**Appendix Table F-1. Characteristics of included studies for KQ 1**

| **Study** | **Study Design**  **Geographic Location**  **N Completed** | **Mean Age (Years unless specified)** | **Gold Standard** | **Diagnostic Tools** | **Outcomes (Subgroups analyzed)** | **Quality** |
| --- | --- | --- | --- | --- | --- | --- |
| Berger, 2010[1](#_ENREF_1) | Observational Middle East 58 | ADHD: 9.86 (SD 1.89)  Non-ADHD: 10.50 (SD 1.81) | A neurologic examination, the completion of DSM-based questionnaires by parents and teachers, and neuropsychologic evaluation confirmed the diagnosis. | Continuous Performance Functions Tests  TOVA  Conners CPT  TOVA + Conner’s CPT | Overall accuracy  Sensitivity  False negative | Fair |
| Bloch, 2012[2](#_ENREF_2) | Observational Middle East 34 | Total pop.: 11.5,  Min. age: 7  Max. age: 17 | Consensus achieved on a structured interview by a psychologist using DSM-IV based assessment and a clinical interview by child and adolescent psychiatrist . | CANTAB  TOVA (Test of Variable of Attention) | Sensitivity  Specificity  False positive  False negative | Fair |
| Bunte, 2013[3](#_ENREF_3) | Observational UK/Europe 251 | ADHD: 54.7 months (SD: 8.8)  Non-ADHD: 53.1 months (SD: 8.4) | Clinical interview with psychiatrist and psychologist who agreed on diagnosis using K-DBDS semi-structured DSM-4 interview. | Disruptive Behavior Diagnostic Observation Schedule (DB-DOS)  Kiddie-Disruptive Behavior Disorder Schedule (K-DBDS) | Sensitivity  Specificity  AUC  (Comorbidity) | Fair |
| Carballo, 2014[4](#_ENREF_4) | Observational UK/Europe 523 | Min. age: 3  Max. age: 17 | Positive ADHD diagnosis based exclusively on the ADHD RS-IV which assesses DSM-IV-TR ADHD symptoms. | SDQ | Sensitivity  Specificity  (ADHD presentation) | Poor |
| Castro-Cabrera, 2010[5](#_ENREF_5) | Observational Latin America 46 | Min. age: 4  Max. age: 15 | Medical diagnostic was determined by neurophysiological evaluation based on clinical criteria of DSM IV. | Event-Related Potentials (ERPs) | Overall accuracy  Sensitivity  Specificity  AUC | Fair |
| Caudal, 2011[6](#_ENREF_6) | Observational UK/Europe 112 | ADHD: 8.00  Non-ADHD: 8.70 | Children diagnosed with ADHD according to the DSM-IV and further examinations. | Electro-interstitial scans (EIS) | Sensitivity  Specificity | Fair |
| dosReis, 2010[7](#_ENREF_7) | Observational USA 48 | Total: 8.8 (SD 2.30) | Unclear/NR | Unclear/NR | Labeling/Stigma | Good |
| Ferrin, 2012[8](#_ENREF_8) | Observational Australia/NZ 1,185 | ADHD: 131.44 months (SD 38.93 months)  Non-ADHD: 133.16 months (SD 27.95 months) | ADHD status was categorically defined by the semistructured clinical interview of their parent’s K–SADS–PL, and dimensionally by the Conners Global Index (CGI). The K-SADS-PL is a semi-structured diagnostic interview designed to assess current and past episodes of  psychopathology in children and adolescents according to DSM-IV criteria. | Neurological subtle signs (NSS) | Overall accuracy  AUC  (Age) | Fair |
| Gonzalez, 2013[9](#_ENREF_9) | Observational UK/Europe 43 | Min. age: 4  Max. age: 15 | Physical examination, clinical interview and a structured checklist covering DSM-IV and ICD-10 criteria. | EEG IM generalized  EEG IM beta band | Overall accuracy  Sensitivity  Specificity | Fair |
| Kim, 2015[10](#_ENREF_10) | Observational Asia 157 | ADHD: 10.16 (SD 1.90)  Non-ADHD: 9.62 (SD 1.72) | ADHD Diagnosis was based on a Korean version of the Diagnostic Interview Schedule for Children Version IV (DISC-IV) and the diagnoses were confirmed by multiple child and adolescent psychiatrists. The DISC-IV uses diagnostic criteria as specified in DSM-IV. | EEG-TGC  EEG Delta Wave  EEG Theta/beta ratio  IVA CPT commission error  IVA CPT omission error | Overall accuracy  Sensitivity  Specificity | Fair |
| Kim, 2015[11](#_ENREF_11) | Observational Asia 97 | ADHD: 9.25 (SD 1.63)  Non-ADHD: 9.56 (SD 1.98) | ADHD Diagnosis was based on a Korean version of the Diagnostic Interview Schedule for Children Version IV (DISC-IV) and the diagnoses were confirmed by multiple child and adolescent psychiatrists. The DISC-IV uses diagnostic criteria as specified in DSM-IV. | EEG Theta Wave  EEG Delta Wave  EEG Theta/beta ratio  IVA CPT commission error  IVA CPT omission error | Overall accuracy  Sensitivity  Specificity | Fair |
| Klenberg, 2010[12](#_ENREF_12) | Observational UK/Europe 916 | ADHD: 10.10 (SD 2.40)  Non-ADHD: 10.70 (SD 2.50) | Diagnoses were based on structured interviews of parents and children and a parent rating scale (ADHD RS-IV: Home Version) and teacher reports from school. | Attention and Executive Function Rating Inventory (ATTEX) | Overall accuracy  Sensitivity  Specificity  AUC | Good |
| Liechti, 2013[13](#_ENREF_13) | Observational UK/Europe 62 | ADHD: 11.1 (SD 2.10)  Non-ADHD: 11.2 (SD 2.10) | Children with ADHD combined subtype (DSM-IV), aged 8–16 years, were diagnosed using the semi- structured clinical diagnostic interview PACS (parental account of children’s symptoms); plus Conners teacher rating scale—revised | EEG + Event Related Potentials (ERPs) | Overall accuracy  Sensitivity  Specificity | Fair |
| Markovska-Simoska, 2016 [14](#_ENREF_14) | Observational  Latin America  120 | ADHD: 9 (SD 2.44) | Team of neuropsychologist, pediatrician and clinical psychologist. Also used Conners rating scale. | EEG TBR Cz  EEG absolute theta Cz  EEG absolute beta Cz  EEG relative theta Cz  EEG relative beta Cz | Diagnostic accuracy | Fair |
| Martin-Martinez, 2012[15](#_ENREF_15) | Observational UK/Europe 63 | Total pop.: 6 | Case group was diagnosed as having the combined kind of ADHD according to the DSM-IV criteria | Actigraphy - PCA1 [Px00(15 min, D) + Pz22(1 min, FR) + Py01(15 min, AA)] | Overall accuracy  Sensitivity  Specificity  AUC | Poor |
| Ogrim, 2012[16](#_ENREF_16) | Observational UK/Europe 101 | Total pop.: 11 (SD 3.00) | All diagnoses were according to DSM IV-TR and accepted clinical guidelines. A senior neuropsychologist (GO) was responsible for diagnostic conclusions after discussions in the team, which included a pediatrician and a clinical psychologist. | EEG Theta  EEG Theta/beta ratio  Visual CPT omission error | Overall accuracy | Fair |
| Ohan, 2011[17](#_ENREF_17) | Observational Canada 56 | Not Reported | Not Applicable | Not Applicable | Labeling/Stigma | Good |
| Park, 2016 [18](#_ENREF_18) | Observational  Asia  114 | ADHD: 7.6 (SD 1.5) | DSM-4 criteria and Korean version of the K-SADS-PL-K | Advanced Test of Attention, Any Item with SD >1  Advanced Test of Attention, Any Item with SD >1.5  Advanced Test of Attention, Any Item with SD >12 | Diagnostic Accuracy | Fair |
| Soliva, 2010[19](#_ENREF_19) | Observational UK/Europe 78 | ADHD: 10.90 (SD 2.83)  Non-ADHD: 11.46 (SD 2.86) | ADHD subjects were diagnosed by a team consisting of a psychologist and a psychiatrist. Scoring was based on parent and teacher rating scales, as well as a semi-structured clinical interview, which systematically reviewed DSM-IV-TR criteria for ADHD, oppositional-defiant disorder, conduct disorder, and depressive and anxiety disorders (DICA-IV). | MRI of Caudate Body Volume | Overall accuracy  Sensitivity  Specificity  (Sex and ADHD presentation) | Fair |
| Thorell, 2010[20](#_ENREF_20) | Observational UK/Europe 45 | Unclear/NR | Children met the symptom criteria, the age of onset criterion (i.e., < 7 years) the pervasiveness criterion (symptoms present in two settings), and the duration criterion (> 6 months) for ADHD according to DSM-IV. Subjects saw a child psychologist and if deemed "at risk" they were given scales to confirm diagnosis. | Childhood Executive Function Inventory (CHEXI)- Parent rating inhibition subscale | Overall accuracy  Sensitivity  Specificity | Fair |
| Zelnik, 2012[21](#_ENREF_21) | Observational Middle East 230 | Total pop.: 10 (SD 2.70) | Clinical diagnostic work-up included a family interview about the behavioral and neurodevelopmental history of the child, neurological evaluation and observation at the physician’s office, utilization of the DSM-IV diagnostic criteria, and employment of the Conners Rating Scales. | TOVA (Test of Variable of Attention) | Sensitivity  Specificity  False positive  False negative | Fair |

Abbreviations: ADHD=attention deficit hyperactivity disorder; AUC=area under the curve; DISC-IV=Diagnostic Interview Schedule for Children Version IV; DSM= Diagnostic and Statistical Manual of Mental Disorders; EEG=electroencephalograph; K-DBDS= Kiddie Disruptive Behavior Disorder Schedule; MRI=magnetic resonance imaging; NR=not reported; SD=standard deviation; TBR=theta/beta ratio