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Early exposure to storybooks in the home: Validation of title/author checklist measures in a sample of children at elevated risk of reading difficulty

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Measures: Child Title Checklist and Child Author Checklist
Participants: 220 4-year-old children from the north of England and their primary caregivers.

Title/author checklists are a reliable and valid method of measuring young children's exposure to storybooks. Early storybook exposure is robustly associated with concurrent oral language; a correlation between storybook exposure and concurrent pre-literacy skills was observed for typically developing children, but not for children at elevated risk of reading difficulty.

READING storybooks with young children is commonly advocated to parents as a means to boost both cognitive and socio-emotional development (Anderson et al., 1985; Bookstart, 2014). Indeed, there is a growing research literature to suggest that children who are exposed to more children's literature before starting school show advantages in oral language ability (Farrant & Zubrich, 2013), reading comprehension (de Jong & Leseman, 2001) and motivation to engage with print independently (Baker et al., 2001) as they get older.

Research objectives

Measuring early storybook exposure in the home presents challenges, since parental report methods are vulnerable to social desirability bias and have shown poor reliability (Hamilton, 2013; Sénéchal et al., 1996). Title/author checklists represent an alternative method of measuring children's storybook exposure (Stanovich & West, 1989). Parents are presented with a list of titles and/or authors of children's storybooks, intermixed with plausible foils, and asked to tick those which they recognise. Checklists are scored by subtracting the number of foils checked from the number of targets checked, in order to correct for guessing. The current study evaluates reliability and validity of two such checklists.

Methodology

Participants were 220 children and their caregivers, who were participating in the Wellcome Language and Reading Project, a prospective family-risk study of dyslexia (see Nash et al., 2013, for a full description of this study). Of these children, 87 were at family-risk of dyslexia via an affected first-degree relative (FR); 32 were classified as having a specific language impairment (SLI); 29 had both a family-risk of dyslexia and a language impairment (FR-SLI), and 72 were typically developing, with no known risk of reading difficulty (TD). For the current analyses, data from the children in the SLI and FR-SLI

groups were combined; analyses are therefore presented for three groups of children (FR, SLI (including FR-SLI) and TD).

Storybook exposure was measured when children were 4 years old, using two checklist tools designed for the study. The Child Title Checklist (CTC) contained 30 titles of storybooks aimed at 4–5-year-old children (e.g. *Guess How Much I Love You*), collated through interviews with children's librarians, teachers, parents and inspection of current bestseller lists, interspersed with 30 plausible foils (e.g. *Letty Spaghetti*). Titles that had been televised or filmed were not included. The Child Author Checklist (CAC) comprised 40 names of authors of fiction for young children (e.g. Julia Donaldson) and 40 foils.

Checklist scores were analysed in relation to children's skills at the same age. Composite scores were formed for three constructs (receptive language, phoneme awareness and letter knowledge) by age-regressing raw scores on individual tests, then calculating the mean of the resultant z-scores. Receptive language was operationalised as a composite of two standardised measures (ROWPVT, Brownell, 2002; and CELF-P Sentence Structure, Wiig et al., 2006). A composite measure of phoneme awareness comprised alliteration matching and phoneme identification task scores (Carroll & Snowling, 2001). Finally, letter knowledge was assessed using a standardised test of letter-sound knowledge (YARC-Primary, Hulme et al., 2010) and a bespoke letter writing task.

Analysis

Descriptive statistics and tests of difference for the two checklist measures in the three groups are presented in Table 1. One-way ANOVAs indicated significant group differences on both measures. Post-hoc Bonferroni tests showed that the TD group mean was significantly higher than the FR and SLI means on the CTC. For the CAC data, the mean score was significantly higher in the TD group than the FR group, which was in turn significantly higher than the SLI group.

	FR (N = 87)	SLI (N = 61)	TD (N = 72)	F	p
CTC[1]	11.67 (6.82)	10.07 (6.08)	15.26 (6.77)	11.05	<.001
CAC[2]	11.39 (8.35)	8.02 (6.97)	15.15 (9.37)	12.14	<.001

Note: [1]Max = 30; [2]Max = 40

Table 1: Means (standard deviations) and ANOVA results for the checklists in the family-risk, language-impaired and typically developing groups

Four-week test-retest reliability of the checklists was assessed using data from 15 mothers of preschool children who were not participating in the Wellcome project. Reliability was excellent for the CTC (r = .84), and CAC (r = .98). Internal consistency, assessed using the full Wellcome sample, was also high (CTC: Cronbach's α = .85; CAC: α = .91). The two checklists were well inter-correlated (r = .79, p <.001). As a further test of concurrent validity, caregivers were asked how many times they read storybooks with their child in a typical week. This frequency measure was positively and significantly correlated with the CTC (r = .35, p <.001) and CAC (r = .40, p <.001).

In order to investigate construct validity, a composite score of storybook exposure

was calculated (being the mean z-scores of the CTC and CAC measures). Previous research has found early storybook exposure to be related to oral language and later reading comprehension, but no association with other predictors of reading, such as phoneme awareness and print knowledge (Sénéchal & LeFevre, 2002). Convergent and divergent validity were therefore assessed by correlating the checklist measures with children's language and pre-literacy skills at age 4 (Table 2). Storybook exposure is significantly associated with concurrent oral language ability in the FR and TD groups, but the relationship is attenuated in the SLI group. Storybook exposure is also significantly correlated with phoneme awareness and letter knowledge in the TD group only.

Construct correlated with checklists	FR (*N* = 87)	SLI (*N* = 61)	TD (*N* = 72)
Receptive Language	.32**	.23	.36**
Phoneme Awareness	.14	.00	.37***
Letter Knowledge	-.07	-.03	.24**

Note: **p <.01; ***p <.001

Table 2: Coefficients (Pearsons's *r*) for correlations between storybook exposure and concurrent language and pre-literacy skills

Discussion

This study aimed to assess the reliability and validity of two checklist measures tapping storybook exposure in the home in a sample of 4-year-old children. The checklists were found to have good reliability and concurrent validity. The current study supported previous research in finding a correlation between early storybook exposure in the home and oral language skills, although this was attenuated for language-impaired children. A new finding was that storybook exposure was also associated with phoneme awareness and letter knowledge in the typically developing group. However, no such relationship was observed for children at family-risk of dyslexia or language-impaired children. It is suggested that, once children have grasped the alphabetic principle, benefit to phonological skills and print knowledge may be derived implicitly through exposure to storybooks, which are typically rich in rhyming and alliterative material, and often present print saliently on the page. However, where children's phonological processing and/or oral language skills are impaired, as in the FR and SLI groups in the current study, this implicit learning may be delayed or absent. In conclusion, checklist tools represent a reliable and valid method of measuring storybook exposure in the home, and are quick and easy to administer. The next stage in the study is to evaluate the predictive validity of these measures in a longitudinal analysis of children's independent engagement with print, language and reading ability as they progress through primary school.

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Conflict of interest

The current research was funded by the Wellcome Trust. No conflict of interest is declared.

■ *A full version of this article, including the Child Title Checklist (CTC) and the Child Author Checklist (CAT), can be found on the homepage of the PTC website at www.psychtesting.org.uk.*