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Academic Stress, Aggression and Concentration among Indian Secondary School Students: A Narrative Review and Research Agenda for Comparing School Boards

Running title: Psychological characteristics of Indian pupils across school boards

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Abstract

Background: Indian secondary pupils sit high-stakes board examinations. Their schools are affiliated either to national boards, such as the Central Board of Secondary Education (CBSE), or to state boards, such as the Uttar Pradesh Madhyamik Shiksha Parishad (UP Board). Academic stress, aggression and concentration all bear on how adolescents learn and take part in school life, including physical education. It is often assumed that pupils of different boards differ in these characteristics, but the evidence for that assumption has not been examined.

Objective: To review research on academic stress, aggression and concentration among school-going adolescents, with emphasis on Indian studies, and to assess what is known about differences between school boards and types of school.

Methods: A narrative review was carried out. Sixty-seven studies identified during doctoral research were retained after their particulars were confirmed against the published record. They were synthesised under four heads: academic stress, aggression, concentration and attention, and school board or school type. Theory, instruments and methodological quality were also appraised.

Results: Academic stress was widespread among Indian secondary and senior secondary pupils. Estimates of high stress ranged from about a quarter to 88 per cent, depending largely on the instrument and cut-off used. Academic stress was consistently associated with depressive symptoms, anxiety and suicidal ideation. Aggression and bullying were common and were related to gender and to family, peer, teacher and school influences. Concentration was associated with physical fitness and improved with school-based physical activity, although most of this evidence came from outside India. Only one published study compared CBSE and UP Board students directly, and it examined school resources and academic adjustment, not stress, aggression or concentration. Comparisons of school type usually set one school against another, confounded management, medium of instruction and locality, and gave inconsistent results. Few studies reported effect sizes or allowed for the clustering of pupils within schools.

Conclusions: Whether pupils of different Indian school boards differ in academic stress, aggression or concentration remains an open question. Future comparative studies should sample several schools per board across urban and rural areas, check the reliability of each scale within each group, report effect sizes with confidence intervals, and model school clustering. Physical activity offers a promising, testable route to supporting concentration and well-being in schools of both boards.

1. Introduction

For an adolescent, school is where most of the waking day is spent. It is where friendships are formed and tested, where the expectations of teachers and parents are felt most sharply, and where young people learn to manage their feelings and conduct while being constantly evaluated. Three psychological characteristics are of particular concern to those responsible for pupils' welfare. The first is concentration, the ability to keep the mind on a task. The second is academic stress, the strain felt when academic demands accumulate. The third is aggression, the readiness to answer frustration with hostile behaviour. Each is relevant to classroom learning, to conduct among peers, and to the attentional and emotional state in which both academic and physical performance take place.

These characteristics matter most during adolescence. In this period, brain systems that govern self-control mature later than those that respond to reward and to the judgement of peers (Steinberg, 2008; Steinberg & Morris, 2001). About half of all lifetime mental disorders begin by the mid-teens (Kessler et al., 2005). In India, a national survey of 3,79,842 pupils in Classes VI to XII found that studies, examinations and results were the most frequently named causes of anxiety. Secondary-stage pupils were also more likely than middle-stage pupils to blame poor concentration for falling behind (National Council of Educational Research and Training [NCERT], 2022). The National Education Policy 2020 likewise acknowledged examination stress as a problem and recommended making board examinations less high-stakes (Ministry of Human Resource Development [MHRD], 2020).

Indian school education is organised around several examining and affiliating boards. Some, such as the CBSE, operate nationally. Others, such as the UP Board, serve a single state. The UP Board, founded in 1921, recognises more than 22,000 secondary schools and examines close to 64 lakh candidates (Uttar Pradesh Madhyamik Shiksha Parishad [UPMSP], n.d.). The CBSE traces its origin to 1929, took its present name in 1952 and affiliates schools across the country, including Kendriya Vidyalayas and a large share of independent private schools (Central Board of Secondary Education [CBSE], n.d.). In districts such as Meerut, CBSE schools are largely private and English-medium, while UP Board

schools include many government and aided schools teaching in Hindi. Two pupils at the same stage of schooling may therefore live through quite different academic and institutional surroundings because of the board to which their school belongs.

Popular opinion often holds that one board is "tougher" or more stressful than the other. Whether such institutional differences leave any measurable mark on pupils' psychological characteristics is, however, an empirical question. The aims of this review were to:

1. synthesise research on academic stress, aggression and concentration among school-going adolescents, with emphasis on Indian studies;
2. examine what is known about differences in these characteristics between school boards and school types in India;
3. appraise the instruments and methods used; and
4. set out a research agenda and design recommendations for future comparisons of school boards, with particular reference to physical education.

2. Methods

2.1 Design

This is a narrative review. It is not a systematic review: no protocol was registered, the search was not designed to be exhaustive, and no formal risk-of-bias tool was applied. The aim was to bring together evidence relevant to the three constructs and to the question of school boards, and to identify gaps and methodological lessons.

2.2 Sources and search

The literature was identified during the first author's doctoral research. Sources included the libraries of Swami Vivekanand Subharti University, bibliographic databases and publishers' platforms, and sources listed in the approved research synopsis like PubMed, Scopus, Google Scholar, Shodhganga) from 2026-2010. Search terms included *academic stress*, *educational stress*, *aggression*, *bullying*, *concentration*, *attention*, *adolescents*, *school students*, *India*, *CBSE*, *state board* and *UP Board*.

2.3 Selection and synthesis

Studies were included if they examined academic stress, aggression or bullying, or concentration or attention in school-going children or adolescents, or compared pupils by school board or school type. Studies of instruments used with these groups were also included. Indian studies were given priority. International studies were included where they offered stronger designs, such as longitudinal studies, randomised trials or meta-analyses, or where they clarified mechanisms. A study was retained only if its particulars could be confirmed against its

published record. In total, 67 studies, published between 2001 and 2026, were retained and synthesised under four heads. Theoretical works were drawn on to frame the synthesis but were not counted among the reviewed studies. Within each head, findings were summarised narratively, and the methodological features of the evidence were appraised under sampling, comparison of school types, design, measurement and analysis.

3. Theoretical Framework

Academic stress. In the transactional model, stress arises when a person judges that the demands of a situation strain or exceed the resources available for coping (Lazarus & Folkman, 1984). Two pupils facing the same examination can therefore feel very different degrees of stress. Control-value theory adds that anxiety is likely when an achievement outcome is highly valued but only partly under the student's control (Pekrun, 2006). This describes closely the position of a candidate in a high-stakes board examination. A stressor, such as an examination or the hopes of parents, should be distinguished from the stress a pupil experiences (Grant et al., 2003). Academic stress is also narrower than general psychological distress, although the two are related (Jayanthi et al., 2015).

Aggression. Aggression is behaviour intended to harm another person who wishes to avoid that harm (Anderson & Bushman, 2002). It may be physical, verbal or relational, and reactive or proactive (Card et al., 2008; Dodge & Coie, 1987). The reformulated frustration–aggression hypothesis holds that aversive events, including blocked goals, raise the likelihood of aggression through negative affect (Berkowitz, 1989). Social learning theory emphasises observation and reinforcement (Bandura, 1973). Social information-processing theory explains how hostile readings of others' intentions lead to aggressive responses (Crick & Dodge, 1994). The General Aggression Model integrates personal and situational inputs (Anderson & Bushman, 2002).

Concentration. Concentration is the ability to direct attention to a chosen task and hold it there despite distraction. It corresponds most closely to sustained and selective attention. Attention can be understood as a limited capacity allocated according to arousal and intention (Kahneman, 1973), and as served by distinct networks for alerting, orienting and executive control

(Posner & Petersen, 1990). Concentration overlaps with executive function but is narrower (Diamond, 2013). Attentional control theory proposes that anxiety impairs goal-directed attention (Eysenck et al., 2007). This links concentration to academic stress.

School context. Ecological systems theory places the school board within the wider system that shapes curriculum, examinations and school environment (Bronfenbrenner, 1979). Stage–environment fit theory argues that many difficulties of adolescence stem from a mismatch between young people's developmental needs and what schools provide (Eccles et al., 1993). Research on school climate links safety, relationships, teaching and the institutional environment with pupils' behaviour and well-being (Thapa et al., 2013). Together these perspectives suggest that pupils of different boards could differ in stress, conduct and attention. They also imply that any influence of the board is indirect and entangled with family background, school management, locality and medium of instruction.

4. Results of the Review

4.1 Academic stress

Recent Indian studies agree that academic stress is common among secondary and senior secondary pupils (Table 1). In four CBSE schools in Belagavi district, Karnataka, 74 per cent of 1,426 pupils in Classes 7 to 9 fell in the high-stress band of the Educational Stress Scale for Adolescents (ESSA). Age, class and place of residence were associated with stress level (Haritay et al., 2025). In Imphal, Manipur, 88.3 per cent of 861 pupils in Grades 9 to 12 reported high academic stress. Both high stress (OR = 2.71) and depressive symptoms (OR = 5.49) predicted suicidal ideation, and depressive symptoms accounted for roughly half of the association between stress and suicidal thinking (Khumanlambam et al., 2025a). Among 1,859 pre-university science students in coastal Karnataka, about a quarter reported high or extreme stress. Insufficient time for revision, questioning by relatives and neighbours, and parental expectations were the main stressors. The medium of instruction followed up to Grade 10 was also associated with stress (Mayya et al., 2022).

In Tamil Nadu, academic stress correlated moderately with depression (r = .52) among higher secondary pupils. The association was evident among Class XII, Tamil-medium and government-school pupils (Jayanthi et al., 2015). In Uttar Pradesh, a study of 500 Class X pupils in English-medium private schools after the COVID-19 lockdown used the Scale for Assessing Academic Stress (SAAS). It found moderate stress to be the most common level (53.4 per cent). Girls scored higher than boys, and academic stress correlated strongly with emotional maladjustment (r = .757) (Singh et al., 2023). Longitudinal evidence from India showed that academic stress predicted later increases in generalised anxiety and panic symptoms, partly through physiological hyperarousal (Trevethan et al., 2022). Academic stress has also been reported among Indian primary-school children aged eight to ten, where it was associated with lower family income and parental education (Singh et al., 2025).

International studies point to mechanisms and to the role of context. In German secondary schools, a competitive classroom climate was associated with higher stress beyond pupils' individual attainment and competitiveness (Becker & Börnert-Ringleb, 2025). In a three-wave Chinese cohort of 2,965 adolescents, academic stress predicted later depressive symptoms, mainly through poorer sleep and greater loneliness (Wang et al., 2025). A narrative review linked academic stress with reduced achievement and motivation, a higher risk of dropping out, and depression, anxiety, sleep problems and substance use (Pascoe et al., 2020). High-achieving pupils on accelerated curricula reported more stress than their general-education peers (Suldo et al., 2008). This suggests that the curricular setting can shape perceived stress.

Two features of this literature limit comparison. First, estimates of the proportion of highly stressed pupils, from about one quarter (Mayya et al., 2022) to 88 per cent (Khumanlambam et al., 2025a), depend heavily on the instrument and cut-off used. Second, girls usually report more stress than boys (Putwain, 2007; Singh et al., 2023), so samples restricted to one sex cannot be generalised to the other.

4.2 Aggression

Aggression and bullying are common among Indian pupils. A survey of 7,563 adolescents in 204 government schools across all twelve districts of Himachal

Pradesh found that 18.4 per cent reported bullying others and 15.6 per cent reported being bullied. Boys, pupils involved in physical fights and pupils with more screen time were at higher risk, while close ties with parents were protective. Intraclass correlations of about .07 to .10 indicated that a modest share of the variation lay between schools (Bahl et al., 2026). In Delhi, roughly half of 463 school adolescents were classified as aggressive on the Buss–Perry Aggression Questionnaire. Male sex, family conflict, peer provocation, fighting and smoking were associated with aggression (Kumar et al., 2023). A multi-site study of 5,476 young Indians found high aggression scores in 17.7 per cent. Males, and those aged 16 to 19, scored higher (Sharma & Marimuthu, 2014). Among adolescents in Delhi-NCR, beliefs about the acceptability of aggression and the regulation of emotion were important social-cognitive influences (Guha Majumdar & Srivastava, 2024).

A systematic review of 37 Indian bullying studies reported perpetration rates of 7 to 31 per cent and victimisation rates of 9 to 80 per cent. Twenty-five of the studies used convenience or purposive samples (Thakkar et al., 2021). A later systematic review found six anti-bullying intervention studies in Indian secondary schools. All reported reductions in bullying, and whole-school approaches appeared most effective (Podiya et al., 2025).

The international literature emphasises social context. Better parent–child relationships and more caring behaviour by teachers predicted less aggression one semester later among Chinese adolescents (Li et al., 2025). Peer-group identification predicted later physical and relational aggression (Pokhrel et al., 2010). School norms moderated the influence of group norms on children's aggressive intentions (Nipedal et al., 2010). School-wide positive behavioural programmes improved school climate in a group-randomised trial (Bradshaw et al., 2009). Boys show more direct aggression than girls, while sex differences in indirect aggression are negligible (Card et al., 2008). A network analysis placed anger at the centre of adolescent aggression (Yi et al., 2026). Physical activity was associated with less aggression, partly through better self-control, although the indirect effect was small (Yue et al., 2025).

Table 1. Selected Indian school-based studies of academic stress and aggression

Study	Setting and sample	Instrument	Main finding
Haritay et al. (2025)	4 CBSE schools, Belagavi, Karnataka; 1,426 pupils, Classes 7–9	ESSA	74% in the high-stress band; age, class and residence associated with stress
Khumanlambam et al. (2025a)	6 schools, Imphal, Manipur; 861 pupils, Grades 9–12	ESSA, PHQ-8, PHQ-A item 9	88.3% high stress; depressive symptoms mediated about half of the stress–suicidal ideation link
Singh et al. (2023)	English-medium private schools, Uttar Pradesh; 500 Class X pupils	SAAS	Moderate stress most common (53.4%); girls higher; r = .757 with emotional maladjustment
Mayya et al. (2022)	Pre-university colleges, coastal Karnataka; 1,859 students, Grades 11–12	Manipal Inventory of Academic Stress	About a quarter high or extreme stress; medium of instruction associated with stress
Jayanthi et al. (2015)	4 higher secondary schools, Tamil Nadu; 1,120 pupils, Classes IX–XII	Modified ESSA, BDI, MINI-Kid	Academic stress correlated with depression (r = .52)
Bahl et al. (2026)	204 government schools, Himachal Pradesh; 7,563 pupils aged 13–17	GSHS-based questionnaire	18.4% bullied others, 15.6% were bullied; ICC about .07–.10
Kumar et al. (2023)	Schools in Delhi; 463 adolescents, mean age 13.8	Buss–Perry AQ	About half classified as aggressive; male sex, family conflict and peer provocation associated
Nedumpully et al. (2024)	2 schools, Udupi, Karnataka; 205 pupils, Grades 7–9	Bully Survey – Student Version	47% held a bullying role; pro-bullying attitudes stronger in the government school

Note. AQ = Aggression Questionnaire; BDI = Beck Depression Inventory; ESSA = Educational Stress Scale for Adolescents; GSHS = Global School-based Student Health Survey; ICC = intraclass correlation; PHQ = Patient Health Questionnaire; SAAS = Scale for Assessing Academic Stress.

4.3 Concentration and attention

Evidence on concentration comes mainly from research on physical activity and fitness, and mostly from outside India. Among 140 Viennese pupils aged 15 to 18, overall physical fitness explained about 26 per cent of the variance in d2-R attention-test performance (Altermann & Gröpel, 2024). In a randomised trial with 96 pupils of the same age, eight weeks of endurance, strength or coordination exercise all improved attention relative to controls, with coordination exercise producing the largest gain (Altermann & Gröpel, 2025). A cluster-randomised trial in 39 upper-secondary classes in southern Italy tested two ten-minute active breaks a day for four months. After adjustment, d2-R concentration performance was 56.7 points higher in the intervention group (95% CI 21.7 to 91.6) (Martone et al., 2026).

Meta-analyses support these findings. A pooled analysis of 21 randomised trials in participants under 18 found that exercise improved attention (SMD = 0.56) and executive function (SMD = 0.21), with considerable heterogeneity (Liu et al., 2025). Cognitively engaging physical activity improved executive function in children and adolescents (SMD = 0.32, 95% CI 0.14 to 0.51), although heterogeneity was high (I^2 = 91 per cent) (Mao et al., 2024). Earlier reviews concluded that physical activity and aerobic fitness are associated with better cognitive function and academic achievement, while noting inconsistent findings and methodological weaknesses (Donnelly et al., 2016; Hillman et al., 2008).

In India, the national survey identified poor concentration as a concern of secondary-stage pupils (NCERT, 2022). No Indian study was found that compared measured concentration across school boards or school types.

4.4 School board and school type

Direct evidence on school boards is almost absent. Only one published study was found that compared CBSE and UP Board students. It examined school resources and academic adjustment among 300 higher secondary students in Bijnor District, Uttar Pradesh (Bharadwaj & Rajput, 2026). The full text reports no significant link between resources and adjustment, and no difference in resources between the boards. An abstract on one indexing platform, however, reports the opposite. The study did not measure stress, aggression or concentration.

Indirect evidence comes from comparisons of school management or medium of instruction (Table 2). In Kolkata, pupils of Bengali-medium schools were more anxious than those of English-medium schools, and middle-class pupils were more anxious than pupils of higher or lower economic groups (Deb et al., 2010). Attitudes favouring bullying were stronger in a Kannada-medium government school than in an English-medium private school in Udupi (Nedumpully et al., 2024). In rural north Delhi, aggression scores were highest in a private co-educational school and lowest in a girls' school (Anand et al., 2019). The association between academic stress and depression was evident among government-school and Tamil-medium pupils in Tamil Nadu (Jayanthi et al., 2015). In Ghana, by contrast, public or private school type was not associated with examination-year anxiety (Azasu et al., 2024).

These comparisons differ in direction and share three weaknesses. Each type of school was often represented by a single school. Management, medium of instruction, locality and social class varied together, so their separate contributions could not be identified. And none of the studies compared boards as such.

Table 2. Indian and related studies comparing pupils by school board or school type

Study	Comparison	Outcome	Finding	Main limitation for board comparison
Bharadwaj & Rajput (2026)	CBSE vs UP Board, Bijnor; 300 students, Classes XI–XII	School resources, academic adjustment	No significant difference reported in the full text; an indexed abstract reports the opposite	Did not measure stress, aggression or concentration; inconsistent published versions
Deb et al. (2010)	Bengali- vs English-medium schools, Kolkata; 460 pupils	Anxiety (STAI)	Bengali-medium pupils more anxious	Medium of instruction confounded with social class
Nedumpully et al. (2024)	Government Kannada-medium vs private English-medium school, Udupi	Bullying attitudes	Pro-bullying attitudes stronger in the government school	One school per type
Anand et al. (2019)	Three rural schools, north Delhi	Aggressive beliefs and behaviour	Highest in a private co-educational school	One school per type; sex composition differed
Jayanthi et al. (2015)	Government vs private; Tamil- vs English-medium, Tamil Nadu	Academic stress and depression	Association evident in government and Tamil-medium pupils	Not a board comparison
Azasu et al. (2024)	Public vs private schools, Ghana	Examination-year anxiety	No significant association with school type	Non-Indian setting

Note. STAI = State–Trait Anxiety Inventory.

5. Instruments Used in the Field

The choice of instrument strongly affects both prevalence estimates and comparisons between groups. The ESSA, developed with Chinese secondary pupils, has five dimensions: pressure from study, workload, worry about grades, self-expectation and despondency (Sun et al., 2011). It is now widely used in India (Haritay et al., 2025; Khumanlambam et al., 2025a). The SAAS is a 30-item yes/no scale developed with Nepalese high school and college students, with norms for Grades VIII to XII (Sinha et al., 2001). It has been used with Class X pupils in Uttar Pradesh (Singh et al., 2023). Its original psychometric evidence, however, comes from a preliminary report on a single

development sample. The Adolescence Stress Scale has been validated against salivary cortisol in Chennai (Jagannathan et al., 2023).

For aggression, the Buss–Perry Aggression Questionnaire, with its physical aggression, verbal aggression, anger and hostility factors (Buss & Perry, 1992), dominates both Indian and international research (Kumar et al., 2023; Sharma & Marimuthu, 2014). Indian standardised scales such as the Aggression Scale (AS-B) by R. L. Bhardwaj are issued with test manuals.

For concentration, most school studies use the d2 or d2-R Test of Attention. Its construct validity is well supported (Bates & Lemay, 2004). The Dharansheelta (Concentration) Scale is a 40-item Hindi and English self-report scale covering goal, memory power, concentration, yoga and solitude. It was standardised on 300 secondary and college students in Baghpat District, Uttar Pradesh, with split-half reliability of .81 to .83 and test–retest reliability of .74 to .76 (Muchhal & Kumar, 2022). Being a self-report measure, it is not directly comparable with performance tests such as the d2.

Two measurement points matter for comparisons of boards. First, a difference in scale scores can be read as a difference in the underlying construct only if the instrument works in the same way in both groups (American Educational Research Association et al., 2014). Second, scales standardised on a single regional sample should have their internal consistency checked in each new sample, and within each comparison group, before group means are interpreted.

6. Methodological Appraisal of the Evidence

Sampling. Many Indian studies drew purposive or convenience samples from one city or a few schools (Guha Majumdar & Srivastava, 2024; Kumar et al., 2023; Singh et al., 2023). Twenty-five of 37 Indian bullying studies did so (Thakkar et al., 2021). Large probability samples were uncommon (Bahl et al., 2026; Mayya et al., 2022; NCERT, 2022).

Comparison of school types. When school types were compared, each was often represented by one school (Anand et al., 2019; Nedumpully et al., 2024). Any difference could therefore not be separated from the peculiarities of that school.

Design. Nearly all Indian studies were cross-sectional. Longitudinal studies (Trevethan et al., 2022; Wang et al., 2025; Yue et al., 2025) and cluster-randomised trials (Martone et al., 2026) came mostly from other countries.

Measurement. Standardised tools were used increasingly, but prevalence estimates depended on the cut-off adopted, and the psychometric evidence for several Indian scales was limited to manuals or single standardisation studies.

Analysis. Many Indian studies reported significance tests without effect sizes or confidence intervals, and ignored the clustering of pupils within schools. Some recent studies did report odds ratios, confidence intervals and multilevel checks (Bahl et al., 2026; Khumanlambam et al., 2025a). Clustering matters because pupils in the same school share experiences. Ignoring it understates standard errors (Koth et al., 2008).

7. Research Gaps and Agenda

The review identified five gaps.

1. No published study has compared academic stress, aggression or concentration between UP Board and CBSE students with standardised instruments. The only direct board comparison found concerned school resources and academic adjustment (Bharadwaj & Rajput, 2026).
2. No school-based study of these characteristics was found for Meerut District or the adjoining districts of western Uttar Pradesh. The nearest regional evidence was a community-based study of adolescent anxiety, which found anxiety in 19.6 per cent of adolescents (Gupta et al., 2023).
3. Indian studies usually examined one characteristic at a time. None examined academic stress, aggression and concentration together in the same pupils.
4. Measured concentration has been studied mainly in relation to physical activity, and outside India.
5. Few comparative studies reported effect sizes or allowed for clustering.

On the basis of these gaps, we recommend the following design features for future comparisons of school boards.

- **Sample schools, not just pupils.** Select several schools per board by stratified random sampling, record refusals and replacements, and plan the sample size with an allowance for the design effect of clustering.
- **Separate board from locality, management and medium.** Include rural and urban, and government, aided and private, schools within each board wherever they exist. Record medium of instruction and a measure of socio-economic status for each pupil. Where board and locality coincide completely, a board difference cannot be interpreted.
- **Include girls**, or justify a single-sex sample explicitly, given the consistent sex differences in academic stress and direct aggression (Card et al., 2008; Singh et al., 2023).
- **Check measurement before comparing means.** Estimate internal consistency within each board, and test measurement invariance where sample size allows. Treat near-zero or negative reliability as a reason to stop and examine the data, not to proceed to group tests.
- **Check the plausibility of the data.** Examine whether expected relationships

among the constructs appear, for example between academic stress and concentration (Eysenck et al., 2007). Treat very large standardised differences between naturally occurring groups with caution.

- **Report effect sizes and intervals.** Use Welch's *t*-test, which does not assume equal variances (Delacre et al., 2017). Report mean differences and Hedges' *g* with 95 per cent confidence intervals (Lakens, 2013), control for multiple outcomes (Holm, 1979), and fit multilevel models with pupils nested in schools.
- **Time data collection** so that both boards are assessed in the same part of the academic year, away from board examinations, or measure the time to examinations as a covariate.
- **Obtain institutional ethics approval, school permission, parental consent and pupil assent before any contact with pupils,** in line with national guidelines for research involving children (Indian Council of Medical Research [ICMR], 2017), and handle children's personal data in accordance with the Digital Personal Data Protection Act, 2023 (Ministry of Law and Justice, 2023).

Beyond comparative surveys, longitudinal studies following pupils through the Class X and XII examinations, and cluster-randomised trials of school physical-activity programmes, would provide stronger evidence on mechanisms and on what schools can change.

8. Implications for Schools and Physical Education

The evidence reviewed supports some general recommendations that do not depend on any difference between boards. Schools of both boards could screen pupils for academic stress and refer those at risk, since high stress is associated with depressive symptoms and suicidal ideation among Indian pupils (Jayanthi et al., 2015; Khumanlambam et al., 2025a). Short physical-activity breaks within lessons improved concentration in a cluster-randomised trial (Martone et al., 2026). Physical fitness is related to concentration in adolescents (Altermann & Gröpel, 2024). Physical education teachers are therefore well placed to support attention as well as health, and coordinative tasks may be particularly useful (Altermann & Gröpel, 2025). Whole-school anti-bullying and positive school-climate programmes are supported by Indian and international evidence (Bradshaw et al., 2009; Podiya et al., 2025; Thapa et al., 2013). These recommendations rest on studies conducted elsewhere, often outside India. Their effectiveness in UP Board and CBSE schools should be tested directly.

10. Conclusion

Academic stress, aggression and concentration are well-theorised and educationally important characteristics of adolescents. Indian evidence shows academic stress to be widespread and linked with poor mental health, and aggression and

bullying to be common and shaped by family, peer and school influences. International trials show that school physical activity can improve concentration. Whether pupils of different school boards, such as the UP Board and the CBSE, differ in any of these characteristics has not been tested with adequate designs. Popular beliefs about which board is more stressful are not yet supported by evidence. Future studies that sample several schools per board, separate board from locality and management, verify measurement within groups, report effect sizes and model clustering could settle the question. Physical education offers a practical setting for interventions that could benefit pupils of both boards.

Declarations

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