

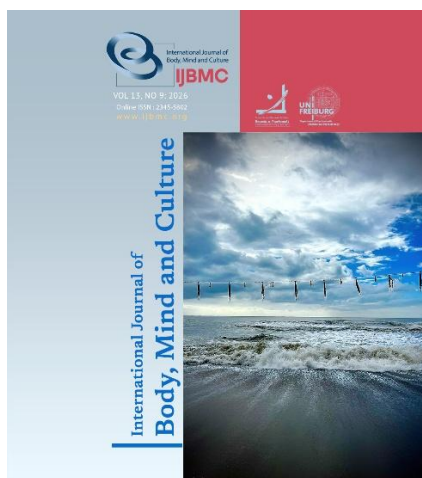
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Internalizing and Externalizing Problems and Their Associations with Social and Learning Difficulties: Evidence from Vietnamese Primary School Children

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ABSTRACT

Objective: Guided by the adjustment erosion model, this study examined whether parent-rated hyperactivity/inattention and anxiety were differentially associated with children's self-reported social and learning difficulties, and whether anxiety moderated the associations of hyperactivity/inattention with these outcomes.

Methods and Materials: A cross-informant, cross-sectional design was used with 588 parent-child pairs (M age = 9.59 years, SD = 0.51; 54.4% boys) recruited by convenience sampling from urban, semi-urban, and rural areas of northern Vietnam. Parents completed 13 items assessing hyperactivity/inattention (8 items, alpha = .83) and anxiety (5 items, alpha = .71). Children completed measures of social difficulties (10 items, alpha = .75) and learning difficulties (10 items, alpha = .86). Hierarchical regression and PROCESS moderation analyses were conducted after adjustment for demographic covariates.

Findings: Hyperactivity/inattention was positively associated with both learning difficulties (beta = .14, $p < .001$) and social difficulties (beta = .19, $p < .001$). Anxiety was positively associated with social difficulties (beta = .12, $p = .003$) but not learning difficulties (beta = -.07, $p = .102$). Anxiety significantly moderated the associations between hyperactivity/inattention and learning difficulties (interaction beta = .08, $p = .035$) and social difficulties (interaction beta = .11, $p = .003$). Explained variance remained modest.

Conclusion: Co-occurring anxiety may strengthen the concurrent associations between hyperactivity/inattention and children's perceived school-adjustment difficulties. Because the design was cross-sectional and based on convenience sampling, the findings should be interpreted as conditional associations rather than causal or developmental effects.

Keywords: Internalizing Problems, Externalizing Problems, Learning Difficulties, Social Difficulties, Primary School Children.

Introduction

Social and learning difficulties represent two of the most consequential challenges in primary school development, with far-reaching implications for children's long-term academic, social, and mental health outcomes. Learning difficulties refer to persistent problems in academic engagement, task completion, information processing, and self-regulated learning that interfere with expected school progress for a child's age and ability (Reynolds & Kamphaus, 2015). Social difficulties refer to patterns of social withdrawal, peer rejection, fear of negative evaluation, and poor peer interaction that hinder children's ability to build and maintain relationships in school (Pedersen et al., 2019; Wang & Liu, 2021). Both forms of difficulty are linked to lower classroom participation, poorer academic performance, and weaker learning self-efficacy (Hinshaw, 1992; McLeod et al., 2012). They are also important predictors of later academic attainment, mental health, and social adjustment (Masten et al., 2005; Duncan et al., 2007). Identifying which factors predict each domain most strongly is therefore important for designing targeted school-based interventions.

Internalizing and externalizing problems as differential risk factors

Among the key risk factors for social and learning difficulties, externalizing problems have received substantial empirical attention. Externalizing problems encompass a broad range of behaviors, including conduct problems, oppositional defiance, aggression, and hyperactivity/inattention (Achenbach & Edelbrock, 1978). Inattentive and poorly regulated behaviour may disrupt task completion, limit participation, provoke negative feedback, and increase the likelihood of peer rejection because these behaviours are highly visible to teachers and classmates (Bellanca & Pote, 2013). Children with ADHD are consequently more likely than typically developing children to be disliked by peers and to be rated as having poorer social skills, with impulsivity, intrusiveness, and aggression particularly detrimental to peer relationships (Mikami et al., 2011). ADHD symptoms may also initiate broader

developmental cascades. Longitudinal symptom-based research has found that early ADHD symptoms were associated with subsequent anxiety symptoms, possibly because repeated academic struggles, negative feedback, and difficulties regulating responses to stress increase later emotional vulnerability (Gair et al., 2021).

Importantly, these adverse associations are not confined to clinically diagnosed samples. A meta-analysis of longitudinal research found bidirectional associations between externalizing problems and academic performance, including in community and non-clinical samples: externalizing symptoms were associated with subsequent academic decline, while academic difficulties also contributed to later behavioural problems (Yan et al., 2024). Evidence from the unselected Northern Finland Birth Cohort further showed that adolescents identified through elevated ADHD symptoms, rather than clinical diagnosis, obtained lower grades in theoretical subjects and reported less ambitious educational aspirations (Taanila et al., 2014). These findings suggest that attention and behavioural-regulation difficulties can interfere with learning even among children attending mainstream education and not recruited through clinical services.

Internalizing problems represent an important but comparatively less visible set of correlates of children's school adjustment. They encompass anxiety, depressive symptoms, somatic complaints, withdrawal, and related forms of emotional distress (Reynolds & Kamphaus, 2015). Unlike externalizing problems, which are readily observed through disruptive or impulsive behaviour, internalizing symptoms may be expressed through worry, avoidance, inhibition, or reduced engagement and may therefore remain unnoticed by teachers and caregivers. Nevertheless, their associations with children's social functioning are evident even outside clinically diagnosed populations. Anxiety can heighten fear of negative evaluation, discourage social initiation, and produce a withdrawn or timid interaction style. Mikami et al. (2011), for example, found that anxiety symptoms were incrementally associated with poorer parent- and teacher-rated social functioning after demographic characteristics, ADHD status, and

oppositional-defiant disorder were controlled. Anxiety symptoms have been associated with social withdrawal, fear of negative evaluation, and reduced participation in peer activities, all of which can contribute to social difficulties even in the absence of overt behavioral disruption (Vaz et al., 2020).

With regard to learning, the relationship is more complex: while high anxiety may interfere with concentration and academic confidence, findings suggest that anxiety does not consistently predict learning difficulties to the same extent as hyperactivity-related symptoms, particularly when attentional factors are taken into account (Holmes et al., 2021). The anxiety-performance link is weakest among elementary/primary-school-aged children relative to junior and senior high school students (Zhang et al., 2019), suggesting that the academic consequences of anxiety may become more pronounced as curricular demands, evaluative pressure, and the personal significance of achievement increase.

Internalizing and externalizing symptoms should also not be treated as entirely independent processes. Longitudinal evidence shows that internalizing and externalizing problems often co-occur and reinforce each other over time, amplifying their combined impact on both social competence and learning outcomes (Gilliom & Shaw, 2004; Masten et al., 2005). This comorbidity underscores the importance of examining internalizing and externalizing problems simultaneously within the same analytical framework to identify their unique predictive contributions. Recent intervention-oriented work with school-age children similarly treats internalizing and externalizing problems as related but distinguishable clinical targets (Moradi & Izadi, 2026).

Cultural impacts on internalizing and externalizing problems

Cultural context may further shape how anxiety is expressed, recognised, and related to school functioning. In collectivistic and Confucian-influenced societies such as Vietnam, socialisation commonly places substantial value on emotional restraint, behavioural compliance, academic diligence, family obligation, and the maintenance of interpersonal harmony (Essau et al., 2008; Siu, 2008; Weiss

et al., 2014). Within such contexts, anxiety-related inhibition may sometimes be interpreted as modesty, obedience, or appropriate self-control rather than as emotional difficulty (Kong et al., 2026). Worry about disappointing parents or failing to meet academic expectations may also encourage greater effort and compliance, allowing some anxious students to maintain adequate performance despite internal distress (Li et al., 2022). Anxiety may therefore appear less strongly associated with observable learning difficulties than hyperactivity/inattention, which is more visibly inconsistent with classroom expectations concerning attentiveness, order, and self-regulation. By contrast, behavioral dysregulation associated with hyperactivity/inattention may be more visibly inconsistent with norms of classroom obedience and self-control and thus more readily recognized and sanctioned by teachers.

However, this possible performance-maintaining function should not be interpreted as indicating that anxiety is beneficial. Cultural expectations surrounding achievement and social evaluation may also intensify fear of failure, perfectionistic concerns, and reluctance to seek assistance. When anxiety becomes persistent, the effort required to suppress distress and avoid mistakes may overload cognitive resources, reduce learning efficiency, and limit spontaneous participation with peers. Evidence from Vietnamese community samples supports this contextual interpretation. Among 950 lower-secondary students from urban, coastal, and mountainous areas of Da Nang, Lam et al. (2026) found that 19.3% reported emotional symptoms and 12.3% experienced peer-relationship difficulties. Family conflict, emotional distance, and harsh parental responses were strongly associated with emotional-behavioural difficulties, whereas close friendships, positive peer relationships, and enjoyment of school were protective. Similarly, Nguyen et al. (2024) found that urban Vietnamese adolescents reporting substantial examination stress, overwhelming academic demands, poor parental relationships, or an absence of confidants had higher levels of depressive symptoms. Satisfaction with friendships, support from teachers and peers, and participation in extracurricular activities were associated with fewer

symptoms. These findings suggest that internalizing problems among Vietnamese students are embedded within academic expectations and relational contexts rather than arising solely from individual vulnerabilities. While these studies do not directly test collectivism as a statistical moderator; rather, they indicate that family, peer, and school environments are closely linked to internalizing difficulties and provide a basis for interpreting these associations within the Vietnamese cultural context. Thus, anxiety may operate as a double-edged factor: culturally reinforced vigilance and diligence may temporarily support task completion, while chronic worry and evaluative fear may undermine both emotional well-being and effective learning. This interpretation is consistent with evidence that the negative anxiety-performance association is particularly strong for complex problem-solving tasks, which require greater working-memory resources than routine computation (Zhang et al., 2019). It also helps explain why anxiety may be positively related to social difficulties while showing a weaker or less consistent direct association with broad learning difficulties during primary school.

Adjustment erosion model

Several theoretical perspectives have been proposed to explain the relationship between children's internalizing and externalizing problems and their social and academic functioning. Transactional models propose that social and learning difficulties contribute to the development or intensification of emotional and behavioural symptoms (Sameroff & Mackenzie, 2003). Emotional and behavioural problems may initially interfere with social interaction and learning; the resulting peer rejection, teacher conflict, or academic failure may then reinforce anxiety, disengagement, and behavioural dysregulation. Longitudinal research has found that lower social competence can precede later internalizing problems, supporting pathways from impaired adjustment to psychopathology rather than only the reverse (Burt et al., 2008). Thus, social and learning difficulties can function simultaneously as consequences of earlier symptoms and as conditions that maintain or exacerbate those symptoms. Transactional models are particularly relevant in childhood because children's characteristics

continuously interact with responses from teachers, peers, parents, and the wider school environment.

Nevertheless, evidence for bidirectionality is not uniform across all symptom domains. Stern et al. (2020) found that earlier ADHD symptoms were consistently associated with later emotional problems across childhood and during the transition to young adulthood, whereas earlier emotional problems did not predict subsequent ADHD symptoms. The childhood association between ADHD and later emotional problems was explained by shared genetic influences. Using four waves of data from 11,867 children in the general-population ABCD Study, Visser et al. (2026) found that school grades were associated with anxiety and depressive symptoms, but grades did not predict subsequent changes in these symptoms. These findings suggest that reciprocal pathways may depend on the particular symptoms and developmental periods examined.

Another model is adjustment erosion model, which provides a theoretically coherent account of how emotional and behavioral problems accumulate negative developmental consequences over time (Chen et al., 2022). The model posits that behavioral and emotional difficulties gradually erode children's social and academic competence through a cascade of transactional processes: initial problems in self-regulation or emotional control trigger negative feedback from teachers and peers, which in turn reduces motivation, self-efficacy, and social belonging, ultimately deepening both social and academic difficulties. Evidence for this model has been reported across multiple longitudinal samples, with externalizing behaviors shown to undermine instructional engagement and social integration progressively over time (Kulakow et al., 2024; van Lier et al., 2012).

While transactional models acknowledge bidirectionality, they do not offer a specific, testable account of the mechanisms linking particular symptom dimensions to particular adjustment domains. The adjustment erosion model provides this specificity through its emphasis on negative feedback cascades involving self-regulation failure, teacher and peer responses, and declining motivation and self-efficacy. In a community-based, non-clinical sample,

symptom levels are subclinical and dimensional, which may lead to mixed evidence on the bidirectional relationship between externalizing problems, internalizing problems and school outcomes (Stern et al., 2020; Visser et al., 2026).

Despite growing interest in dimensional models of child psychopathology, several important gaps remain. First, there is a scarcity of research examining the differential predictive roles of internalizing versus externalizing problems for social versus learning difficulties simultaneously, particularly in Southeast Asian contexts. Most existing studies have focused on either social or academic outcomes in isolation, or have examined Western samples, leaving it unclear whether the same risk factor profiles apply in collectivist, high-achievement educational cultures such as Vietnam. Second, relatively few studies have employed cross-informant designs that combine parent-rated emotional and behavioral problems with children's self-reported experiences of difficulty. This methodological approach is particularly important given evidence that internalizing symptoms are frequently underdetected by external observers. Third, the applicability of the adjustment erosion model to Vietnamese children has not been directly tested.

The present study addresses these gaps by examining whether parent-rated internalizing problems (anxiety) and externalizing problems (hyperactivity/inattention) were differentially associated with self-reported social and learning difficulties in the final analytic sample of 588 Vietnamese primary school students. Based on the adjustment erosion model and prior empirical evidence, we hypothesize that:

(H1) Hyperactivity/inattention is positively associated with both learning and social difficulties;

(H2) Anxiety is positively associated with social difficulties more strongly than with learning difficulties;

(H3) Anxiety moderates the effect of hyperactivity/inattention on learning and social difficulties.

The adjustment erosion model is fundamentally developmental and transactional, describing how problems and competence-eroding feedback loops unfold reciprocally across time. While the present cross-sectional design cannot

capture this unfolding process directly, this study tested the structural pattern the model implies. Specifically, anxiety is expected to amplify, rather than simply add to, the association between hyperactivity/inattention and children's social and learning difficulties, reflecting a pattern in which anxious children with regulatory difficulties have fewer compensatory resources to buffer the cascading effects of negative teacher and peer feedback.

Methods and Materials

Participants

The study sample consisted of 600 primary school students (grade 4 and 5) and their corresponding parents or caregivers (600 parent-child pairs). 12 pairs were excluded because of incomplete data on the child's variables, resulting in a final analytic sample of 588 pairs. Participants were recruited through convenience sampling from five provinces across northern Vietnam, spanning a range of urbanicity levels from urban centers to semi-urban and rural areas, thereby ensuring geographic and socioeconomic diversity in the sample.

Among the child participants, 320 were boys (54.4%) and 268 were girls (45.6%). Their ages ranged from 9 to 12 years ($M = 9.59$, $SD = 0.51$), with most children aged 9 years (41.8%, $n = 246$) or 10 years (57.8%, $n = 340$). In terms of grade level, 247 students were in Grade 4 (42.0%) and 341 were in Grade 5 (58.0%). Most participating caregivers were mothers (70.4%), followed by fathers (24.8%), and 4.6% did not specify their relationship to the child. Regarding caregiver gender, 415 were female (70.6%), 146 were male (24.8%), and 27 did not specify their gender (4.6%). Caregiver ages ranged from 24 to 65 years. The largest proportion were aged 36-45 years (53.0%, $n = 312$), followed by those aged 24-35 years (34.5%, $n = 203$), 46-55 years (5.5%, $n = 32$), and 56-65 years (0.7%, $n = 4$). Age was not reported by 37 caregivers (6.3%). The sociodemographic profile of the final sample is summarized in Table 1.

Table 1.

Sociodemographic characteristics of the sample (N = 588 parent-child pairs)

Category	n	%
Caregiver gender		
Male	146	24.8
Female	415	70.6
Not specified	27	4.6
Caregiver age (years)		
24–35	203	34.50
36–45	312	53.00
46–55	32	5.50
56–65	4	0.70
Not specified	37	6.30
Caregiver relationship to child		
Father	146	24.8
Mother	415	70.4
Not specified	27	4.6
Child gender		
Male	320	54.4
Female	268	45.6
Child grade		
Grade 4	247	42.0
Grade 5	341	58.0
Child age (years)		
9	246	41.8
10	340	57.8
11	1	0.2
12	1	0.2

Note. Percentages are based on the final analytic sample (N = 588).

Procedure

The study was reviewed and approved by the Ethics Board of Hanoi National University of Education, decision number 298/GCN-DHSPHN (23 May 2025). Following ethical approval, researchers collaborated with local education authorities and school administrators. Schools that agreed to participate distributed study information and consent forms to parents or caregivers. Only students whose parents provided written consent participated in the study.

Data collection occurred during regular school hours. Children completed the self-report questionnaires in classroom settings under the supervision of trained research assistants. To protect confidentiality within the classroom setting, students completed questionnaires individually at their desks, and were instructed not to discuss their responses with classmates. They were informed that participation was voluntary, that they could decline to take part or stop at any time without any consequence. Children

showing signs of distress during data collection were encouraged to discuss immediately with their homeroom teachers; while research assistants were responsible to notify the school psychology counselor of students' signs of distress during data collection. The parent-report questionnaires were sent home with students, completed by caregivers, and returned to the school in sealed envelopes. All participants were informed about confidentiality and the voluntary nature of participation.

Measures

This study was conducted as part of a larger project aimed at developing a school-based mental health screening tool for Vietnamese primary school students. The broader project involved adapting and validating selected items from existing standardized instruments. For the present study, selected subscales relevant to internalizing problems, externalizing problems, social difficulties, and learning difficulties were adapted into Vietnamese and piloted as part of a larger school-based mental health screening project. Only subscales relevant to the present research questions are reported here.

Parent report. Parents reported children's externalizing problems (hyperactivity and inattention) and internalizing problem (anxiety). All items were rated on a three-point Likert scale (1 = Never, 2 = Sometimes, 3 = Always), with higher scores indicating greater severity of the respective behavior or symptom.

The Hyperactivity/Inattention subscale (8 items; $\alpha = .83$) was used to assess the frequency of inattentive, impulsive, and overactive behaviors as observed by the caregiver in everyday settings.

The Anxiety subscale (5 items; $\alpha = .71$) assessed the frequency of worry, fear-related cognitions, and apprehension as reported by caregivers.

To examine the construct validity of the parent-report items in the Vietnamese sample, an exploratory factor analysis was conducted using principal axis factoring with oblimin rotation for the 13 parent-report items. The Kaiser-Meyer-Olkin measure indicated adequate sampling adequacy (KMO = .853), and Bartlett's test of sphericity was significant, $\chi^2(78) = 1962$, $p < .001$, confirming that the data

were suitable for factor analysis. The analysis yielded a three-factor solution accounting for 41.2% of the total variance. Factor 1 represented inattention, comprising 5 items with loadings ranging from .532 to .800 and explaining 18.51% of the variance. Factor 2 represented hyperactivity and impulsivity, comprising the remaining 3 items with loadings ranging from .311 to .731 and explaining an additional 9.31% of the variance. Factor 3 represented anxiety, comprising all 5 anxiety items with loadings ranging from .377 to .692 and explaining 13.4% of the variance.

Child report. Children reported their social and learning difficulties. Self-report was employed to capture child outcomes through first-person report than through external observation (Pedersen et al., 2019). Items were rated on a three-point Likert scale (1 = Never, 2 = Sometimes, 3 = Always), with higher scores indicating greater difficulties.

The Social difficulties subscale (10 items; $\alpha = .75$) measured children's tendencies to avoid social interactions, display discomfort around peers, or withdraw from group activities. This subscale served as the primary indicator of social difficulties, capturing the behavioral and affective dimensions of peer disengagement. Example items include I avoid looking at others, I keep to myself.

The Learning difficulties subscale (10 items; $\alpha = .86$) assessed perceived difficulties in task completion, problem-solving and goal-setting skills. Example items include I finish my homework completely (reverse-scored), I cannot plan my work well.

To examine the construct validity of the child-report items, an exploratory factor analysis was conducted using principal axis factoring with oblimin rotation. The Kaiser-Meyer-Olkin measure indicated adequate sampling adequacy ($KMO = .864$); Bartlett's test of sphericity was significant, $\chi^2(190) = 2780$, $p < .001$, indicating that the correlation matrix was suitable for factor analysis. The analysis yielded a four-factor solution, accounting for 36.6% of the total variance. Factor 1 represented academic performance difficulties (7 items), with factor loadings ranging from .352 to .740, explaining 12.26% of the variance. Factor 2 represented goal-setting difficulties (3 items), with loadings ranging from .611 to .746, explaining 8.99% of the

variance. Factor 3 represented social isolation (6 items), with loadings ranging from .421 to .521, explaining 7.86% of the variance. Factor 4 represented aggression (4 items), with loadings ranging from .416 to .718, explaining 7.49% of the variance. Overall, the findings indicated that the child-report items differentiated between two related dimensions of learning difficulties and two dimensions of social difficulties.

Data Analysis

All analyses were conducted using IBM SPSS Statistics (version 26.0). One-way Analysis of Variance (ANOVA) was used to examine mean differences in internalizing and externalizing problems and in social and learning difficulties across child demographic characteristics (gender, grade, and age group).

To test the first two hypotheses, two separate multiple regression analyses were conducted, with social difficulties and learning difficulties as the respective outcome variables. In each model, child's and caregiver's demographic information were entered as covariates in Step 1. The two predictors (hyperactivity/inattention and anxiety) were entered simultaneously in Step 2. H1 was evaluated by inspecting whether the standardized regression coefficient for hyperactivity/inattention was statistically significant and positive in both outcome models. H2 was evaluated by comparing the magnitude of β for anxiety across the two outcome models.

To test H3, moderation analyses were conducted using the PROCESS macro version 4.3 for SPSS (Hayes, 2022), specifying Model 1 with hyperactivity/inattention as the focal predictor, anxiety as the moderator. Two separate moderation models were estimated for each outcome variable (social difficulties and learning difficulties). All predictors were mean-centered prior to analysis. Statistical significance was set at $p < .05$ for all analyses.

Findings and Results

Internalizing and externalizing problems in primary school children

Table 2 presents the descriptive statistics, normality indices, and zero-order correlations for all study variables. Means and standard deviations indicated that internalizing and externalizing problem scores were generally low (M range = 1.54-1.66), consistent with a

non-clinical community sample, while children reported moderate levels of learning difficulties ($M = 1.99$, $SD = 0.45$) and relatively low levels of social difficulties ($M = 1.34$, $SD = 0.30$).

Table 2.

Descriptive statistics and correlations among study variables

Variable	M	SD	Skewness	Kurtosis	Correlations			
Variable	M	SD	Skewness	Kurtosis	1	2	3	4
1. Hyperactivity/Inattention	1.54	0.39	.41	-.21	—			
2. Anxiety	1.66	0.42	.37	-.05	.29**	—		
3. Learning Difficulties	1.99	0.45	.14	-.28	.13**	-.03	—	
4. Social Difficulties	1.34	0.30	1.01	.76	.24**	.18**	.03	—

Note. ** $p < .01$.

Both hyperactivity/inattention and anxiety were significantly and positively associated with social difficulties ($r = .18$ -.24, $p < .01$). In contrast, only hyperactivity/inattention showed a significant positive association with learning difficulties ($r = .13$, $p < .01$),

while anxiety ($r = -.03$) was not significantly related to learning outcomes. Among the predictors, moderate intercorrelation was observed ($r = .29$), suggesting some shared variance among predictors that was controlled for in subsequent regression analyses.

Table 3.

Comparison of internalizing problems, externalizing problems, and outcome variables by student characteristics

Variable	Gender			Grade		
Variable	Boys	Girls	F	Grade 4	Grade 5	F
Hyperactivity/Inattention	1.59 (.39)	1.49 (.38)	.003	1.54 (.38)	1.54 (.40)	.01
Anxiety	1.64 (.43)	1.67 (.40)	1.26	1.66 (.42)	1.65 (.43)	.05
Learning Difficulties	2.02 (.49)	1.97 (.46)	1.65	1.98 (.50)	2.01 (.45)	.33
Social Difficulties	1.37 (.29)	1.30 (.29)	.41	1.34 (.29)	1.35 (.29)	.02

Note. Cell values are M (SD). * $p < .05$. ** $p < .01$.

Table 3 presents one-way ANOVA comparisons of all study variables across gender and grade level. No

significant gender and grade differences were observed for any variable.

Internalizing and externalizing problems as predictors of social and learning difficulties

Table 4.

Hierarchical multiple regression analyses examining associations with learning and social difficulties

Predictor	Learning Difficulties				Social Difficulties			
Predictor	b	β	t	p	b	β	t	p
Step 1								
Child's gender	-.05	-.05	-1.30	.194	-.06	-.11	-2.54	.011
Child's age	-.03	-.04	-.93	.351	-.02	-.03	-.66	.513
Caregiver's age	.001	.003	.07	.943	-.003	-.02	-.42	.674
Caregiver's status	-.04	-.06	-1.28	.199	.03	.06	1.26	.207
R ²	.008	.008	.008	.008	.013	.013	.013	.013

F	1.14 (df = 4, 583), p = .335	1.14 (df = 4, 583), p = .335	1.14 (df = 4, 583), p = .335	1.14 (df = 4, 583), p = .335	2.02 (df = 4, 583), p = .098	2.02 (df = 4, 583), p = .098	2.02 (df = 4, 583), p = .098	2.02 (df = 4, 583), p = .098
Step 2								
Child's gender	-.03	-.03	-.79	.428	-.05	-.08	-2.07	.039
Child's age	-.04	-.04	-.93	.353	-.02	-.03	-.81	.418
Caregiver's age	.002	.01	.21	.834	.001	.01	.17	.868
Caregiver's status	-.05	-.06	-1.38	.167	.02	.04	.94	.346
Hyperactivity/Inattention	.18	.14	3.33	<.001	.14	.19	4.61	<.001
Anxiety	-.08	-.07	-1.64	.102	.09	.12	2.97	.003
R ²	.027	.027	.027	.027	.079	.079	.079	.079
F	2.71 (df = 6, 581), p = .003	2.71 (df = 6, 581), p = .003	2.71 (df = 6, 581), p = .003	2.71 (df = 6, 581), p = .003	8.32 (df = 6, 581), p < .001	8.32 (df = 6, 581), p < .001	8.32 (df = 6, 581), p < .001	8.32 (df = 6, 581), p < .001

Note. *b* = unstandardized coefficient; *beta* = standardized coefficient.

Table 4 presents the results of two hierarchical multiple regression analyses examining learning and social difficulties. In Step 1, demographic variables including child gender and age, caregiver age, and caregiver status collectively explained 0.8% of the variance in learning difficulties, $R^2 = .008$, $F(4, 583) = 1.14$, $p = .335$, and 1.3% of the variance in social difficulties, $R^2 = .013$, $F(4, 583) = 2.02$, $p = .098$. Neither model was statistically significant.

In Step 2, hyperactivity/inattention and anxiety were added to the models. The full model for learning difficulties was statistically significant, $R^2 = .027$, $F(6, 581) = 2.71$, $p = .003$, accounting for 2.7% of the variance. The full model for social difficulties was also significant, $R^2 = .079$, $F(6, 581) = 8.32$, $p < .001$, accounting for 7.9% of the variance. Thus, the addition of hyperactivity/inattention and anxiety increased the explained variance by 1.9 percentage points for learning difficulties and 6.6 percentage points for social difficulties.

Table 5.

Moderation effect of anxiety on the association of hyperactivity/inattention with social and learning difficulties

Predictor	Learning Difficulties					Social Difficulties				
Predictor	b	SE	β	p	95% CI	b	SE	β	p	95% CI
Hyperactivity/Inattention	.185	.052	.15	< .001	[.083, .287]	.158	.031	.21	< .001	[.097, .218]
Anxiety	-.077	.048	-.07	.113	[-.172, .018]	.088	.029	.13	.002	[.032, .145]
H/I x Anxiety	.230	.109	.08	.035	[.016, .445]	.191	.065	.11	.003	[.064, .319]

Note. H/I = hyperactivity/inattention; CI = confidence interval. Interaction terms were estimated with mean-centered predictors.

Moderation of learning difficulties. The overall model was significant, $R^2 = .028$, $F(3, 584) = 5.71$, $p < .001$. Hyperactivity/inattention was positively associated with

Consistent with H1, hyperactivity/inattention was positively associated with both learning difficulties ($\beta = .14$, $p < .001$) and social difficulties ($\beta = .19$, $p < .001$). Regarding H2, anxiety was positively associated with social difficulties ($\beta = .12$, $p = .003$) but was not significantly associated with learning difficulties ($\beta = -.07$, $p = .102$). H2 was therefore partially supported. Child gender also remained significantly associated with social difficulties in the full model ($\beta = -.08$, $p = .039$), with girls reporting fewer social difficulties than boys; whereas the remaining demographic covariates were not statistically significant. Overall, the predictors explained more variance in social difficulties than in learning difficulties.

To test H3, two moderation analyses were conducted using PROCESS Model 1 (Hayes, 2022), examining anxiety as a moderator of the relationship between hyperactivity/inattention and each outcome variable separately. Results are presented in Table 5.

learning difficulties, $\beta = .15$, $p < .001$, whereas the main effect of anxiety was not significant, $\beta = -.07$, $p = .113$. The

interaction between hyperactivity/inattention and anxiety was significant, $\beta = .08$, $p = .035$.

Simple-effects analyses indicated that the association between hyperactivity/inattention and learning difficulties was not significant at low anxiety (-1 SD), $\beta = .07$, $p = .194$. At the mean level of anxiety, the association was significant, $\beta = .15$, $p < .001$, and became stronger at high anxiety ($+1$ SD), $\beta = .23$, $p < .001$. As illustrated in Figure 1, hyperactivity/inattention was therefore more strongly associated with learning difficulties as anxiety increased.

Moderation of social difficulties. The overall moderation model was significant, $R^2 = .084$, $F(3, 584) = 17.86$, $p < .001$. Hyperactivity/inattention was positively associated with social difficulties, $\beta = .21$, $p < .001$. Anxiety

was also positively associated with social difficulties, $\beta = .13$, $p = .002$. The interaction between hyperactivity/inattention and anxiety was significant, $\beta = .11$, $p = .003$.

Simple-effects analyses showed that the association between hyperactivity/inattention and social difficulties was not statistically significant at low anxiety (-1 SD), although it approached significance, $\beta = .1$, $p = .056$. At the mean level of anxiety, the association was significant, $\beta = .21$, $p < .001$, and became stronger at high anxiety ($+1$ SD), $\beta = .32$, $p < .001$. These findings indicate that anxiety strengthened the positive association between hyperactivity/inattention and social difficulties (see Figure 1).

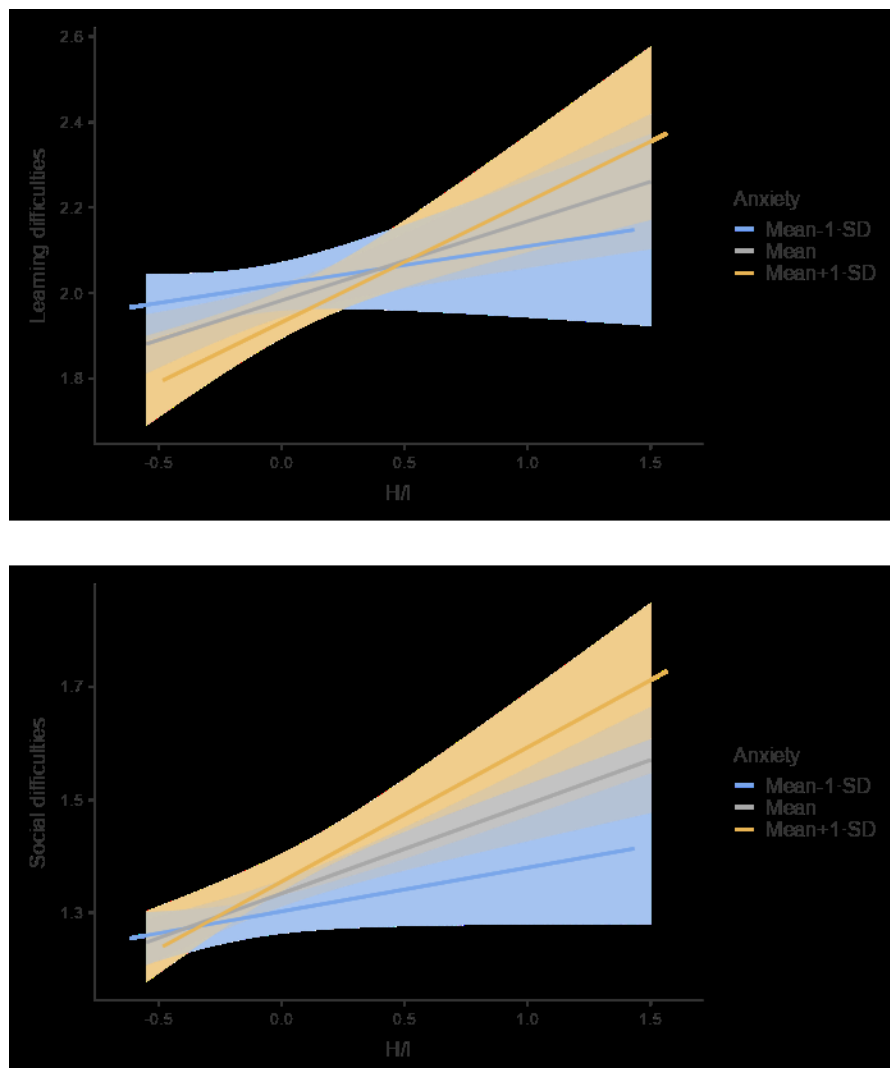


Figure 1. Interaction plots depicting the moderating effect of anxiety on the relationship between hyperactivity/inattention (H/I) and learning difficulties (top) and social difficulties (bottom).

Taken together, these results support H3 and suggest that anxiety amplifies the developmental risks associated with hyperactivity/inattention.

Discussion and Conclusion

The present study examined the differential associations of internalizing and externalizing problems for social and learning difficulties among Vietnamese primary school children. H1 was supported: hyperactivity/inattention was positively associated with both learning and social difficulties after demographic characteristics and anxiety were considered. H2 was partially supported: anxiety was positively associated with social difficulties but was not significantly associated with learning difficulties. H3 was also supported, as anxiety moderated the associations between hyperactivity/inattention and both outcomes. Specifically, the associations were weak and non-significant at low anxiety but became significant and stronger at average and high levels of anxiety. While the cross-sectional design limits interpretation to concurrent and conditional associations, the findings provide support for the interaction between anxiety and hyperactivity/inattention in predicting social and learning difficulties.

Hyperactivity/inattention and learning and social difficulties

Hyperactivity/inattention was associated with difficulties in both domains examined. This cross-domain pattern is consistent with previous research showing that attentional and behavioural-regulation symptoms are related to both academic functioning and peer relationships, including in community samples that were not selected on the basis of an ADHD diagnosis (Taanila et al., 2014; Yan et al., 2024). Difficulties sustaining attention, organizing behaviour, completing tasks, and regulating impulses may be particularly relevant to children's perceptions of problems with task completion, problem solving, and goal setting. These same symptoms may also interfere with turn-taking, responsiveness to social cues, and participation in group activities, thereby contributing to social discomfort or disengagement.

The results are also important because hyperactivity/inattention was assessed dimensionally rather than as a diagnosed disorder. The generally low symptom means were consistent with a community sample, yet variation within this range was still associated with children's reported functioning. This suggests that attentional and regulatory symptoms may be relevant to school adjustment even when children do not meet diagnostic thresholds.

The association with social difficulties was somewhat larger than that with learning difficulties. One possible explanation is that hyperactive and poorly regulated behaviours are immediately visible during classroom and peer interactions. Such behaviours may attract correction from teachers or negative responses from classmates, whereas their implications for learning may depend more strongly on the nature of the task, instructional support, and children's compensatory strategies. This interpretation is consistent with longitudinal work linking externalizing symptoms with peer difficulties and reduced classroom participation (van Lier et al., 2012). However, because the present design was cross-sectional, the reverse direction is also plausible. Children experiencing learning frustration, peer exclusion, or social conflict may become more inattentive, restless, or behaviourally dysregulated. The findings therefore cannot distinguish adjustment-erosion pathways from competence-driven or reciprocal transactional processes.

Anxiety and learning and social difficulties

Anxiety was positively associated with social difficulties after hyperactivity/inattention and demographic characteristics were considered. This result is consistent with research linking anxiety symptoms to withdrawal, fear of negative evaluation, social inhibition, and reduced participation in peer activities (Mikami et al., 2011; Vaz et al., 2020). Children who frequently experience worry or apprehension may approach peer interactions cautiously, avoid situations in which they might be judged, or have difficulty initiating and maintaining social exchanges. Such processes may be experienced internally by children even

when they do not produce overt disruption that is readily noticed by adults.

The findings should be considered within the cultural and educational context of Vietnamese primary schools. Vietnamese cultural emphasis on affective control and interpersonal harmony may suppress outwardly disruptive behaviour more strongly than less visible internalizing symptoms (Weiss et al., 2014). As a result, children experiencing worry or fear of evaluation may appear compliant while their distress and social difficulties remain under-recognized. This may partly help explain why anxiety was associated with children's self-reported social difficulties even though it was measured through caregiver observation.

By contrast, anxiety was not independently associated with learning difficulties. As Zhang et al. (2019) pointed out, the anxiety-performance association may be weaker in primary school than in later educational stages, when examinations and academic consequences become more salient. The absence of a direct association should therefore be interpreted cautiously. Some anxious children may continue to complete schoolwork through effort, compliance, or strong family support despite experiencing emotional distress. Others may experience cognitive interference that was not adequately captured by the broad learning-difficulties measure.

Anxiety moderates the effect of hyperactivity/inattention on learning and social difficulties

Anxiety significantly moderated the association between hyperactivity/inattention and both outcomes. At low anxiety, hyperactivity/inattention was not significantly associated with learning difficulties and was only marginally associated with social difficulties. At average and high anxiety, the associations were statistically significant and became progressively stronger. Thus, anxiety was relevant not only through its direct association with social difficulties but also through the conditions under which hyperactivity/inattention was more strongly associated with both areas of functioning.

One possible interpretation is that anxiety and regulatory difficulties place competing demands on children's

cognitive and coping resources. Anxiety-related worry may consume attentional and working-memory resources, particularly during demanding tasks, while hyperactivity/inattention may already compromise sustained attention, planning, and behavioural organization (Holmes et al., 2021; Zhang et al., 2019). Consequently, children with attentional difficulties but relatively low anxiety may retain greater capacity to seek assistance, recover from mistakes, or remain engaged, whereas elevated worry and apprehension may weaken these compensatory responses. In social contexts, impulsive or poorly regulated behaviour may occur alongside fear of negative evaluation, withdrawal, and sensitivity to rejection, making it more difficult to initiate and maintain positive peer interactions (Mikami et al., 2011; Vaz et al., 2020).

This pattern is compatible with the structural expectations of the adjustment erosion model (Chen et al., 2022), particularly its proposition that co-occurring emotional and behavioural symptoms may be associated with broader adjustment difficulties. However, the results do not demonstrate developmental erosion, cumulative damage, or an accelerated cascade. The study did not assess changes over time, teacher or peer feedback processes, or the proposed mediating roles of motivation, self-efficacy, and belonging. Anxiety could also be responding to existing social and learning difficulties, and unmeasured characteristics could contribute to all three constructs. The adjustment erosion model should therefore be treated as an interpretive framework for the observed pattern rather than as a developmental process confirmed by the data.

Magnitude and scope of the associations

Although the explained variance was modest, the findings remain informative because they identify statistically reliable and theoretically meaningful associations across different informants in a non-clinical Vietnamese sample. The adjusted regression models explained 2.7% of the variance in learning difficulties and 7.9% in social difficulties, while the moderation models explained 2.8% and 8.4%, respectively. These effect sizes indicate that hyperactivity/inattention and anxiety account for only part of children's school adjustment, but they also

show that dimensional emotional and behavioural symptoms are detectably related to children's own reports of difficulty even at predominantly subclinical levels. Small associations may still be practically relevant when they occur across large school populations and help identify children who may benefit from further assessment, although they should not be treated as diagnostically decisive or as evidence of primary causal mechanisms.

The modest explanatory power is also consistent with the multidetermined nature of children's learning and social functioning. These outcomes are shaped by interacting child - relational - family - school factors, including prior academic performance, learning motivation, teacher-child relationships, parenting practices, family stress, socioeconomic resources, and school climate (Masten et al., 2005; van Lier et al., 2012; Wang & Liu, 2021). Differences between urban, semi-urban, and rural schools may further affect educational resources, class size, access to mental health support, and opportunities for individualized assistance. Future models incorporating these factors could clarify whether they confound, mediate, or modify the associations observed here.

Educational implications

School-based assessment should draw on information from children, caregivers, and teachers. Child self-report may be especially valuable for detecting anxiety and social discomfort that are not obvious to adults. Teachers should also be supported in distinguishing attentional or regulatory difficulties from intentional disobedience and in recognizing that quiet compliance does not necessarily indicate emotional well-being. Screening should be linked to supportive follow-up rather than punishment or stigmatizing labels.

The modest explained variance also suggests that support should not focus exclusively on the child's symptoms. Classroom routines, positive teacher-child relationships, peer inclusion, protection from victimization, family communication, sleep and workload, and access to academic assistance should be considered (Chawla et al., 2022). A contextual approach may be more appropriate

than prioritizing one symptom profile as the central intervention target.

Limitations and future directions

Several limitations should be acknowledged. First, the cross-sectional design prevents conclusions about temporal ordering or causality. Longitudinal studies are needed to examine whether hyperactivity/inattention and anxiety precede later adjustment difficulties, whether social and learning difficulties increase later symptoms, or whether reciprocal processes occur.

Second, the study used convenience sampling from five northern Vietnamese provinces. Although the sample included urban, semi-urban, and rural areas, it was not nationally representative, and the findings may not generalize to other regions or educational settings. School identifiers were not retained, preventing adjustment for the clustering of children within schools and examination of school-level influences.

Third, because school identifiers were not retained in the final analytic dataset, it was not possible to formally test for or adjust for school-level clustering. Future studies should adopt a multi-stage sampling design, allowing intraclass correlation and design effects to be estimated.

Fourth, several potentially important confounders and contextual variables were not available, including socioeconomic status, parental education and mental health, family stress, sleep, executive functioning, academic achievement, peer victimization, teacher-child relationships, school climate, and school resources. Their omission may partly explain the small proportions of variance accounted for by the models.

The present study examined the associations of parent-reported hyperactivity/inattention and anxiety with children's self-reported learning and social difficulties in a non-clinical sample of Vietnamese primary-school children. Hyperactivity/inattention was positively associated with both learning and social difficulties, whereas anxiety was positively associated with social difficulties but not independently associated with learning difficulties. Anxiety also moderated the associations between hyperactivity/inattention and both outcomes:

these associations were weak and non-significant at low anxiety but became stronger at average and high anxiety levels.

These findings are consistent with some expectations of the adjustment erosion model, particularly the proposition that co-occurring emotional and behavioural symptoms may be linked to broader adjustment difficulties. However, the cross-sectional design does not establish temporal direction, developmental erosion, or causal processes. The findings should therefore be regarded as preliminary and confirmed through longitudinal and multilevel research that follows children over time and accounts for their clustering within classrooms and schools. Nevertheless, the cross-informant design and simultaneous examination of internalizing symptoms, externalizing symptoms, and their interaction provide useful evidence from an understudied Vietnamese community sample. In practice, the results support considering both visible attentional or behavioural-regulation difficulties and less visible anxiety symptoms in school-based identification, while ensuring that screening is followed by comprehensive assessment and non-stigmatizing support rather than being treated as evidence of diagnosis or causation.

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Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Declaration of Helsinki, which provides guidelines for ethical research involving human participants. Ethical considerations in this study were that participation was entirely optional.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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Authors' Contributions

All authors equally contributed to this study.

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