Research Square

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Psychological Consequences of Academic Demands Linked to the Grade 5 Scholarship Examination; Experience from Sri Lanka

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Abstract

Background

High-stakes academic examinations during late childhood may adversely affect children's mental health. In Sri Lanka, the Grade 5 Scholarship Examination is a competitive school placement test often accompanied by intensive private tuition and increased academic workload. Evidence examining its association with psychological distress among younger children remains limited. This study examined the association between exposure to the Grade 5 Scholarship Examination and symptoms of depression, anxiety, and stress among primary school children in Sri Lanka.

Methods

An analytical cross-sectional study was conducted among Grade 5 students in the Kurunegala Education Zone using multistage stratified sampling from government and international schools. Psychological distress was assessed using the Sinhala-validated Depression, Anxiety and Stress Scale-21 (DASS-21). Multivariable linear regression examined associations between examination exposure and psychological distress after adjusting for key sociodemographic and academic factors.

Results

A total of 368 students were included (306 examination-exposed; 62 non-exposed). Examination-exposed students reported significantly greater academic load, including longer weekly tuition duration and lower participation in extracurricular and physical activities ($p < 0.05$). Examination exposure was independently associated with higher anxiety scores (adjusted $\beta = 1.61$; 95% CI 0.12–3.11; $p = 0.034$), while associations with depression and stress were not significant. Higher tuition duration showed a dose–response pattern with increasing anxiety and stress scores.

Conclusions

Exposure to the Grade 5 Scholarship Examination is associated with higher anxiety and greater academic demands among primary school children. Policies promoting balanced examination preparation and preserving time for physical activity and extracurricular engagement may help mitigate adverse psychological effects.

Background

High-stakes academic examinations during late childhood have become a defining feature of education systems in many low- and middle-income countries [1], raising growing concern about their potential impact on children's mental health and wellbeing [2, 3].

In Sri Lanka, the Grade 5 scholarship examination serves as a highly competitive academic gateway, shaping access to elite secondary schools and subsequent educational trajectories [4, 5].

Preparation for this examination is often characterised by intense tuition schedules, prolonged study hours, and substantial reductions in leisure and extracurricular activities [6] [7]. The impact of such preparation is further compounded by its occurrence during late childhood, a critical period of cognitive maturation, emotional development, and reliance on family support essential for physical and psychological health [8].

Globally, a substantial body of research, including a systematic review [9], has demonstrated associations between excessive academic pressure and adverse psychological outcomes among school-aged children and adolescents, including increased symptoms of anxiety, depression, and stress.

Studies from East and South Asia have highlighted how examination-oriented education systems contribute to heightened psychological distress, particularly when academic success is tied to social mobility and family expectations [10, 11].

Heavy academic workloads, often intensified by private tutoring, frequently displace protective activities such as physical exercise, play, and peer interaction. Which are essential for children's emotional regulation, stress resilience, cognitive, social development, and physical and psychological well-being [12–14].

Despite these findings, most existing studies originate from high-income or East Asian contexts, focus on adolescents rather than younger children, or examine examination stress in isolation without accounting for broader academic load and daily routines. Empirical data from South Asian low- and middle-income countries (LMICs), particularly at the primary school level, remain limited.

Although international research consistently links excessive academic pressure to adverse psychological outcomes among school-aged children [9], important evidence gaps remain. Existing studies have often examined these associations with limited adjustment for socioeconomic and family-level factors, including objective measures of economic status and parenting context [9, 15, 16].

In Sri Lanka, these gaps are particularly salient for the Grade 5 Scholarship Examination where evidence quantifying its association with psychological distress among children remains lacking. It is unclear whether exposure to the examination is independently associated with depression, anxiety, and stress after accounting for socioeconomic factors, parenting context, and academic workload.

Addressing these gaps is critical for informing education policy and child mental health interventions in low-resource settings. Particularly given the limited evidence linking early school placement examinations to child mental health outcomes [17] and persistent underrepresentation of South Asian research in policy-relevant evidence [18].

Against this background, the present study examines the association between exposure to the Grade 5 scholarship examination and psychological distress among Grade 5 students in Sri Lanka. By comparing examination-exposed and non-exposed students and accounting for socioeconomic circumstances and academic workload this study seeks to provide empirical evidence on the mental health correlates of an early high-stakes school placement examination in a LMIC setting.

Methods

Study aim, design, and setting

This study examined the association between exposure to the Grade 5 Scholarship Examination and psychological distress (depression, anxiety, and stress symptoms) among Grade 5 students in Sri Lanka.

An analytical cross-sectional study was conducted between August 2023 and August 2024 in the Kurunegala Education Zone, located in the North-Western Province of Sri Lanka. The zone serves a socioeconomically and geographically diverse population comprising both urban and rural communities and is recognised as an academically competitive district.

Participants and sampling

The study population consisted of children enrolled in Grade 5 in selected government and international schools within the Kurunegala Education Zone.

A multistage stratified sampling technique was employed to ensure representation across school types. School type was used as the primary stratification variable, with schools categorised as Type 1A, 1B, 1C, Type 2, and international schools.

Sampling was conducted in three stages. In the first stage, schools were selected as primary sampling units using probability proportional to size sampling based on Grade 5 student enrolment. In the second stage, one or more Grade 5 classes were randomly selected within each selected school. In the third stage, all students within selected classes were invited to participate.

A total of 368 students were included in the final analysis.

Inclusion and exclusion criteria

Children enrolled in Grade 5 during the study period were eligible. Written informed consent was obtained from parents or legal guardians, and age-appropriate verbal assent was obtained from participating students.

Children with acute medical illness at the time of data collection or those unable to complete the questionnaire due to significant cognitive or communication difficulties were excluded.

Study instruments

Data was collected using an interviewer-administered structured questionnaire comprising four sections:

1. Sociodemographic characteristics

Information on age, sex, school type, parental education, family structure, and household socioeconomic characteristics was collected.

2. Academic load and daily routine characteristics

This section assessed participation in private tuition classes, weekly tuition duration, extracurricular involvement, leisure activities, and physical activity, capturing academic workload and displacement of non-academic activities.

3. Depression, Anxiety and Stress Scale – 21 items (DASS-21)

Psychological distress was assessed using the Sinhala-validated Depression, Anxiety and Stress Scale (DASS-21) [19]. The DASS-21 is a standardized self-report instrument originally developed by Lovibond and Lovibond [20]. The scale comprises three subscales (depression, anxiety, stress), each with seven items assessing symptoms over the preceding week. Responses are rated on a four-point Likert scale. Subscale scores were multiplied by two and categorised using standard severity cut-offs. The Sinhala version has demonstrated acceptable validity and reliability in Sri Lankan populations.

Permission to use the instrument was obtained from the respective authors.

Data collection

Data were collected within school premises by trained interviewers following a standardised protocol. Interviews were conducted in a private setting to ensure confidentiality and minimise distraction, with responses recorded at the time of interview.

Ethical considerations

Ethical approval

was obtained from the Ethics Review Committee of the Sri Lanka College of Paediatricians (SLCP/ERC/2023/17). Administrative approval was obtained from relevant education authorities and school principals.

Written informed consent and child assent were obtained. Participation was voluntary, and confidentiality and anonymity were maintained throughout the study.

Statistical analysis

Analyses were performed using SPSS version 27. Categorical variables are presented as n (%) and continuous variables as mean (SD) or median (IQR). Between-group differences were assessed using χ^2 or Fisher–Freeman–Halton tests and independent t-tests or Mann–Whitney U tests, as appropriate.

Multivariable linear regression examined associations between examination exposure and DASS-21 depression, anxiety, and stress scores, adjusting for age, sex, perceived household income adequacy, parenting style, weekly tuition duration, and extracurricular participation. Dose–response associations between tuition duration quartiles and psychological distress were explored among examination-exposed students. Results are reported as adjusted β coefficients with 95% confidence intervals; $p < 0.05$ was considered statistically significant.

Results

Participant characteristics by examination exposure

A total of 368 Grade 5 students were included, comprising 306 examination-exposed students from government schools and 62 non-exposed students from international schools (Table 1). Sex distribution did not differ between groups ($p = 0.485$).

Significant differences were observed in parental education and household income. Students in international schools were more likely to have parents with higher educational attainment and to belong to higher household income categories (both $p < 0.05$). Perceived income adequacy also differed significantly between groups ($p < 0.001$). Family structure was comparable across exposure categories ($p = 0.405$).

Table 1
Sociodemographic characteristics by examination exposure

Characteristic	Non-exam-exposed (International schools) n = 62	Exam-exposed (Government schools) n = 306	p-value
Sex			0.485
Female	30 (48.4%)	145 (48.5%)	
Male	32 (51.6%)	154 (51.5%)	
Father's education (highest level)			0.032
Primary school	1 (1.7%)	8 (2.8%)	
Secondary school	5 (8.5%)	38 (13.5%)	
Ordinary level	19 (32.2%)	134 (47.7%)	
Advanced level	22 (37.3%)	82 (29.2%)	
Diploma	5 (8.5%)	8 (2.8%)	
Degree	4 (6.8%)	6 (2.1%)	
Postgraduate degree	3 (5.1%)	5 (1.8%)	
Mother's education (highest level)			0.014
Primary school	0 (0.0%)	5 (1.7%)	
Secondary school	1 (1.8%)	29 (10.1%)	
Ordinary level	19 (33.9%)	119 (41.6%)	
Advanced level	26 (46.4%)	107 (37.4%)	
Diploma	6 (10.7%)	10 (3.5%)	
Degree	4 (7.1%)	16 (5.6%)	
Household income category (LKR)			< 0.001
< 50,000	8 (13.1%)	151 (51.7%)	
50,000–100,000	20 (32.8%)	111 (38.0%)	
100,000–150,000	15 (24.6%)	17 (5.8%)	
> 150,000	18 (29.5%)	13 (4.5%)	
Perceived adequacy of household income			< 0.001

Characteristic	Non-exam-exposed (International schools) n = 62	Exam-exposed (Government schools) n = 306	p-value
Yes	47 (77.0%)	125 (43.1%)	
No	14 (23.0%)	165 (56.9%)	
Family structure (parental marital status)			0.405
Married	58 (93.5%)	278 (90.8%)	
Separated / divorced / widowed	4 (6.5%)	28 (9.2%)	

- Values are presented as n (%) unless otherwise stated.
- Percentages were recalculated using the number of valid responses for each variable within each exposure group (excluding missing responses).
- p-values were derived from χ^2 tests for categorical variables.

Academic load and daily routine characteristics

Examination-exposed students demonstrated significantly greater academic engagement than non-exposed students, with longer weekly tuition durations (Table 2). They were also less likely to participate in extracurricular, leisure, and physical activities (all $p < 0.05$).

Table 2
Academic load and daily routine characteristics by examination exposure

Variable	Non-exam-exposed (International schools) n = 62	Exam-exposed (Government schools) n = 306	p-value
Attendance at tuition classes			< 0.001
Yes	51 (85.0%)	133 (43.5%)	
No	9 (15.0%)	173 (56.5%)	
Weekly tuition duration (hours)	2.0 (0.0, 6.0)	9.0 (4.0, 14.0)	< 0.001
Participation in extracurricular activities			0.007
Yes	27 (46.6%)	78 (27.6%)	
No	31 (53.4%)	205 (72.4%)	
Participation in leisure activities			0.004
Yes	50 (98.0%)	223 (80.2%)	
No	1 (2.0%)	55 (19.8%)	
Participation in physical activity			< 0.001
Yes	52 (94.5%)	165 (60.9%)	
No	3 (5.5%)	106 (39.1%)	

- Values are presented as n (%) unless otherwise stated.
- Percentages were recalculated using the number of valid responses for each variable within each exposure group (excluding missing responses) so that percentages sum to 100% within each variable.
- Weekly tuition duration is presented as median (IQR).
- p-values were derived from χ^2 tests for categorical variables and the Mann–Whitney U test for weekly tuition duration.

Severity distribution of psychological distress

The distribution of depression, anxiety, and stress severity by examination exposure is shown in Table 3. A substantial proportion of students in both groups reported moderate-to-extremely severe symptoms across all domains.

Although examination-exposed students had a higher proportion of moderate-to-extremely severe depressive symptoms, this difference was not statistically significant. The frequency of moderate-to-extremely severe anxiety and stress was similar between groups, with no significant between-group differences observed.

Table 3
Severity distribution of depression, anxiety and stress by examination exposure

Domain / severity	Non-exam-exposed (International schools) n = 62	Exam-exposed (Government schools) n = 306	*p*-value†
Depression			0.334
Normal	35 (56.5%)	165 (53.9%)	
Mild	3 (4.8%)	13 (4.2%)	
Moderate	7 (11.3%)	44 (14.4%)	
Severe	2 (3.2%)	28 (9.2%)	
Extremely severe	9 (14.5%)	47 (15.4%)	
Moderate-to-extremely severe (summary)	18 (29.0%)	119 (38.9%)	
Anxiety			0.658
Normal	22 (35.5%)	135 (44.1%)	
Mild	6 (9.7%)	29 (9.5%)	
Moderate	7 (11.3%)	16 (5.2%)	
Severe	1 (1.6%)	22 (7.2%)	
Extremely severe	19 (30.6%)	95 (31.0%)	
Moderate-to-extremely severe (summary)	27 (43.5%)	133 (43.5%)	
Stress			0.229
Normal	21 (33.9%)	136 (44.4%)	
Mild	3 (4.8%)	23 (7.5%)	
Moderate	9 (14.5%)	38 (12.4%)	
Severe	8 (12.9%)	27 (8.8%)	
Extremely severe	14 (22.6%)	73 (23.9%)	
Moderate-to-extremely severe (summary)	31 (50.0%)	138 (45.1%)	

† *p*-values correspond to χ^2 tests comparing moderate-to-extremely severe symptoms versus none/mild symptoms within each psychological domain.

- Values are *n (%)*.
- Severity categories derived using standard DASS-21 cut-offs.

- Percentages are calculated within examination exposure groups; missing values are excluded from summary comparisons.

Continuous DASS-21 depression, anxiety, and stress scores by examination exposure are shown in Fig. 1. Median scores were similar between groups across all domains, with small effect sizes observed. Although examination-exposed students had slightly lower median stress scores, between-group differences were modest overall.

Multivariate associations between examination exposure and psychological distress

In multivariate linear regression analyses adjusting for sociodemographic, socioeconomic, parenting, and academic factors, examination exposure was independently associated with higher anxiety scores (Table 4). Associations with depression and stress were positive but not statistically significant. No evidence of multicollinearity was observed.

Table 4
Adjusted associations between examination exposure and psychological distress

Outcome (DASS-21 subscale)	Adjusted β coefficient for exam exposure	95% CI	*p*-value
Depression score	0.87	−0.73 to 2.48	0.287
Anxiety score	1.61	0.12 to 3.11	0.034
Stress score	1.42	−0.39 to 3.23	0.125

Footnote: *Models were adjusted for age, sex, perceived household income adequacy, parenting style, weekly tuition duration, and participation in extracurricular activities. Adjusted β coefficients represent the mean difference in psychological distress scores associated with examination exposure.*

Dose–response association between tuition duration and psychological distress

Among examination-exposed students, higher weekly tuition duration was associated with greater psychological distress (Fig. 2). Median anxiety and stress scores increased across tuition quartiles, with the highest scores observed in the upper quartile. Although score distributions overlapped, the pattern was consistent with a dose–response relationship.

Discussion

The observed association between high-stakes examination exposure and anxiety is consistent with international evidence. A systematic review of 52 studies reported positive associations between academic pressure and at least one mental health outcome, including anxiety [9].

Evidence from primary school populations similarly shows higher test anxiety in high-stakes examination contexts compared with low-stakes assessments, supported by systematic review and meta-analytic findings identifying test anxiety as a significant concern among younger children [21, 22].

Studies from examination-oriented systems in Asia further report elevated anxiety where academic achievement is closely linked to social mobility and family expectations. Similar patterns have been documented in Hong Kong, Singapore, South Korea, and China, where exam-focused educational models are associated with increased stress and anxiety among students [11, 23].

Our findings extend this literature by demonstrating that such associations are evident even in late primary school, at an earlier stage of educational selection than has been commonly studied.

Although anxiety was independently associated with examination exposure, associations with depression and stress were weaker and nonsignificant. This pattern is consistent with existing evidence [22], suggesting that depressive symptoms are less responsive to short-term academic stressors and more likely to emerge from cumulative exposure during early adolescence [25]. Such findings align with the diathesis–stress model, whereby depression arises from sustained stress interacting with individual vulnerability, and with studies demonstrating minimal changes in depressive symptoms in relation to examination exposure [26, 27].

The present study also demonstrates substantially greater academic load among examination-exposed children, including longer tuition hours, reduced engagement in non-academic activities, and a dose–response association between tuition duration and anxiety. These findings are consistent with international evidence linking excessive homework and private tutoring to poorer emotional wellbeing [28]. In competitive academic environments, prolonged study often displaces sleep, physical activity, and social engagement, with extended study hours identified as risk factors for anxiety and depressive symptoms [28].

Private tuition has similarly been associated with heightened pressure, exhaustion, and reduced sleep, potentially mediating the relationship between academic workload and adverse emotional outcomes [14, 29, 30].

Evidence also supports the protective role of physical activity in children's psychological health, with higher activity levels associated with better emotional wellbeing and lower stress [31, 32].

These findings have important implications for education policy and child mental health in Sri Lanka and similar LMIC settings. The independent association between early examination exposure and anxiety, together with evidence of extended tuition schedules and reduced engagement in protective activities, raises concerns about the psychosocial costs of early high-stakes academic selection. Policies promoting balanced academic schedules, limiting excessive tuition, and preserving time for physical activity, play, and extracurricular engagement may help mitigate anxiety. School-based mental health

screening and early supportive interventions during the Grade 5 preparation period may also be warranted, particularly for students with substantial academic demands.

More broadly, these results contribute to ongoing debates on early academic selection and underscore the need to consider child mental health alongside academic performance in education policy decisions.

Strengths of this study include inclusion of both examination-exposed and non-exposed students, use of validated Sinhala-language instruments, and adjustment for a comprehensive range of sociodemographic, socioeconomic, parenting, and academic factors. Assessment of tuition duration and extracurricular participation further provides insight into potential pathways linking examination exposure and psychological distress.

Several limitations should be acknowledged. The cross-sectional design precludes causal inference and does not establish temporal relationships between examination exposure, academic load, and psychological distress. Psychological distress was assessed using self-report measures, which may be subject to reporting bias. Examination exposure was defined by school type and may not capture individual variation in preparation intensity. As the study was conducted in a single education zone, generalisability to other regions of Sri Lanka may be limited.

Future longitudinal studies should examine trajectories of psychological distress before, during, and after exposure to the Grade 5 scholarship examination, and assess longer-term mental health outcomes. Incorporating objective measures of academic load, sleep, and physical activity, alongside qualitative exploration of children's and parents' experiences, would further clarify how early high-stakes examination exposure affects child wellbeing. Comparative studies across education systems may also inform policy discussions on the timing and structure of school placement examinations.

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In conclusion, exposure to the Grade 5 scholarship examination is independently associated with higher anxiety and accompanied by greater academic demands and reduced engagement in protective activities. Clear guidance to parents on maintaining balanced examination preparation is essential to reduce excessive academic pressure and support children's wellbeing. Education policies must prioritise preparation approaches that safeguard time for physical activity, play, and extracurricular engagement. Protecting children's mental health should be central and not secondary to decisions about early high-stakes examination practices.

Declarations

Ethics approval and consent to participate

Ethical approval for the study was obtained from the Ethics Review Committee of the Sri Lanka College of Paediatricians (SLCP/ERC/2023/17). Administrative approval was obtained from the relevant educational authorities and school principals in the Kurunegala Education Zone. All study procedures

were conducted in accordance with the ethical standards of the institutional research committee and the principles of the Declaration of Helsinki and its subsequent amendments. Written informed consent was obtained from parents or legal guardians of participating students, and age-appropriate verbal assent was obtained from the children prior to participation.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

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Author Contribution

SACD and KCS conceived and designed the study. SACD was responsible for data collection and data management. SACD and TCMGDP performed the statistical analysis. SACD drafted the manuscript. KCS and TCMGDP critically revised the manuscript for important intellectual content. All authors read and approved the final manuscript.

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Data Availability

The datasets used and analysed during the current study are available from the corresponding author on reasonable request.

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Figures

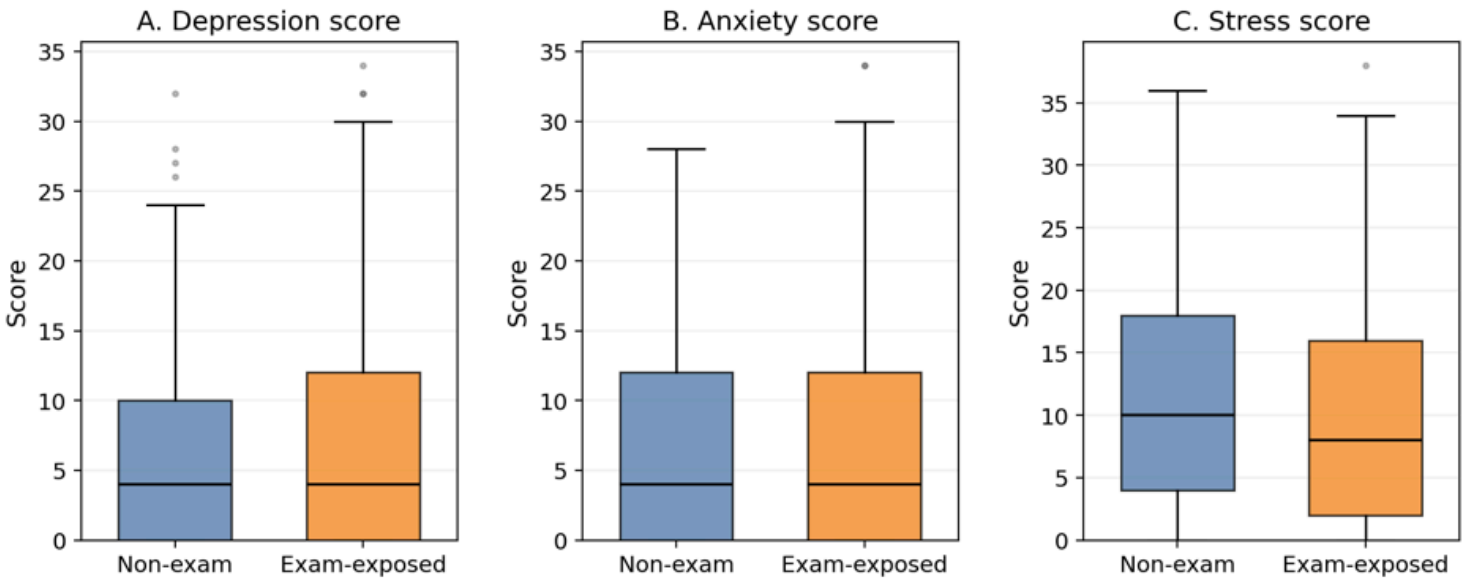


Figure 1

Distribution of continuous DASS-21 depression (A), anxiety (B), and stress (C) scores by examination exposure status. *Boxplots display median scores (horizontal line), interquartile range (box), and range (whiskers), with outliers shown as individual points. Continuous scores were broadly similar between examination-exposed and non-exposed groups across all domains, with modest between-group differences.*

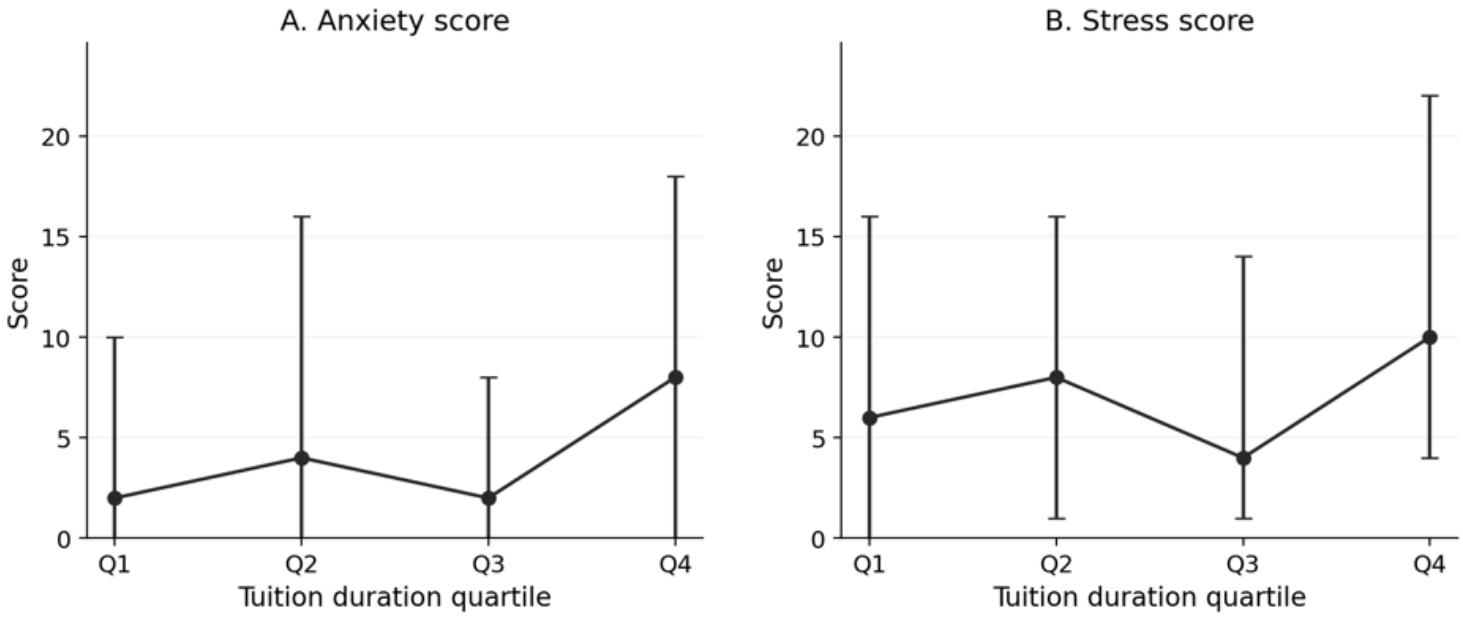


Figure 2

Dose–response association between tuition duration and psychological distress among examination-exposed students

Median anxiety (A) and stress (B) scores across quartiles of weekly tuition duration among examination-exposed students. Points represent median DASS-21 subscale scores, with vertical bars indicating interquartile ranges (25th–75th percentiles). Tuition duration quartiles were defined within the examination-exposed group only.