ABSTRACT

Introduction:

Attention Deficit Hyperactivity Disorder (ADHD) is the most common, pervasive neurodevelopmental disorder plaguing children worldwide with substantial comorbidity and functional impairment. Scarce information on this complex disorder of enormous social cost at individual, family and societal level has sparked intense research interest as of late.

Objective:

To determine prevalence, psychiatric comorbidities and risk factors of ADHD among primary school (PS) children and to evaluate the effectiveness of an intervention to improve knowledge and misperceptions of ADHD among PS teachers, in Sinhala medium state schools in Colombo district.

Methods:

Criterion validity of SNAP-IV P/T rating scale was appraised against clinical diagnosis of a consultant child and adolescent psychiatrist (CCAP) among 400 PS children aged 6-10 years from four purposively selected schools in Kalutara in Component 1. Reliability was assessed with test-retest method and internal consistency.

Sub-component 1 of Component 2 of the study was a school based cross sectional study conducted among 1125 PS children aged 6-10 years in Colombo district to estimate the prevalence of ADHD using the validated SNAP-IV P/T – S. This was followed with subcomponent 2 which was a cross sectional study conducted to assess psychiatric comorbidities among the 73 diagnosed children with ADHD from sub-component 1. Common comorbid conditions were clinically assessed by the CCAP.

Component 3 was a case-control study to identify risk factors for ADHD using an interviewer-administered questionnaire. From component 2 cases (with ADHD (n=73)) and controls (without ADHD (n=264)), were identified. Bivariate analysis followed by multivariate regression model identified potential risk factors.

Component 4 was a cross sectional study among 467 PS teachers from 36 Sinhala medium state schools to determine levels and cut off for knowledge and misperceptions of ADHD using KADDS instrument. Further, a cluster-randomized trial was conducted with 130 participants each in intervention and waitlist control groups, to implement and evaluate a developed intervention package to improve knowledge and misperceptions of ADHD among PS teachers.

Results:

The overall sensitivity and specificity of SNAP-IV P/T – S scale as per primary care giver ratings were 93.0%(95%CI=80.9-98.5) and 83.7% (95%CI=79.5-87.4) respectively. The reliability measures were highly satisfactory (Cronbach's alpha ranged from 0.91-0.97 and Correlation coefficient ranged from 0.83-0.92 across subscales for both raters).

The overall prevalence of ADHD was 6.5% (95%CI=5.1-8.1) with ADHD-C as the commonest subtype. The prevalence in males (9.6%) was higher than in females (2.9%)

Majority (65.8%, n=48) of children with ADHD had at least one psychiatric comorbidity with most occurring in those of ADHD-I subtype (p=0.008). SDDSS was the commonest comorbidity in both genders.

Multivariate analysis revealed, male sex (aOR=3.74; 95%CI=1.67-8.35), lower educational level of the mother (aOR=3.31; 95%CI=1.39-7.98), maternal psycho pathology (aOR=7.28; 95%CI=1.55-34.35), prenatal exposure to passive tobacco smoke (aOR=3.76; 95%CI=1.09-12.95), Birth weight <2500g and /or gestation period of <37 completed weeks (aOR=3.6; 95%CI= 1.48-8.74), neonatal complications (a OR=4.03; 95%CI=1.94-8.32) , minimal leisure time with family (aOR=2.39; 95%CI=1.19-4.82) and subjected to teasing/ bullying (aOR=5.03; 95%CI=2.47-10.25) as significant predictors of
ADHD.

Only 31% (95%CI=26.9-35.5) of PS teachers had satisfactory knowledge of ADHD. The overall knowledge score of the teachers was 33.1% and misperception scores reflecting incorrect beliefs was 21.4%.

The median total knowledge scores post intervention for intervention group and waitlist control group was (24.0, IQR=8.0) and (12.0, IQR=9.3) respectively, (p<0.001).

Conclusions and recommendations:

SNAP-IV P/T – S rating scale is a valid and reliable tool to screen for ADHD among 6 10 year olds in Sri Lanka. Approximately, 1 in 15 children (6.5%) in a classroom have ADHD reflecting the magnitude of disease burden. Risk factors indicate that primary prevention should focus on strengthening neonatal, child and maternal health services in the country. A school based screening to enable early detection and timely referral is the need of the hour. A pre-service/in-service training on ADHD for teachers' for improvement of knowledge is of paramount importance.

Keywords: ADHD, Teacher's knowledge, Comorbidities, Risk factors, SNAP-IV