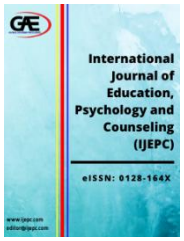
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A CORRELATIONAL STUDY OF LEARNING MOTIVATION, HEALTH BEHAVIOUR, AND ACADEMIC STRESS AMONG PRIMARY SCHOOL PUPILS IN KEDAH, MALAYSIA

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Abstract:

Research on academic stress in Malaysia has tended to focus on adolescents and university students, leaving upper primary pupils less well represented. This cross-sectional study investigated whether learning motivation and health behaviour were related to academic stress among pupils aged 10 to 12 years in one Kedah primary school. The school population was 290; proportional stratified random sampling yielded 168 respondents. The questionnaire covered learning motivation, academic stress, and a 15-item health behaviour instrument with knowledge, attitude, and practice subdimensions. Knowledge was retained as a distinct subscale in the analysis, whereas attitude and practice were combined. Frequencies, percentages, and Spearman's rho

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were calculated. Females accounted for 58.9% of the sample, and 12-year-old pupils formed the largest age group (38.7%). Academic stress was negatively related to learning motivation ($r = -0.330$, $p < 0.001$) and Health Behaviour (Attitude and Practice) ($r = -0.504$, $p < 0.001$). The former association was weak-to-moderate and the latter was moderate. Health Knowledge was unrelated to academic stress ($r = -0.059$, $p = 0.446$). This pattern suggests that reported health attitudes and routines, rather than knowledge alone, warrant attention alongside learning motivation when schools consider academic-stress support. The coefficients represent associations only because the study was cross-sectional and involved a single school.

Keyword:

Academic Stress; Health Behaviour; Learning Motivation; Primary School Pupils; School Well-Being

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Introduction

Upper primary schooling is often overlooked in discussions of academic stress. By Years 4 to 6, however, pupils already work to assessment schedules and manage homework, comparison with classmates, and expectations from adults. At the same time, many are only beginning to organise their own study and regulate frustration. That difference matters. Pressure experienced at age 10 or 11 cannot be assumed to have the same meaning, or the same correlates, as pressure reported by an adolescent or an undergraduate.

Mental-health evidence provides useful context, although it is not a direct measure of academic stress. The World Health Organization (2025) estimated anxiety disorders among 4.1% of young people aged 10-14 years and 5.3% of those aged 15-19 years. In Malaysia, the Adolescent Health Survey has likewise drawn attention to both risk and protective factors among school-going children and adolescents (Institute for Public Health, 2022). Read together, these sources support attention to school-related pressure before pupils enter secondary education; they should not, however, be read as prevalence estimates for the construct examined here.

In this paper, academic stress refers to the strain pupils report when school demands appear greater than the resources, they can draw upon. Appraisal is central to this definition. The same examination or homework may be manageable for one pupil and overwhelming for another, while fear of failure and expectations from adults can alter that judgement. Previous studies

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associate school-related stress with well-being, academic performance, and adjustment (Deng et al., 2022; Pascoe et al., 2020). We therefore distinguish a manageable academic challenge from pressure that persists and begins to interfere with concentration, confidence, or participation in learning.

Learning motivation was selected as the first correlate because it bears directly on how pupils respond to difficult work. It is evident not only in why a task is begun, but also in the effort sustained after an error or setback. Self-Determination Theory places autonomy, competence, and relatedness at the centre of more self-determined motivation (Ryan & Deci, 2017). Recent studies link motivation with engagement and academic functioning (Davidovitch & Dorot, 2023; Sabaliauskas et al., 2025), but this evidence comes largely from learners older than the pupils considered in this article.

Health behaviour was included for a different reason. A pupil arrives at academic work with the effects of sleep, meals, movement, hygiene, and other everyday routines. These conditions may be reflected in alertness, energy, and emotional control during the school day. Research with older students has connected academic stress with health behaviour, psychological functioning, physiological indicators, and performance (Benitez-Agudelo et al., 2025); Aulia et al. (2025) also reported a relationship with physical activity. Those studies justify examining health behaviour alongside stress, but they do not settle the direction of the relationship for primary pupils.

What remains unclear is whether these relationships are also evident during upper primary schooling in Malaysia. Much of the available literature concerns secondary or tertiary samples, and motivational and health-related correlates are seldom considered together for pupils aged 10 to 12. Evidence from Kedah is especially sparse. A study in this setting can therefore add a local, developmentally specific account to a literature dominated by older learners.

The study addressed that gap by examining the associations of learning motivation and health behaviour with academic stress among upper primary pupils in Kedah. Health Knowledge was treated as one subscale of the Health Behaviour Instrument, not as a separate instrument. It was analysed apart from the combined Attitude and Practice score so that knowing about a healthy routine would not be equated with reporting a favourable attitude or carrying the routine out.

Literature Review

Academic Stress among Primary School Pupils

For the present study, academic stress is understood through pupils' appraisal of school demands. The transactional perspective holds that stress emerges from the relation between a demand and the resources a person believes are available to meet it (Lazarus & Folkman, 1984). Homework, examinations, public performance, parental expectations, comparison with peers, or fear of failure may therefore be appraised differently by different pupils. This perspective is useful in upper primary education, where formal academic expectations are growing but self-management remains under development.

A passing worry is not the main concern. Academic stress warrants attention when it repeatedly accompanies poor attention, disrupted sleep, reduced engagement, or emotional difficulty. Pascoe et al. (2020) reported consequences for learning and mental health in secondary and

higher education. Benitez-Agudelo et al. (2025), working with university students, examined psychological, physiological, behavioural, and performance indicators. The age of those samples is important: their findings motivate the present question, but they cannot be assumed to describe Malaysian primary pupils.

Upper-primary pupils in Malaysia do not experience school demands one at a time. Homework, classroom assessment, co-curricular commitments, and expectations at home can overlap. Many pupils manage that combination without undue difficulty. Others are still learning when to begin a task, how to organise several responsibilities, and when to seek help. Studying this age group may reveal pressure that is less visible when evidence is drawn only from older learners.

Learning Motivation and Academic Stress

The link with motivation is easiest to see after schoolwork becomes difficult. One pupil may try a different method, ask for clarification, or return to the task later; another may leave it unfinished. The assigned work has not changed, but the pupils' engagement with it has. For this reason, the present study treats motivation as a possible correlate of stress, not as a means of removing academic demands.

Self-Determination Theory offers one account of this process. Ryan and Deci (2017) argue that autonomy, competence, and relatedness support more self-determined motivation. In an upper-primary classroom, these needs may be reflected in modest but meaningful choices, a sense that assigned work can be mastered, and dependable support from teachers or peers. Effort sustained under these conditions is qualitatively different from effort maintained only through fear, surveillance, or reward.

The available evidence is compatible with this account. Davidovitch and Dorot (2023) reported that motivation remained relevant to engagement across educational levels. A meta-analysis by Bureau et al. (2022) also linked autonomy-supportive conditions with need satisfaction and self-determined motivation. These studies do not answer the present question directly, but they give a reason to examine motivation when pupils are appraising academic demands.

This reasoning led us to expect an inverse relationship. Motivation may accompany earlier task initiation, persistence after an error, and help-seeking before work accumulates. Low motivation may instead coincide with avoidance and unfinished work. The survey does not verify either sequence; the hypothesis concerns whether the two scores vary together rather than whether one produces the other.

Health Behaviour and Academic Stress

For analysis, the Health Behaviour construct was divided according to what pupils knew and what they reported valuing or doing. The latter component covered attitude and practice in relation to sleep, meals, movement, hygiene, screen time, and other daily routines. These routines are relevant to schooling because they coincide with energy, attention, memory, and emotional regulation. Health Knowledge remains part of the same instrument but was reported separately because correct knowledge does not necessarily become daily practice.

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Simple examples show why practice may matter. A pupil who has slept poorly may struggle to follow a lesson; irregular meals may coincide with low energy; too little movement may be experienced as fatigue or restlessness. In a university sample, Benitez-Agudelo et al. (2025) observed academic stress alongside changes in sleep, health behaviour, psychological well-being, physiological markers, and performance. This does not establish the same pattern for children, but it supports examining academic experience within the routines that surround it.

Evidence concerning physical activity is more specific. Aulia et al. (2025) reported that activity level and stress were associated. Zhao et al. (2025) examined exercise behaviour together with academic stress, motivation, and intention using Self-Determination Theory. Both studies concerned different student populations. In the present article, they inform the selection of variables rather than prescribe the result expected from Kedah pupils.

For children, the distinction between knowing and doing warrants explicit treatment. A pupil may identify the benefits of adequate sleep, nutritious food, hygiene, or exercise and still not practise these routines consistently. Keeping Health Knowledge separate from the combined Attitude and Practice score preserves this distinction in the analysis. It also avoids attributing a reported behaviour to knowledge when the two may not correspond.

Conceptual Relationship between Learning Motivation, Health Behaviour, and Academic Stress

The conceptual argument has two strands. Learning Motivation concerns the reasons and persistence pupils bring to schoolwork. Health Behaviour (Attitude and Practice) concerns the daily conditions in which that work is undertaken. Either may accompany a pupil's appraisal of academic demands. Health Knowledge is considered separately because an accurate understanding of healthy routines does not guarantee their enactment.

Accordingly, Academic Stress was correlated with three scores: Learning Motivation, Health Knowledge, and Health Behaviour (Attitude and Practice). The two health scores are analytic components of the same 15-item instrument, not separate instruments. The analysis was limited to the direction, magnitude, and statistical significance of each relationship.

Methodology

Research Design

A cross-sectional correlational survey suited the research question because the purpose was to estimate relationships among measured variables, rather than evaluate a programme. The questionnaire was administered once to the same group of pupils. This design allowed Learning Motivation, Health Knowledge, and Health Behaviour (Attitude and Practice) to be examined in relation to Academic Stress at that point in time.

Population and Sample

School records for the 2026 academic year listed 290 pupils across Years 4, 5, and 6. These pupils, aged 10 to 12 years, formed the study population. Using the Slovin formula with a 5% margin of error produced a required sample of 168. Selection was carried out through

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proportional stratified random sampling, with each year level represented according to its share of the enrolment.

Research Instrument

The self-administered questionnaire began with demographic questions and then presented the study measures. Learning Motivation was assessed with 36 items adapted from Sinuhaji et al. (2023), and Academic Stress with 21 items adapted from Febrianti et al. (2023). A further 15 items formed the Health Behaviour Instrument, which covers knowledge, attitude, and practice. Health Knowledge was scored and reported as a subscale; attitude and practice items were combined as Health Behaviour (Attitude and Practice). Thus, the two health variables reported in Tables 3 and 4 are different analytic components of one instrument. Construct items were answered on four-point Likert scales.

Validity and Reliability

Because the measures were adapted, they were translated into Malay and examined by subject-matter experts for content relevance, wording, and suitability for upper primary pupils. Item-correlation analysis was also undertaken to check alignment with the intended constructs. For reliability, the available estimate was Cronbach's alpha = 0.845 for all 15 Health Behaviour items taken together. It therefore represents knowledge, attitude, and practice collectively. Separate coefficients were not calculated for Health Behaviour (Attitude and Practice), Learning Motivation, or Academic Stress in this dataset.

Data Collection Procedure

Fieldwork began after the relevant school authority granted permission. Pupils received an explanation of the study and took part voluntarily. They were told that individual answers would be kept confidential and used only for academic research. Questionnaires were completed at school under conditions intended to let pupils respond independently.

Data Analysis

The descriptive analysis established the respondent profile and the number of pupils in each variable category; results are reported as frequencies and percentages. For the inferential analysis, Academic Stress was paired in turn with Learning Motivation, Health Knowledge, and Health Behaviour (Attitude and Practice). Spearman's rho was chosen for these ordinal Likert-derived scores and used to estimate monotonic association. The threshold for statistical significance was $p < 0.05$.

Findings

There were 168 respondents. Female pupils accounted for 99 (58.9%) and male pupils for 69 (41.1%). By age, the largest group was 12 years old (n = 65, 38.7%). Pupils aged 11 numbered 57 (33.9%), while 46 (27.4%) were aged 10. Table 1 gives the complete distribution.

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Table 1: Characteristics of Respondents

Characteristics	Frequency (n)	Percentage (%)
Gender		
Male	69	41.1
Female	99	58.9
Age (Years)		
10	46	27.4
11	57	33.9
12	65	38.7
Total	168	100

Table 2 contains one reliability coefficient: Cronbach's alpha = 0.845 for the complete 15-item Health Behaviour Instrument. Because the calculation includes Knowledge, Attitude, and Practice items, it should not be interpreted as subscale reliability.

Table 2: Reliability Test Results

Variable	Number of Items	Cronbach's Alpha	Interpretation
Overall Health Behaviour Instrument	15	0.845	Good Internal Consistency

No category in Table 3 exceeded 58%. Both Learning Motivation and Health Knowledge classified 88 pupils (52%) as poor and 80 (48%) as good. Health Behaviour (Attitude and Practice) showed 87 pupils (52%) in the poor group and 81 (48%) in the good group. For Academic Stress, 70 pupils (42%) were classified as high and 98 (58%) as low.

Table 3: Distribution of Research Variables

Variable	Category	Frequency (n)	Percentage (%)
Learning Motivation	Poor	88	52
	Good	80	48
Health Knowledge (Subscale)	Poor	88	52
Health Knowledge (Subscale)	Good	80	48

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Variable	Category	Frequency (n)	Percentage (%)
Health Behaviour (Attitude and Practice)	Poor	87	52
	Good	81	48
Academic Stress	High	70	42
	Low	98	58

For Learning Motivation and Academic Stress, Spearman's rho was -0.330 ($p < 0.001$). The negative sign indicates that higher motivation scores generally occurred with lower stress scores. Its size falls within the weak-to-moderate range, so the tendency was evident without being strong.

A larger negative coefficient was obtained for Health Behaviour (Attitude and Practice) ($r = -0.504$, $p < 0.001$), indicating a moderate association. Health Knowledge did not show a significant relationship with Academic Stress ($r = -0.059$, $p = 0.446$). Within this sample, the result was therefore confined to the attitude-and-practice component rather than the knowledge subscale.

Table 4: Correlation between Research Variables and Academic Stress

Variable	Correlation Coefficient (r)	p-value	Interpretation
Learning Motivation - Academic Stress	-0.330	<0.001	Weak-to-Moderate Negative (Significant)
Health Knowledge Subscale - Academic Stress	-0.059	0.446	Not Significant
Health Behaviour (Attitude and Practice) - Academic Stress	-0.504	<0.001	Moderate Negative (Significant)

Discussion

The Relationship between Learning Motivation and Academic Stress

Learning Motivation and Academic Stress moved in opposite directions ($r = -0.330$, $p < 0.001$). Pupils with higher motivation scores generally reported less stress, although the weak-to-moderate coefficient shows that the two scores were only modestly related. Statistical significance should not obscure that limited magnitude.

Two sequences are compatible with this coefficient. In the first, a reason for learning helps a pupil start earlier, make another attempt, or request assistance before several tasks accumulate.

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In the second, continuing academic stress gradually reduces interest and effort. Because both scores were recorded on the same occasion, the study cannot determine which sequence, if either, occurred.

Self-Determination Theory makes the first sequence plausible, but it was not tested as a mechanism in this study. Ryan and Deci (2017) identify autonomy, competence, and relatedness as conditions that support sustained motivation. In classroom terms, pupils may deal better with demanding work when they have some ownership of it, can see that progress is possible, and know whom to approach for help. The survey did not measure these needs as mediators.

Previous research helps to locate the result rather than verify its explanation. Davidovitch and Dorot (2023) linked motivation with engagement at different educational levels. Howard et al. (2021) reported associations of self-determined motivation with persistence, self-regulation, and favourable educational outcomes. The present study adds an upper-primary observation from Kedah, but differences in population and measurement prevent it from being treated as a replication of those studies.

A coefficient of -0.330 also leaves considerable variation in stress unexplained. Workload, expectations at home, classroom practices, relationships with peers, and the availability of support may all matter. They were outside the reported analysis. Learning Motivation should therefore be read as one part of the pupils' academic and social setting, not as a complete account of stress.

The Relationship between Health Behaviour (Attitude and Practice) and Academic Stress

The relationship involving Health Behaviour (Attitude and Practice) was more pronounced: $r = -0.504$, $p < 0.001$. This moderate negative coefficient means that more favourable reported attitudes and practices tended to occur with lower Academic Stress. It describes the pattern in these data, not a change produced by health behaviour.

At least three readings are possible. Regular sleep, meals, movement, and personal care may support the energy, and attention pupils bring to lessons. Academic stress may itself disrupt those routines. Conditions outside school may also affect both scores. A cross-sectional correlation cannot choose among these explanations, and the result should be interpreted with that ambiguity intact.

Studies of older students provide related, but not directly comparable, evidence. Benitez-Agudelo et al. (2025) followed academic stress together with sleep, health behaviour, psychological well-being, physiological markers, and performance. Aulia et al. (2025) found an association between physical activity and stress. The present coefficient points in a compatible direction, but the age and setting of the samples differ.

The health attitude-and-practice coefficient was larger than the motivation coefficient in absolute terms. This descriptive difference should not be read as proof that health behaviour is the more important correlate, because the two coefficients were not formally compared. It identifies only which bivariate relationship was more pronounced in these data.

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Health Knowledge produced a different result ($r = -0.059$, $p = 0.446$). It belongs to the same 15-item instrument, yet knowledge alone was unrelated to Academic Stress. Pupils can know which routines are healthy without adopting a favourable attitude towards them or following them consistently. The contrast across the two health scores makes that distinction visible.

Overall Discussion

Three results need to be held together. Academic Stress was negatively associated with Learning Motivation and with Health Behaviour (Attitude and Practice), whereas Health Knowledge was not associated with it. The findings therefore do not support treating all health-related scores as interchangeable. What pupils reported knowing and what they reported valuing or doing occupied different positions in the analysis.

The contribution is local and age specific. Few studies have examined motivation, two components of health behaviour, and academic stress together during upper-primary schooling. The Kedah results also show why Health Knowledge should not be collapsed with Attitude and Practice.

For practice, teachers and counsellors can ask whether pupils find schoolwork manageable and worthwhile, while schools and families review realistic routines around sleep, meals, movement, and study. Whether such support lowers stress must be tested separately.

The limitations affect several parts of the evidence. Self-report may not reproduce pupils' actual behaviour, while one school cannot represent all primary-school settings. A single measurement occasion also leaves temporal order unresolved. In addition, alpha = 0.845 was available only for the complete 15-item Health Behaviour Instrument. Reliability was not calculated separately for Attitude and Practice, Learning Motivation, or Academic Stress. These measurement gaps should be considered when reading the correlations.

Conclusion

Three coefficients summarise the study. Academic Stress was negatively related to Learning Motivation ($r = -0.330$, $p < 0.001$) and to Health Behaviour (Attitude and Practice) ($r = -0.504$, $p < 0.001$). The former was weak-to-moderate and the latter moderate. Health Knowledge, although drawn from the same 15-item instrument as Attitude and Practice, was not related to Academic Stress ($r = -0.059$, $p = 0.446$).

The non-significant knowledge result is especially informative. Knowing which routines are healthy did not show the relationship observed for pupils' reported attitudes and practices. Even for the two significant coefficients, however, the cross-sectional evidence does not show that changing motivation or routine would change stress.

Schools may use these findings to begin conversations about manageable expectations, reasons for engaging with schoolwork, and routines around the school day. The results do not prescribe a particular programme. Any support introduced on this basis would require its own assessment.

Future work should first address the measurement gaps by reporting reliability for every scale and analytically distinct subscale. Samples from several schools would provide a stronger test

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of generalisability. Repeated measurement could establish which score changes first, while an intervention study would be required before making claims about reducing academic stress.

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