

Study explores accuracy of computerized ADHD test

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A new study cautions against using the QbTest as a standalone diagnostic or screening tool for ADHD. Researchers from the Universities of Southampton, Nottingham, Cardiff, and King's College London explored the accuracy and clinical utility of a widely used computerized test for attention-deficit/hyperactivity disorder (ADHD), called the QbTest. They found that, when used on its own, QbTest is not good enough to

diagnose ADHD.

This research is the first [systematic review](#) and meta-analysis of the clinical utility and accuracy of the QbTest, which is used in some NHS services across the UK and internationally. The paper, "[Practitioner Review: Clinical utility of the QbTest for the assessment and diagnosis of attention-deficit/hyperactivity disorder—a systematic review and meta-analysis](#)" was published in the *Journal of Child Psychology and Psychiatry*.

The test has been approved by NICE in the UK and the FDA in the United States as a tool to support clinical decision making. However, the QbTest is sometimes presented to parents of children referred for ADHD assessment as a "screening tool," which is not in line with its approved regulations.

"Our review found that only some studies conducted on QbTest are of high quality," says Dr. Alessio Bellato, from the University of Southampton, co-lead author of the research.

"Most studies investigated the QbTest as a standalone diagnostic tool, which is not its intended use. When used in this way, it is not sufficiently accurate to differentiate between those that have the condition and those that do not. Considering that—when used appropriately—QbTest could help clinicians reach faster diagnostic decisions, more rigorous research is urgently needed. Importantly, [NICE is currently reviewing](#) QbTest for the diagnosis and management of ADHD and will have access to this research."

About ADHD and the QbTest

ADHD affects around five percent of children and [young people](#) in the UK. People with ADHD, among others, find it hard to focus and

concentrate, which can impact performance in education, work and social situations.

Interventions to support people with ADHD are available, but there is no single test to diagnose the condition. Assessment relies on a clinician's judgment, informed by different sources of observation, such as the child's clinical history and questionnaires completed by parents, teachers and patients. But these are subjective, can be contradictory and take time. Increased awareness of ADHD has led to growing demand for assessment in children—with the average waiting time for diagnosis in the NHS being around 16 months.

The QbTest is a computerized test of attention and activity, which offers an objective measure of inattention, hyperactivity and impulsivity. In the test, participants are instructed to press a button in response to certain targets on the screen (for example, a certain shape or color) and ignore non-targets (other shapes or colors), to measure attention. This is combined with an infrared motion tracker which measures motor activity. The results give an estimation of attention, impulsivity and hyperactivity—three key symptoms of ADHD.

First systematic review and meta-analysis

The study authors reviewed and analyzed 15 studies on the accuracy and clinical utility of the QbTest. They worked out the sensitivity (correctly identifying positive cases), specificity (correctly identifying negative cases) and a third measure called the Area under the Receiver Operating Characteristics Curve, or AUC for short.

Accuracy is scored on a scale of 0-1, with 1 being perfect accuracy and 0.5 being no better than chance. Total scores (combining measures for attention, impulsivity and hyperactivity) showed acceptable, rather than good, sensitivity (0.78) and specificity (0.70). Individual measures for

attention, impulsivity and hyperactivity ranged from low (0.48) to moderate (0.65) sensitivity, and moderate (0.65) to good (0.83) specificity. AUC scores showed moderate (0.66) to acceptable (0.72) levels of accuracy.

Professor of Child and Adolescent Psychiatry Samuele Cortese, senior author of the research, also from the University of Southampton, says, "Most studies in the review attempted to differentiate between people with ADHD and non-clinical groups (neurotypicals). However, in practice, clinicians would more often need tests to differentiate between ADHD and other clinical conditions."

Still has a role to play

Further research is needed to understand how QbTest scores should be used alongside other clinical information to arrive at a diagnosis and support management. However, the researchers still believe the test has a useful role to play, but not on its own.

Co-lead author Dr. Charlotte Hall, from the University of Nottingham, says "These results support the indicated use of QbTest as an aid to support clinical assessment and diagnosis of ADHD. Objective tests should support, rather than replace, clinical judgment. When used to support standard clinical assessment, the QbTest can help to speed up diagnosis, reduce costs and increase efficiency in the assessment pathway."

More information: Alessio Bellato et al, Practitioner Review: Clinical utility of the QbTest for the assessment and diagnosis of attention-deficit/hyperactivity disorder—a systematic review and meta-analysis, *Journal of Child Psychology and Psychiatry* (2023). [DOI: 10.1111/jcpp.13901](https://doi.org/10.1111/jcpp.13901)

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