

Comparison of the ASQ and PEDS in Screening for Developmental Delay in Primary Care Settings

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ABSTRACT

Objectives: Guidelines of the AAP recommend that primary care clinicians initiate an evaluation for ADHD in any child who presents with academic/behavioral problems that may represent ADHD. However, without surveillance, many physicians may delay identification. Increasingly, clinicians are using developmental screening tests at regular intervals in children to identify developmental delays. In Canada, most physicians are familiar with the Rourke Baby Record (RBR) and the Nipissing District Developmental Screen (NDDS), while in the U.S., the Ages and Stages Questionnaire (ASQ) and Parents' Evaluation of Developmental Status (PEDS) are most commonly used. If such tools are able to identify behavioral markers of ADHD, they may aid in identifying children with ADHD at a younger age. The current study aimed to evaluate the accuracy of such tools in identifying children at-risk for ADHD.

Methods: 303 children aged 12-60 months were recruited. Parents completed 4 screening tests: the NDDS, RBR, PEDS and ASQ. Children underwent a psychological assessment including a diagnostic interview for ADHD (DSM-IV-TR) and administration of the CBCL, tests of cognition, language and adaptive behavior.

Results: 6 children (2%) were identified as having ADHD. The PEDS had moderate sensitivity for identifying children with ADHD (83%). All of the other tests had poor sensitivity for identifying ADHD: 50% for the NDDS, Rourke, and ASQ. Specificity was low to moderate in all cases: NDDS (66%), Rourke (75%), PEDS (62%), ASQ (72%).

Conclusions: This study demonstrates that with the exception of the PEDS, most developmental screening tests lack the accuracy to identify preschool children at risk for ADHD. Although it lacks specificity, the PEDS is very brief and easy to administer, and may be useful in eliciting symptoms of ADHD. For those physicians using other developmental screening tests, attention to parent concerns about academic and behavioral problems in addition to inattention, hyperactivity or impulsivity will be necessary.

INTRODUCTION

- Primary care physicians provide health care services to young children on a regular basis and may be ideally suited to identify children at risk for ADHD.
- Guidelines of the AAP recommend that primary care clinicians initiate an evaluation for ADHD in any child presenting with academic or behavioral problems.
- Many physicians routinely administer developmental screening tests to preschool children to identify developmental delays.
- In Canada the RBR and NDDS are increasingly used, and in the United States the PEDS and ASQ are most commonly used for developmental screening.
- It is currently not known to what extent such developmental screening tests might identify symptoms of ADHD in young children.
- The purpose of this study was to
 - Compare the sensitivity and specificity of the RBR, NDDS, ASQ and PEDS in identifying children at risk for ADHD in preschool children presenting for primary care.

METHODS

303 Children Aged 12-60 months (Mean = 32.4 months) Presenting for Routine Primary Care



80 Primary Care Providers :
70 Family Physicians
7 Nurse Practitioner
3 Pediatricians

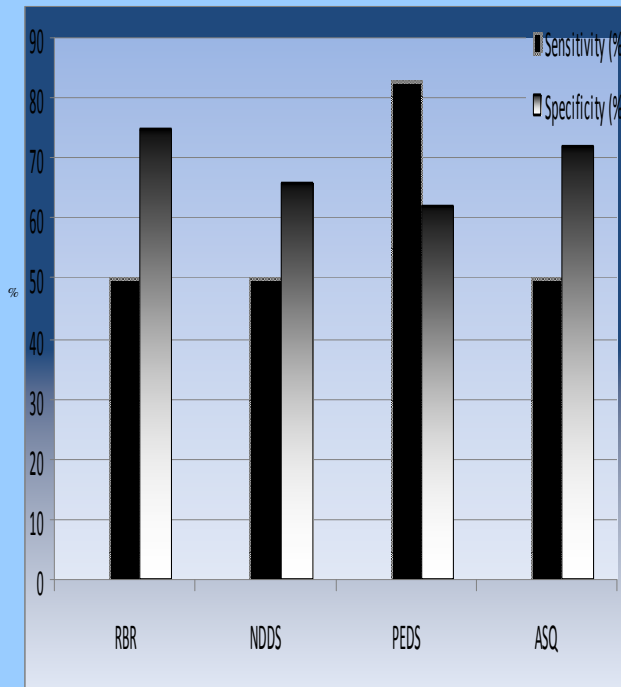


Criterion Measures:
Child Behavior Checklist (CBCL)
DSM IV-TR Interview - ADHD

Screening Tests:
ASQ
PEDS
RBR
NDDS

RESULTS

Figure 1. Sensitivity and Specificity of the RBR, NDDS, PEDS, and ASQ in Detecting Children At Risk for ADHD (N=303)*



*ADHD refers to children who met DSM IV-TR diagnostic criteria for ADHD during a structured interview by a psychologist and scored in the clinical range on the CBCL.

Table 1. Demographic Characteristics of Study Participants (N=334)

	All Children N(%)	Developmental Delay* N(%)
Total Sample	334	34
Child Age, mo		
12-18	99(27)	9(24)
19-24	57(17)	13(38)
25-36	78(22)	10(29)
≥37	122(37)	13(38)
Characteristics		
Gender		
Female	147(44)	9(27)
Race/Ethnicity (Mother)		
White	284(85)	29(85)
Black	1(<1)	0
Aboriginal	42(12/7)	5(15)
Other		0
Languages of Testing		
English	254(76)	23(68)
French	80(24)	11(32)
Maternal Education		
Less than high school	68(18)	9(27)
High school	59(18)	7(21)
More than high school	196(59)	14(41)
Annual Income		
< 15 000	42(13)	10(29)
15 000-30 000	54(16)	10(29)
30 000-60 000	73(22)	8(24)
>60 000	131(39)	4(12)
Retired	32(10)	4(12)
Community Type		
Urban Clinic	196(59)	26(74)
Rural Clinic	136(41)	9(26)

DISCUSSION

- The PEDS had moderate sensitivity (83%) but low specificity (62%) for identifying children at risk for ADHD.
- All of the other screening tests (NDDS, RBR, and ASQ) had poor sensitivity (50%).
- Although the RBR and ASQ had moderate specificity (75% and 72%, respectively), the low sensitivity of these tests negates their potential utility for screening.

CONCLUSIONS

- This study suggests that available preschool developmental screening tests do not have adequate sensitivity and specificity for screening for symptoms of ADHD.
- Although it lacks specificity, the PEDS is a very brief, simple, parent administered test that shows moderate sensitivity in screening for symptoms of ADHD.
- For those with a positive screen on the PEDS, or for those using other developmental screening tests, it is important to continue to elicit parent concerns about academic and behavioral problems and symptoms of inattention, hyperactivity or impulsivity if ADHD is a clinical concern.
- Limitations of this study include:
 - Young age of the cohort.
 - Subjects were recruited from primary care but physicians did not administer/score screening tests.
 - Small sample of children with clinically significant ADHD symptoms.