email: s2178816@siswa.um.edu.my; tetieseng@gmail.com.

Hutkemri Zulnaidi is an associate professor at the Department of Mathematics and Science Education, Faculty of Education, Universiti Malaya, Kuala Lumpur, Malaysia. He specializes in mathematics education, technology in education, problem solving, assessment and measurement, statistics and quantitative research method. He is presently involved in several research projects on industrial revolution 4.0, lifelong learning, teaching innovation, learning support, burnout, soft skill, and teaching practices. He is also actively involved in research workshops on statistical data analysis (SPSS, AMOS and SmartPLS) and research methodology. He can be contacted at email: hutkemri@um.edu.my.

Norfaezah Md Khalid is a senior lecturer at the Department of Educational Psychology and Counselling, Faculty of Education, University of Malaya. She holds both her bachelor's and doctoral degrees in counselling from the University of Malaya. Since joining the institution in 2009, she has been actively involved in both teaching and research in the field of counselling. As a registered counselor with the Malaysian Board of Counsellors, she has been actively involved in the field of counselling and psychology. Her scholarly work centers on mental health, family therapy, caregiving, psychological testing, and counselling interventions. She has led and contributed to multiple research projects, including those on student well-being, caregiving, and mental health. Her ongoing work reflects a strong commitment to education equity and psychosocial development. She can be contacted at email: norfaezah@um.edu.my.