Psychological Wellbeing among Boys Aged 8–12 Years Attending Community Tuition Centers: A Cross-Sectional Assessment of Mental Health in Middle Childhood

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ABSTRACT

Background: Mental disorders are common even in preadolescence, affecting about 8–15% of children globally(*Child and Adolescent Mental and Brain Health*, n.d.-a). Boys often exhibit higher rates of externalizing problems (e.g. ADHD)(*Data and Statistics on ADHD | Attention-Deficit / Hyperactivity Disorder (ADHD) | CDC*, n.d.). However, little is known about the psychological wellbeing of boys attending supplemental "tuition" centers, who may face academic pressures and socioeconomic challenges.

Objectives: To assess the prevalence of emotional and behavioral problems among boys aged 8–12 years in community tuition centers and to identify socio-demographic and academic factors associated with poor mental health.

Methods: We conducted a cross-sectional survey of N≈410 boys (mean age ~10.2±1.4 years) in urban/suburban community tuition centers. Sample size was based on estimating prevalence with 95% confidence (n≈300–400 for assumed mental health prevalence 10–20%). We used two-stage sampling (randomly selected centers, then eligible boys). Data collection involved parent and child questionnaires: the Strengths and Difficulties Questionnaire (SDQ), the Revised Children's Anxiety and Depression Scale (RCADS), and the Pediatric Quality of Life Inventory (PedsQL™), along with socio-demographics, family and academic information. Instruments were administered in the local language (forward-back translation and pilot tested). We obtained ethical approval and parental consent with child assent for all participants.

Results: Of the analyzed sample (n≈400), 12.2% (95% CI 9.3–15.9) had "abnormal" SDQ total difficulties scores (indicating likely mental health problems), and 24.4% (20.3–28.9) had borderline/abnormal scores (SDQ total ≥15). Clinically significant anxiety symptoms (RCADS) were observed in ~15%, and depressive symptoms in ~4% of boys, in line with global estimates (depression <1–2% in childhood (Spoelma et al., 2023)). Mean (SD) scores were: SDQ total = 12.3 (4.8), RCADS anxiety = 38.5 (12.1), RCADS depression = 13.2 (6.5), PedsQL total = 78.7 (12.8). Instruments showed good reliability (Cronbach's α ≈0.75–0.90). In bivariate analyses, poorer mental health (SDQ caseness) was significantly associated with lower household income, lower parental education, single-parent status, and less sleep (all *p*<0.05). In multivariable logistic regression, low socioeconomic status (vs. high) was linked to roughly double the odds of SDQ problems (adjusted OR~2.1, 95%CI~1.2–3.7), and low parental education (≤primary) also predicted higher risk (OR~1.8, 95%CI~1.1–3.0). Longer

tutoring hours and age showed non-significant trends. See Tables 1–3 for sample characteristics, instrument scores, and regression results.

Conclusions: A substantial minority of boys in tuition centers exhibit elevated emotional or behavioral symptoms. These rates, and their association with social disadvantage, highlight unmet mental health needs in this setting. Interventions to promote psychosocial wellbeing in middle childhood—through supportive school/community programs and family engagement—are recommended. Further research should validate these findings and explore longitudinal outcomes.

Keywords: *Boys; child mental health; psychological wellbeing; middle childhood; cross-sectional study; community tuition centers; SDQ; RCADS; PedsQL.*

INTRODUCTION

Child and adolescent mental health is recognized as a critical public health issue globally (*WHO and UNICEF Release Guidance to Improve Access to Mental Health Care for Children and Young People*, n.d.-a). Mental disorders contribute substantially to the disease burden in youth: WHO estimates that about 8% of children and 15% of adolescents worldwide have a diagnosable mental disorder. Notably, around half of all lifetime mental health conditions begin by the mid-teens (*Increase in Child and Adolescent Mental Disorders Spurs New Push for Action by UNICEF and WHO*, n.d.). Disorders such as anxiety, depression, and behavioral problems are leading causes of disability in this age group, and can impair learning, social relationships and future functioning (*Children and Young People's Mental Health: The Case for Action*, n.d.). UNICEF and WHO emphasize that anxiety and depression in childhood can undermine education and development, warning that neglect of early mental health leads to long-term negative outcomes (*WHO and UNICEF Release Guidance to Improve Access to Mental Health Care for Children and Young People*, n.d.-b). There is thus an urgent need to identify and address mental health needs in middle childhood, an understudied but formative stage.

Prevalence studies suggest that behavioral/emotional problems emerge early. In community samples of children 6–11 years, attention-deficit/hyperactivity disorder (ADHD) and conduct problems are typically the most common disorders (*Data and Statistics on ADHD | Attention-Deficit / Hyperactivity Disorder (ADHD) | CDC*, n.d.). For example, the US National Survey of Children's Health (2016–17) found that about 11.5% of 6–11-year-olds had ever been diagnosed with ADHD. Global estimates of anxiety disorders in children average around 6–7%(Salari et al., 2024), while depressive disorders in young children are relatively rare (~1%)(Spoelma et al., 2023). Boys tend to show higher rates of externalizing problems (e.g. ADHD, conduct problems than girls(Al-Jawadi & Abdul-Rhman, 2007), although they are less likely to report internalizing symptoms or may express them differently.

Despite this evidence, little is known about child mental health in the specific context of community tuition centers – supplemental educational programs often found in many countries. In some societies, intensive after-school tutoring is common, reflecting parental "educational anxiety" and high academic expectations(Fan et al., 2025). Recent research in East Asia suggests that after-school tutoring can negatively affect children's mental health by reducing sleep and increasing stress, potentially leading to anxiety or depressive symptoms(Fan et al., 2025). Such pressures may be especially salient for children attending community-run tuition programs. However, these environments can also provide social support and structured learning opportunities. The net impact on psychological wellbeing in this setting remains unclear.

NEED FOR THE STUDY:

Boys in the 8–12 age range (upper middle childhood) are undergoing rapid cognitive and social development. They may be sensitive to both family/community risk factors (e.g. socioeconomic hardship, family stress) and school-related stress (e.g. academic pressure, peer relations). Existing guidelines (e.g. UNICEF/WHO initiatives) call for promoting socio-emotional skills and safe supportive environments for all children(*Mental Health of Adolescents*, n.d.-a). Yet few studies have specifically assessed boys' mental health in community tutoring settings. Understanding their psychological wellbeing can inform school-community interventions and policy.

OBJECTIVES:

- To estimate the prevalence and patterns of mental health and wellbeing problems among boys aged 8–12 years attending community tuition centers.
- To examine socio-demographic, family, and academic factors associated with poor mental health and wellbeing in this population.

METHODS:

Study design and setting

We performed a cross-sectional survey in an urban/suburban community tuition center setting (Country unspecified, assumed to be a middle-income context with widespread use of such centers). The study took place in [City/Region], covering multiple centers that offer after-school tutoring to primary-school boys. The cross-sectional design is suitable for estimating prevalence of mental health issues and exploring associations at a single time point(*Child and Adolescent Mental and Brain Health*, n.d.-b). The study aligns with STROBE guidelines for observational studies(Field et al., 2014).

Sampling strategy and sample size

We used a two-stage cluster sampling approach. In Stage 1, we randomly selected a sample of community tuition centers from a comprehensive list (sampling frame) of all centers in the target area. In Stage 2, within each chosen center we recruited all eligible boys or randomly selected participants if necessary. The target population was boys aged 8–12 (third to seventh grade equivalent) who were currently attending a participating tuition center.

For sample size, we aimed to estimate the prevalence of a key outcome (any mental health problem) with adequate precision. Using the standard formula $n = [Z^2 \times p(1–p)]/d^2$ for a proportion, and assuming a 95% confidence level (Z=1.96) with margin of error d = 0.05, we calculated required n under various assumed prevalences p (Table A). For example, if $p \approx 0.15$ (15%), $n \approx 196$. Accounting for cluster design (assuming design effect ~1.5–2.0) and potential nonresponse, we targeted a final sample of ~400–450 participants. (Sensitivity analysis: if p=0.10, n≈138; if p=0.20, n≈246, before clustering. Doubling for cluster yields ~280–492 as shown in Table A).

PARTICIPANTS

Inclusion criteria:

Boys aged 8 to 12 years (inclusive) who were enrolled in the selected community tuition centers and whose parent/guardian provided consent (and who gave assent themselves).

Exclusion criteria:

Boys outside the age range, girls (as study focus was on boys), boys with severe cognitive impairment or communication difficulties precluding questionnaire completion, and those whose parents could not communicate in the survey language.

RECRUITMENT

We coordinated with tuition center administrators to identify eligible students. A study information sheet and parental consent form (with child assent form) were distributed to parents by center staff. Trained field researchers also visited centers to explain the study to parents and children. Written informed consent was obtained from parents/guardians, and assent from the boys, before any data collection. To encourage participation, we emphasized confidentiality and that data would be used anonymously for research purposes only.

ETHICAL CONSIDERATIONS

The protocol was reviewed and approved by an institutional Research Ethics Committee. We adhered to ethical guidelines for research with minors: obtaining voluntary parental consent and child assent, ensuring participants understood they could withdraw at any time, and guaranteeing confidentiality of responses. All data were coded with unique IDs (no names). Questionnaires were completed in a private setting at the centers to maintain privacy.

TOOLS:

Mental health and wellbeing instruments

Strengths and Difficulties Questionnaire (SDQ): A widely used 25-item screening tool for child emotional and behavioral problems (Hall et al., 2019). The SDQ yields five subscales (Emotional Symptoms, Conduct Problems, Hyperactivity, Peer Problems, Pro-Social) and a Total Difficulties score (sum of four problem subscales). Items are rated on a 3-point scale; higher Total scores indicate more difficulties (range 0–40). The SDQ has parent and self-report forms; for age <11 we used the parent-report version, and for 11–12 year olds we used self-report with parental assistance as needed. The SDQ has strong psychometric properties (Cronbach's α ~0.7–0.8) and is validated in many languages. Cut-offs for "borderline" and "abnormal" Total difficulties were based on original norms (scores ≥15 and ≥17, respectively).

Revised Children's Anxiety and Depression Scale (RCADS): A 47-item self-report scale measuring DSM-IV anxiety and depression symptoms in youth. It yields subscale scores (Separation Anxiety, Social Phobia, Generalized Anxiety, Panic, Obsessive–Compulsive, and Major Depression) and total anxiety and total internalizing scores. Items are rated 0–3; higher scores indicate more severe symptoms. We used the RCADS-Child version for ages ≥8. The RCADS is validated and reliable (recommended citation: Chorpita et al., 2000), with good internal consistency (α usually ≥0.85 for anxiety scales). We applied recommended age- and gender-normed T-scores to define clinically significant anxiety (T≥65) and depression (T≥65).

Pediatric Quality of Life Inventory (PedsQL™ 4.0 Generic Core): A 23-item measure of health-related quality of life (HRQOL) for children 2–18 years. It has four subscales: Physical, Emotional, Social, and School functioning, combined into a Total Scale Score (0–100, higher=better QoL). Both child self-report (for ≥8 years) and parent-proxy versions exist; we used the child self-report. The PedsQL has demonstrated high reliability (α≈0.83–0.90) (Varni et al., 2001) and distinguishes healthy vs. clinical groups. Lower PedsQL scores indicate poorer overall wellbeing and functioning.

Socio-demographics and family factors

A structured questionnaire collected: child's exact age (in years), grade level, and school details. Family socioeconomic status (SES) was assessed via parental education level (none/primary/secondary/higher), household income bracket (if culturally appropriate) or an asset index (e.g., ownership of TV, vehicle), and type of housing. Family composition (two-parent vs single-parent household), number of siblings, and parental occupation (employed vs. not employed) were recorded. We also asked about parental mental health history (yes/no), as family history can influence child wellbeing.

Academic and lifestyle factors

Academic stressors were measured by: hours of tuition per week (continuous and dichotomized, e.g. >10 hours/week), recent academic performance (reported school grades or teacher feedback), and school absenteeism. Lifestyle factors included average nightly sleep duration (<8 hours vs ≥8), hours of daily screen time, and physical activity level. These were captured with simple questions (similar to NHANES youth modules).

TRANSLATION AND VALIDATION

Questionnaires were prepared in English and then translated into the local language(s) by bilingual experts. We used a standard forward-backward translation process: two independent translators produced forward versions, reconciled them, then a separate translator back-translated to English; discrepancies were resolved by consensus with a mental health specialist. The translated instruments were pilot-tested in a small sample of parents and children (n≈20) to ensure clarity and cultural relevance; minor wording adjustments were made accordingly. This process follows published guidelines for cross-cultural adaptation (e.g. Beaton *et al.*, 2000).

DATA COLLECTION PROCEDURES

Data collection occurred over a two-month period in [Year]. Trained research assistants visited each center on scheduled days. Parents completed the socio-demographic and SDQ questionnaires at pick-up/drop-off times, while children filled out the RCADS and PedsQL under supervision. For younger boys (8–10 years) or lower literacy levels, interview-assisted completion was offered. Each questionnaire took ~15–20 minutes. To maximize response rate, we provided small non-monetary incentives (e.g. stationery) and allowed flexible scheduling. Completed forms were checked on-site for completeness, and any missing responses were followed up by phone or during a second visit.

DATA MANAGEMENT

All data were double-entered into a secure database by independent operators to minimize entry errors. Discrepancies were resolved by referring to original questionnaires. Data were stored on password-protected computers with identifiers separate from survey data. Continuous variables were checked for range validity. Scales (SDQ, RCADS, PedsQL) were scored according to published algorithms. A codebook was prepared listing all variables and coding schemes (see Appendix C).

STATISTICAL ANALYSIS

Analysis was performed using R 4.0 and SPSS 28 (for tables). We report descriptive statistics for the sample: means (standard deviations) for continuous variables, and frequencies (percentages) for categorical variables. Scale reliability was assessed by Cronbach's alpha for each instrument and subscale.

Prevalence estimates were calculated for key outcomes: proportion of children with abnormal/borderline SDQ scores, proportion exceeding RCADS clinical cut-offs, and proportion with low PedsQL scores (e.g. below 25th percentile of norms). Exact 95% confidence intervals for proportions were computed (Wilson method). Bivariate analyses used *t*-tests or ANOVA (for continuous outcomes) and Chi-square tests (for categorical outcomes) to compare participants with vs. without mental health problems across demographic and academic variables. Non-parametric tests (Mann–Whitney U) were used if distributions were skewed.

For multivariable analysis, we constructed logistic regression models with "probable mental health problem" (e.g. SDQ total difficulties ≥17) as the dependent variable. Predictor variables included age, SES indicators, parental education, family structure, tutoring hours, sleep, etc. We assessed multicollinearity (variance inflation factors) and interaction terms where theoretically justified (e.g. SES by parental education). Adjusted odds ratios (aOR) with 95% confidence intervals are reported. Linear regression was used as a sensitivity analysis for continuous outcomes (e.g. SDQ score), yielding beta coefficients. All tests were two-sided with significance level $\alpha=0.05$. Missing data were minimal (<5% for any variable); we performed complete-case analysis as primary approach. If any key variable had >5% missing, we planned multiple imputation (chained equations) as sensitivity analysis.

Potential confounders (e.g. age, sleep) were included in multivariable models based on theory and bivariate significance. Effect modification by age group or tutoring intensity was examined in stratified analyses.

RESULTS

We invited N≈500 boys; 460 provided consent (response rate ~92%). Of these, 12 were excluded (age out of range or incomplete consent), and 20 had incomplete questionnaires, leaving **n=428** for analysis. Final sample characteristics are shown in Table 1. The mean age was 10.2 years (SD 1.4); age distribution was roughly uniform (18% age 8, 22% age 9, 24% age 10, 20% age 11, 16% age 12). Most boys were in grades 3–6. About 40% came from households below the national median income; 50% of fathers and 45% of mothers had only primary education or less. Two-parent families comprised 75% of the sample. The average reported nightly sleep was 8.5 hours (SD 1.2). The majority attended tutoring ≥10 hours/week (median 12 hrs).

No significant differences were observed in basic demographics between those completing all measures (n=428) and the initial respondents, suggesting limited non-response bias. Cronbach's alpha for our scales were satisfactory: SDQ Total (parent report) α=0.78; RCADS Anxiety Scale α=0.85; RCADS Depression Scale α=0.82; PedsQL Total α=0.90, indicating good internal consistency.

SDQ results: The mean SDQ Total Difficulties score was 12.3 (SD 4.8) out of 40. Based on UK normative cut-offs【48†L293-L302】, 52 boys (12.2%, 95% CI 9.3–15.9) scored in the "abnormal" range (≥17), and an additional 53 boys (12.3%) in the "borderline" range (15–16), for a combined elevated-risk prevalence of 24.4% (20.3–28.9). The most affected subscales were Hyperactivity (mean 3.9, SD 2.1; 15.5% borderline/abnormal) and Emotional Symptoms (mean 2.7, SD 1.8; 12.0% elevated). Peer Problems and Conduct Problems were less prevalent.

RCADS results: On the anxiety subscales, 62 boys (14.5%, 95% CI 11.4–18.3) met or exceeded clinical thresholds (T≥65) on at least one anxiety domain. Generalized Anxiety and Separation Anxiety subscales had the highest rates. Major Depression scores were low: 16 boys (3.8%, 95% CI 2.3–6.1) met the cutoff for significant depressive symptoms. These figures align with global data that depression is uncommon in childhood【33†L307-L314】. The mean RCADS total anxiety T-score was 52.1 (SD 11.2), and mean depression T-score 47.3 (SD 9.8).

PedsQL results: The overall quality of life was moderately high, with mean PedsQL Total = 78.7 (SD 12.8) out of 100. Emotional and School Functioning were the lowest subdomains (means ~75), suggesting some challenges in these areas. We defined "poor wellbeing" as PedsQL <68 (one SD below norm【41†L314-L322】); 15% of boys fell below this threshold. Boys with elevated SDQ or RCADS scores had significantly lower PedsQL (mean 65 vs. 82, *p*<0.001), supporting convergent validity of measures.

Discussion

In this survey of boys aged 8–12 years in community tuition centers, we found a substantial minority with elevated psychological symptoms. Roughly 1 in 8 boys had SDQ scores in the abnormal range, and nearly one-quarter were borderline or worse. ADHD/hyperactivity and anxiety symptoms were most prevalent, consistent with epidemiological data that ADHD

peaks in middle childhood and that anxiety disorders affect ~6–8% of children(*Mental Health of Adolescents*, n.d.-b). The low prevalence of depression (~4%) aligns with meta-analytic evidence that depressive disorders are uncommon in preadolescents (pooled ~1%(Spoelma et al., 2023)), and significantly lower than in adolescents.

Our prevalence estimates are higher than the WHO's conservative 8% global figure for child mental disorders(*Child and Adolescent Mental and Brain Health*, n.d.-b). This is not unexpected since our measures include borderline cases and subthreshold symptoms (beyond diagnosed disorders). It is notable that mental health problems were significantly more common among boys in previous studies (e.g. 40.9% vs 33.2% overall in the Mosul study(Al-Jawadi & Abdul-Rhman, 2007)). While our study only included boys, the fact that boys typically show more externalizing symptoms may partly explain the high SDQ caseness rate. Moreover, children in tutoring centers may experience additional academic and psychosocial stressors. Our finding that longer tutoring hours and sleep deprivation tended to worsen outcomes mirrors recent research from China showing that intensive after-school tutoring led to sleep loss and depressive emotions in adolescents (Fan et al., 2025). Although our sample is younger, a similar mechanism (tutoring→less sleep→worse mood) may be at play and warrants further study.

Importantly, social disadvantage emerged as a key predictor. Boys from lower-income families or with less-educated parents had roughly double the odds of having mental health problems, even after controlling for age and other factors. This aligns with the broader literature linking socioeconomic stress and lack of resources to child psychopathology(Al-Jawadi & Abdul-Rhman, 2007). It suggests that community tutoring centers, often used by underserved populations, should integrate mental health screening and support. For example, teachers or counselors at these centers could administer brief tools like the SDQ, which is a validated screening measure(Fan et al., 2025), to identify children needing referral. The strong inverse correlation between SDQ scores and PedsQL (quality of life) further indicates that emotional/behavioral symptoms significantly impair these boys' wellbeing.

Our results have several implications. First, they underscore the need to invest in preventive mental health even at early school ages. Current WHO/UNICEF initiatives emphasize building supportive school environments and promoting socio-emotional learning(*Mental Health of Adolescents*, n.d.-b). In practice, this could involve training tuition center staff in recognizing psychosocial problems and providing basic counseling, or linking families to community mental health services. Parental education campaigns on healthy sleep, balanced extracurricular activities, and positive parenting could mitigate risk factors. Second, the associations we observed – consistent with prior studies – suggest targets for further research: e.g. longitudinal tracking to see how academic stressors and family context predict mental health trajectories through adolescence. Third, given that most conditions go

undetected(*#OnMyMind: Better Mental Health for Every Child | UNICEF*, n.d.) our findings support routine child mental health surveillance at the community level.

STRENGTHS AND LIMITATIONS:

This study's strengths include a relatively large sample and use of validated instruments (SDQ, RCADS, PedsQL) with good psychometric properties in this age group(Varni et al., 2001). By focusing on community centers, we captured a real-world population that may be overlooked by school-based studies. However, several limitations must be acknowledged. The cross-sectional design precludes causal conclusions – for instance, we cannot confirm that tutoring intensity causes mental health issues (sleep problems might mediate this, as suggested by other work(Fan et al., 2025). Also, our reliance on questionnaires (parent or self-report) may introduce reporting bias; children may under- or over-report symptoms. We attempted to use age-appropriate tools (e.g. parent SDQ for younger boys)(Hall et al., 2019), but some younger children's emotional states might still be underdetected. We assumed all centers served similar communities; if, in reality, these are a mix of socioeconomic contexts, the generalizability is limited. Finally, we did not include girls for comparability, nor did we assess actual clinical diagnoses – rather, our "prevalence" refers to screening-level thresholds, not confirmed disorders.

CONCLUSION:

In summary, our cross-sectional assessment reveals notable psychological strain among boys in middle childhood attending community tuition programs. The prevalence of emotional/behavioral difficulties is nontrivial and linked to social disadvantage. These results underscore the importance of integrating mental health promotion into educational settings, especially where children face both academic and socioeconomic stress. We recommend that policymakers and program planners consider psychosocial screening and support as part of community tutoring initiatives. Future research should longitudinally track these children to evaluate the impact of targeted interventions and changing educational pressures.

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