

How does family literacy support children's reading development? Insights from low-literacy communities in rural Côte d'Ivoire

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INTRODUCTION

In rural Côte d'Ivoire, households may consist of immediate family (i.e. mother, father, siblings) and extended family (i.e. grandparents, aunts, uncles, cousins) and primarily speak one of 70 Ivorian languages.¹ Additionally, some households speak French, the language of literacy.

Yet, some family members in the home may not speak French, and may be illiterate (i.e. cannot read or write in French). Literacy rates are lower particularly among women versus men (adult female literacy: 40.5%, adult male literacy: 53.7%)² and in rural versus urban areas.³

In low-and-middle income countries, parent literacy (particularly maternal) has been associated with children's literacy attainment,^{4,5} but older children and extended family members frequently participate in children's literacy practices and provide reading support.^{6,7,8,9}

Examining which family member's literacy status (i.e. parents, siblings, or extended family) contributes most to children's literacy skills will help us understand how best to leverage literacy within the home to improve children's reading, closing the literacy gap within communities.

Research Question: How does the literacy status of different family members contribute to children's reading skills?

Prediction: Family members' literacy status will contribute differently to children's reading skills.

METHODS AND MATERIALS

Children (N= 3014) in 1st, 3rd, and 5th grade of primary school.

N = 1887 **N = 1731**

1. **Participant background questionnaire:** family structure, literate family members, languages spoken at home, SES (Family Socioeconomic Status - 15-item household inventory)

2. a) **French Language Assessment (EGRA)**^{10,11,12,13,14}

- Phonological awareness
- Vocabulary

b) **French Reading Assessment**^{10,13}

- Letter reading
- Word reading
- Pseudoword reading

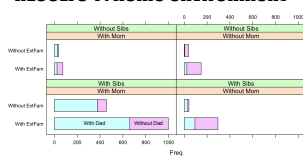
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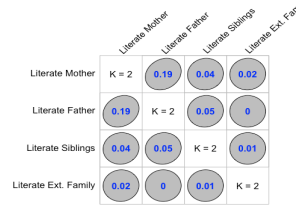
RESULTS 1: Home environment



Most children live with their mother, father, siblings, and extended family. If children do not live with their mom, they live with their dad and extended family. Overall, 59% of children reported living with their dad, 72% with extended family, 88% with siblings, and 74% with their mom.

SES

b(SE)
 Literate Mother 0.46(0.12)***
 Literate Father 0.27(0.12)*
 Literate Siblings 0.78(0.11)***
 Literate Ext. Family 0.96(0.11)***
 p<.05*, p<.01**, p<.001***
 Family literacy is associated with higher SES.



Goodman Kruskal Tau test indicates that children with literate mothers are more likely to have literate fathers.

CONCLUSIONS

Family members' literacy status contributes differently to children's reading skills. Maternal and extended family literacy are associated with better literacy skills in children. Higher SES is also associated with family literacy and with better literacy skills in children.

Results are more complex for siblings; children's literacy skills are poorer in households with more siblings. This may be due to caregivers' resources being divided among more children in the household.

Children's literacy skills are also poorer in homes with literate siblings. This negative relationship may be attributed to the greater likelihood that the child has literate siblings if there are more siblings living in the home, rather than a negative impact of sibling literacy. Additional analyses are needed to understand the role of sibling literacy more fully.

Interventions targeting mothers and extended family members in low-SES households may be effective for improving the literacy skills of all children in the home.

Acknowledgements

Funders: Jacobs Foundation Early Career Award 2015118455 (Jasińska, PI); Jacobs Foundation Science Capacity Building Grant 2015-1184 (Jasińska, PI), Jacobs Foundation Research Grant (Jasińska, co-PI).
 We thank all our participants and research assistants in the BOLD lab.

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RESULTS 2: Phonological awareness, vocabulary and reading scores

	PHONOLOGICAL AWARENESS (PA)				VOCABULARY		READING TASKS		
	Identification	Initial Deletion	Final Deletion	Segmentation	Letter	Word	Pseudoword		
n(mean, SD)	2728 (5.484, 4.12)	2726 (2.63, 3.18)	2710 (6.22, 3.54)	2728 (3.03, 3.36)	2361 (5.30, 4.64)	2821 (25.22, 21.8)	2828 (11.55, 14.64)	2824 (8.32, 12.1)	

RESULTS 3: Literacy scores and home environment

Linear Model: Language and Literacy scores = SES + Lit. Mother + Lit. Father + Lit. Siblings + Lit. Ext. Family

	PHONOLOGICAL AWARENESS (PA)				VOCABULARY				READING TASKS							
	Identification	Initial Deletion	Final Deletion	Segmentation	Letter	Word	Letter	Word	Pseudoword	Letter	Word	Pseudoword	Letter	Word	Pseudoword	
SES	0.08(0.03)	0.016*	0.09(0.03)	0.001***	0.08(0.03)	0.004**	0.06(0.03)	0.035*	0.14(0.04)	<.001***	0.46(0.18)	0.013*	0.33(2.72)	0.007**	0.22(0.10)	0.033*
Lit. Mother	-0.06(0.19)	0.754	0.29(0.15)	0.048*	0.12(0.16)	0.505	0.10(0.16)	0.533	-0.06(0.22)	0.77	1.53(1.04)	0.139	1.79(0.69)	0.010**	1.46(0.57)	0.011*
Lit. Father	0.17(0.19)	0.384	0.24(0.15)	0.107	-0.12(0.16)	0.468	0.23(0.16)	0.153	0.39(0.22)	0.068	-0.79(1.03)	0.440	0.22(0.68)	0.744	0.13(0.57)	0.823
Lit Sibling	0.04(0.19)	0.811	-0.30(0.14)	0.037*	0.05(0.16)	0.732	0.001(0.15)	0.992	-0.12(0.21)	0.556	-1.12(1.00)	0.265	-1.27(0.67)	0.057	-0.83(0.55)	0.132

Lit Ext

Literate mothers and extended family members have a significant impact on children's initial phoneme deletion and word reading scores, and initial phoneme identification, final phoneme deletion, and letter reading scores, respectively. Literate fathers show a marginal impact on children's vocabulary scores. Literate siblings show a negative relationship with children's final phoneme deletion and word reading scores.

Linear Model: Literacy scores = SES + Lives w Mother + Lives w Father + Lives w No. of Siblings + Lives with Ext. Family

	Letter		Word		Pseudoword		Letter		Word		Pseudo word		
	b(SE)	p	b(SE)	p	b(SE)	p	b(SE)	p	b(SE)	p	b(SE)	p	
SES	1.73 (0.23)	0.082 .	3.15 (0.16)	0.001 **	2.81 (0.12)	0.004 **	<i>Live with Sibling</i>	-2.51 (0.23)	0.012 *	-3.60 (0.15)	0.0003 ***	-3.08 (0.12)	0.002 **
Live with Mother	0.48(1.183)	0.06259	1.65 (1.22)	0.098 .	1.66 (0.98)	0.096 .	<i>Live with Ext. Family</i>	1.39 (1.52)	0.163	0.53 (1.02)	0.593	0.84 (0.82)	0.401
Live with Father	0.24 (1.47)	0.806	0.71 (0.98)	0.476	0.69 (0.78)	0.4894							

Model shows a minor influence of the mother's presence in the family environment, and a major impact of SES. But, the number of siblings is negatively associated with children's language and literacy skills. So the more siblings that a child had, the poorer their reading skills are.