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Home Literacy Environment and Interventions for Children With Intellectual and Developmental Disabilities: A Scoping Review

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ABSTRACT

Purpose: The aim of this scoping review was to map the research literature published in English and in peer-reviewed journals related to the home literacy environment of children and youth aged 3–21 years with intellectual and developmental disabilities (IDD) who have significant support needs, including children with complex communication needs.
Method: A systematic search was conducted in four databases, along with forward and backward searching. The search yielded 60 studies, which included intervention and nonintervention studies. Data were charted related to participant characteristics, study focus, intervention components, study design and methodological rigor, and study results.
Results: Findings provided insight into multiple dimensions of the home literacy environment for children with IDD, including the nature of parent views, practices, and interaction styles during shared reading. Findings also revealed gaps in the literature, specifically related to (a) limited representation of subgroups of children and youth with IDD, (b) limited representation of diverse families and caregivers, and (c) concerns about methodological quality.
Conclusion: This review identifies important directions for future research and suggests ways to improve the design and delivery of home literacy interventions for children and youth with IDD and their families, including through family-centered and culturally responsive models.
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The focus of this scoping review is to understand the nature of available research literature on the home literacy experiences of children and youth with intellectual and developmental disabilities (IDD) who have significant support needs (i.e., children and youth with intellectual disability, autism, and multiple disabilities who need ongoing and extensive supports across domains; Schalock et al., 2019; Thompson et al., 2009). Such a review is important for several reasons. Literacy provides a means of communication, improves access to the general education curriculum, supports independent living and self-determination, and improves opportunities for employment (Copeland & Keefe, 2018). Yet, literacy outcomes for children and youth with IDD are concerning. Towles-Reeves et al. (2009) found only 2% of students with IDD who had significant support needs, based on their eligibility for alternate assessment on alternate achievement standards, could read passages with critical understanding; only about 20% could read with basic or literal understanding from brief passages. These disappointing outcomes are likely an artifact of limited opportunity to learn, not capability—especially because evidence is clear that children with IDD can gain meaningful literacy skills with strong instruction (Allor et al., 2014; Reichow et al., 2019). However, children and youth with IDD have often been denied access to comprehensive literacy instruction because of low expectations and continuing emphasis on

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prerequisites or “reading readiness” (Copeland & Keefe, 2018; Ruppar, 2017). Thus, it is critically important to understand what experiences promote stronger literacy outcomes for children and youth with IDD, including with their parents and caregivers at home.

Within the larger group of children and youth with IDD, there is also a subgroup that have complex communication needs and utilize augmentative and alternative communication (AAC), such as gestures, manual signs, picture symbols, or speech-generating devices. Definitions for having complex communication needs vary, but the term generally refers to children who are entirely or mostly nonspeaking, including the approximately 30% of children with autism who are considered to be “minimally verbal,” as well as many children with other neurodevelopmental disabilities (Beukelman & Light, 2020; Rose et al., 2016; Tager-Flusberg & Kasari, 2013). This is a heterogeneous group of students because children with complex communication needs vary in their use of speech for communication, including related to frequency of communication, intelligibility, receptive and expressive language skills (e.g., vocabulary, syntax), pragmatic functions, and social interaction styles. Yet, even with all of this variability, children with complex communication needs are at an even higher risk for poor literacy outcomes than other children with IDD. As many as 90% of students who have complex communication needs and use AAC are estimated to enter adulthood without basic functional literacy skills (Foley & Wolter, 2010). Thus, we were interested in understanding the nature of the literature on home literacy for the broader population of children and youth with IDD, but we had a special interest in understanding what was known about home literacy for children and youth with complex communication needs.

Literacy Development

Acquiring literacy is a complex process that requires the integration of many different skills in two main areas or strands: (a) the “code” of reading (i.e., print) and (b) language comprehension. These two strands are emphasized in models of skilled reading, such as Gough and Tunmer’s (1986) “simple view of reading,” which depicted reading comprehension as being equal to the product of decoding and linguistic comprehension. Scarborough (2001) built on this model through the analogy of two “strands” of a single reading rope, in which each strand is made up of multiple skills. In Scarborough’s model, the word recognition strand involves phonological awareness, decoding, and automatic (sight) word recognition. The second strand of language comprehension involves background knowledge, language structures, vocabulary, verbal reasoning, and literacy knowledge.

Models of literacy also emphasize a developmental continuum in which literacy learning begins at birth (Erickson, 2017). The term *emergent literacy* describes all of the understandings, behaviors, and experiences of children that precede and lead up to learning to read and write conventionally (Erickson, 2017; Rohde, 2015). Emergent literacy includes skills related to both strands of reading: the reading “code” (print) and the understanding and use of language. For instance, key emergent literacy skills include concepts of print, alphabetic knowledge, phonological awareness, vocabulary, and language comprehension (Shanahan & Lonigan, 2010). As children move from emergent literacy into conventional literacy, they increasingly bring together their understandings of language and print for skilled reading. Developmental models of emergent literacy provide important considerations for literacy instruction for children and youth with IDD because they emphasize that children do not reach a point where they are “ready” for reading instruction; instead, children’s literacy development is shaped by their experiences that begin from birth (Hutton et al., 2021; Rohde, 2015). Skills for reading, writing, speaking (expression), and listening develop simultaneously in interconnected ways, from infancy through the school years (Erickson, 2017; Rohde, 2015), guided by instruction and experiences across the domains of literacy–namely, phonemic awareness, phonics, fluency, vocabulary, text comprehension, and writing (Allor et al., 2014; Hutton et al., 2021).

The Home Literacy Environment

The home literacy environment is a multifaceted construct that includes all of children’s literacy-related resources, experiences, and supports at home, including the ways in which children engage in literacy activities with other family members and on their own (Justice et al., 2016). Although definitions of the home literacy environment vary, components typically include (a) literacy materials in the home (e.g., number of books), (b) parents’ or other family members’ attitudes/beliefs about literacy, and (c) the frequency and nature of literacy activities. Extensive research has documented that children’s experiences within their home literacy environment shape their literacy development, including in the areas of vocabulary, print knowledge, and reading comprehension (Dong et al., 2020; Hutton et al., 2021; Roberts et al., 2005). For example, parent–child interactions during shared reading can introduce and teach a broad range of vocabulary, facilitate practice with phonological skills and print concepts, and expand children’s understanding of grammar, narrative structure, and cognitive thinking skills (e.g., making inferences, predicting, drawing connections; Boyle et al., 2019; Justice et al., 2015; Shahaeian et al., 2018).

Different forms of parent–child interactions have differential impact on the various aspects of literacy learning, particularly across the two "strands" of language and print skills (Sénéchal et al., 2017). As parents talk with their children when reading a storybook, they might focus their conversation on explaining the meaning of words, discussing what is happening in the pictures, drawing connections between the book and the child's experiences, or encouraging their child themselves to talk about the book. Conversely, other parent–child interactions might focus on print itself, such as if a parent points out specific letters and their sounds or explains how letters make up words. In their 5-year longitudinal study, Sénéchal and LeFevre (2002) found that children learn differently as a function of their parents' different interactions, particularly whether or not the parent focuses on print itself. Whereas storybook reading more generally was associated with growth in children's receptive language skills, only parent teaching (talking) about print was associated with growth in print-related skills such as alphabet knowledge or word reading (Sénéchal & LeFevre, 2002). This and other research led to the development of the home literacy model, in which Sénéchal and colleagues emphasized that home literacy activities should be distinguished by how much focus there is on print (Sénéchal et al., 2017). In the home literacy model, "code-related" activities are those where parents clearly focus on the features of print (e.g., letters, their use, their combinations, and attempts to read and print words). In contrast, "meaning-related" or language activities are focused on the meaning carried by the print, rather than the print itself.

Purpose of This Review

The purpose of this scoping review was to characterize the body of literature related to the home literacy environment for children and youth with IDD who had significant support needs. Among other things, we were interested in examining the extent to which research has focused on both strands of reading and their corresponding components of the home literacy model (i.e., both code-related and language-related activities). Scoping reviews focus on giving a "lay of the land" with regard to the breadth, depth, and nature of research activity within a particular area (Arksey & O'Malley, 2005). Unlike systematic reviews and meta-analyses, scoping reviews are concerned with mapping the literature rather than assessing study quality and intervention efficacy. They serve critical roles in informing future research and practice by describing the available literature and highlighting critical gaps.

Our review was guided by the following research question: What is known about the home literacy environment for preschool and school-age children and youth with IDD who have significant support needs? Six specific objectives guided data charting, analysis, and synthesis: (a) identify which aspects of the home literacy environment have been studied and the gaps that exist, (b) describe characteristics of the home literacy environment, (c) identify factors associated with children's home literacy environments, (d) identify aspects of the home literacy environment associated with stronger outcomes, (e) describe the components and characteristics of home literacy interventions, and (f) summarize outcomes of home literacy-related interventions.

Method

This review utilized the methods for conducting scoping reviews articulated by Arksey and O'Malley (2005) and further refined by Daudt et al. (2013) and Levac et al. (2010), which comprised five steps as follows: (a) identifying the research question, (b) developing a search plan to locate studies, (c) screening and selecting studies, (d) charting the data (i.e., extracting data from each study), and (e) collating and summarizing reports, focused on providing an overview of the breadth of the literature. Attention was also given to address quality indicators from the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews (Tricco et al., 2018).

Inclusion Criteria

We included studies meeting four criteria. Studies had to (a) be published in English in a peer-reviewed journal between 2000 and 2022; (b) be empirical, which included the systematic collection of qualitative or quantitative data (i.e., excluding reviews and conceptual papers); (c) address the home literacy environment or a home literacy intervention; and (d) include (at least some) participants aged 3–21 years with IDD who had significant support needs. Although seminal work on the home literacy environment was published prior to 2000, we chose to limit our review to literature after 2000, both to give attention to more recent literature and out of a recognition that family structures and dynamics have changed over time. For the purpose of the review, children with IDD included children with autism, intellectual disability, specific genetic syndromes (e.g., Down syndrome, Rett syndrome), or moderate to severe global developmental delay. We focused on children with disabilities who had significant support needs (i.e., requiring ongoing and extensive supports to participate in activities of daily living; Thompson et al., 2009), so we did not include every study that involved children with autism. We operationalized having significant support needs by excluding studies focused exclusively on children with autism who were described as “high functioning” or without global delay (e.g., IQ above 70, no report of co-occurring cognitive impairment/intellectual disability or need for extensive supports across domains). We defined the home literacy environment as encompassing (a) literacy activities involving children and their parents/family members, (b) literacy resources in the home, and/or (c) parental attitudes or beliefs about literacy at home, excluding studies focused on parent views about literacy at school (i.e., Wakeman et al., 2021). We defined home literacy interventions as those that (a) involved family members and the child; (b) took place, at least in part, in the home; (c) focused on literacy activities; and (d) targeted child literacy outcomes and/or parent outcomes related to home literacy. We excluded studies that focused primarily or exclusively on computer-aided literacy instruction (e.g., Nally et al., 2021).

Search Procedures and Study Selection

We conducted our initial search in October 2020, and then we updated the search in October 2022. At both time points we systematically searched four electronic databases (i.e., Education Full Text, ERIC [Education Resources Information Center], PsychINFO, PubMed) using a string search that combined key terms describing (a) the home environment, (b) literacy, and (c) disability type (i.e., [family OR parent OR home] AND [literacy OR reading] AND [“intellectual disability” OR “intellectual disabilities” OR “developmental disability” OR “developmental disabilities” OR autism OR ASD OR “severe disabilities” OR “developmental delay” OR “Down syndrome” OR “cerebral palsy” OR “mental retardation” OR “augmentative and alternative communication” OR “augmentative communication” OR “speech-generating device” OR “complex communication needs” OR “complex support needs” OR “significant support needs” OR “significant disabilities” OR “multiple disabilities” OR “moderate disabilities” OR “Rett syndrome”]). We also conducted ancestral and forward searches.

Figure 1 displays a flow diagram of the search and screening process. For both the initial and updated search, one of three research team members (i.e., first or second author, or a trained undergraduate student) screened articles during the two rounds of screening. The first round consisted of examining the title and abstract, excluding studies when information in the abstract clearly indicated the article failed to meet one of the four inclusion criteria. The second round consisted of reading the full text of the article and screening against all inclusion criteria. Forty-five articles were identified during the initial search (October 2020), and 15 additional articles were identified during the updated search (October 2022), for a total of 60 included articles.

To address interrater reliability of screening decisions, the fourth author (i.e., a master’s-level graduate student) independently screened 29.1% of abstracts in the first round (n = 460) and 69.0% of full-text articles in the second round (n = 89), taken from across the two search time points. We calculated interrater reliability by taking the number of agreements divided by the number of agreements plus disagreements, multiplied by 100. We also calculated Cohen’s kappa as a secondary indicator of agreement, given that it takes into account chance responding. There was high agreement between screeners, with 99.1% agreement in the first round of screening (κ = .94) and 95.5% in the second round (κ = .91). We resolved disagreements through discussion and consensus when disagreements arose.

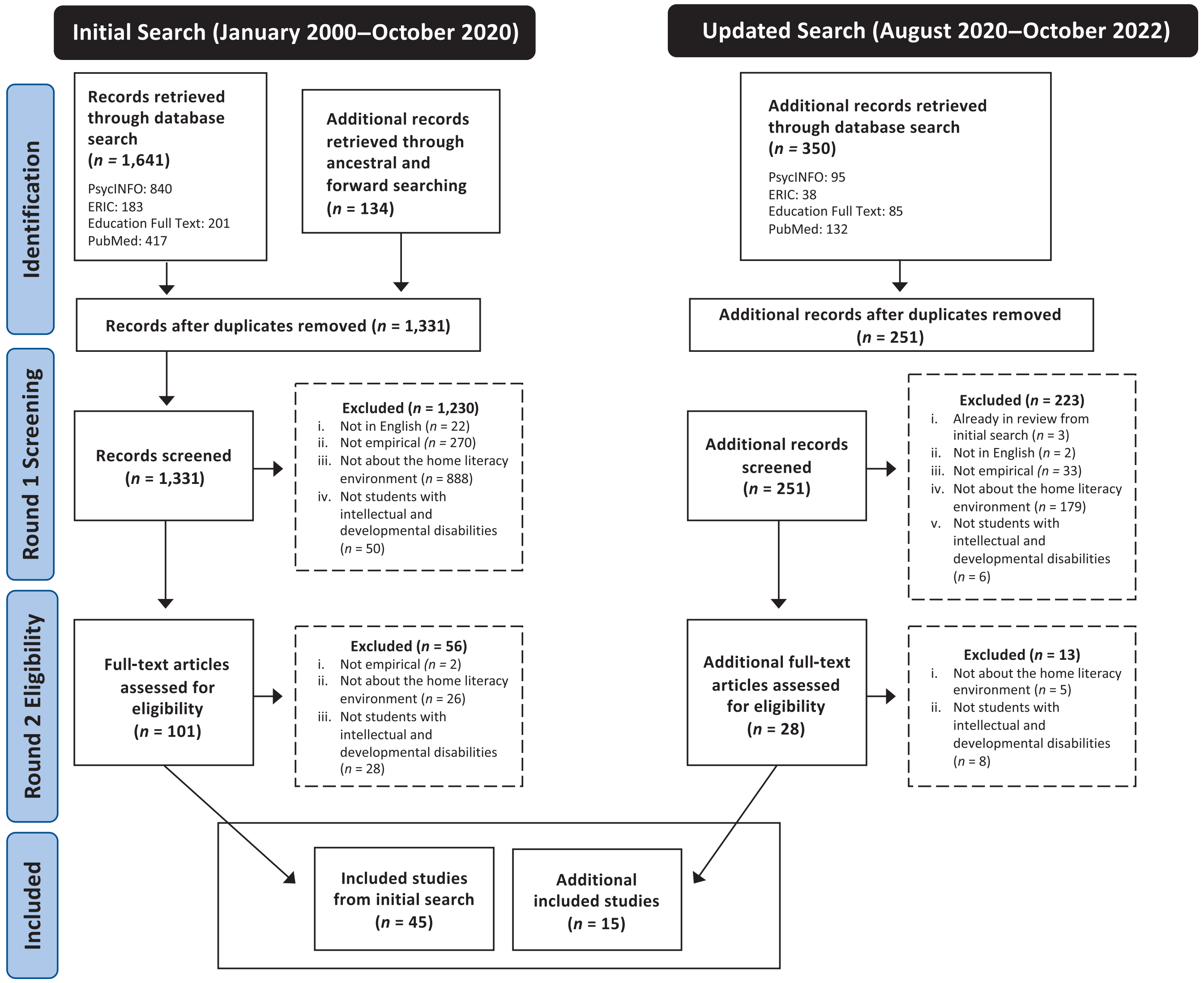
Charting the Data

The research team collaboratively and iteratively developed two electronic data charting forms using REDCap (Harris et al., 2009), in accordance with scoping review methodology (Levac et al., 2010). One data charting form was for intervention studies and the second for nonintervention studies, and each involved two sections: (a) descriptive information about each study (e.g., participant characteristics, intervention components) and (b) information about the study method and results. Data charting forms are available on Open Science Framework (https://osf.io/bau3d/?view_only=12c159065681472484ca9f1edd437414). To develop the data charting forms, team members iteratively reviewed and coded data from a subset of studies to generate a comprehensive list of variables for data charting and the potential response items for each. As more studies were reviewed, new variables and response items were identified and then either added or combined with existing items. This process was repeated until each data charting form was considered to be finalized (i.e., no new variables or response items were generated by the team). Once forms were finalized, data were then charted for all included studies.

Descriptive Variables

Data were charted for all studies related to the country where the research was conducted and related to participants, including (a) the number of participants who were children with IDD, (b) inclusion criteria, (c) grade/school level, (d) age, (e) disability diagnosis or label, and (f) child communication method, including AAC use and type. Data were also charted related to (a) the number of participants who were parents/caregivers and their role (e.g., mothers, fathers), (b) home language, (c) socioeconomic status, (d) race/ethnicity, (e) number of people in the household, (f) marital status, (g) employment, and (h) education level.

Figure 1. Flow diagram for the search and screening process. ERIC = Education Resources Information Center.



To examine intervention components, data were extracted related to the types of books used and the specific strategies taught to parents/family members across three categories: (a) language-focused strategies, (b) "code-related" strategies, and (c) strategies to support child engagement and behavior. Data were also charted related to the format of researchers' interactions with parents or caregivers (i.e., in person or telepractice; group or individual) and the approaches used (e.g., training, coaching).

Method/Results Variables

Although scoping reviews are not primarily concerned with methodological rigor, we wanted to include a simple critical appraisal of each study. Intervention studies were first categorized as being (a) experimental single-case design, (b) experimental group design, or (c) quasi-experimental or nonexperimental (and their specific design). Four yes/no questions were then used for the critical appraisal of intervention studies: (a) Does the study have a sound experimental design and internal validity? (i.e., the researcher systematically controls and manipulates the independent variable; conditions are adequately described; assignment to groups is clearly described and appropriate; single-case designs have an adequate number of opportunities for demonstration and data points in each phase); (b) Was the intervention implemented with fidelity (i.e., fidelity reported in at least 20% of intervention sessions across units of analysis; level of fidelity is adequate across participants); (c) Were outcome measures applied appropriately (i.e., dependent variables clearly described; evidence of adequate reliability); (d) Was data analysis conducted appropriately (i.e., statistical analyses are appropriate for group designs; a single-subject graph clearly represents all data to allow for visual analysis). Studies were determined to meet a minimum threshold for quality if the answer to each question was charted as "yes."

For nonintervention studies, data were charted as to whether the study was cross-sectional or longitudinal and qualitative and/or quantitative. Research questions were marked as being (a) descriptive, (b) comparative, or (c) correlational, with many studies addressing combinations of these types of research questions. Given the diversity of methodologies, one overarching question was used for the critical appraisal of quality: Are there any critical limitations to the study that significantly limit confidence about the findings? We defined critical limitations as being concerns limiting confidence in findings that could be related to sampling, reporting, reliability and validity of quantitative measures, trustworthiness of qualitative data and analysis, and appropriateness of data analysis. Coders indicated "yes" or "no" depending on whether they identified any critical concerns in the listed areas. A study was considered to meet a minimum threshold for quality if it was marked as having "no" critical limitations.

Finally, data were charted related to the results of each study. For nonintervention studies, coders marked any/all aspects of home literacy that were addressed (e.g., home literacy practices, language-focused or code-focused strategies) and, then, the data charting form included space for the researcher to summarize the key findings across each research question. For intervention studies, coders marked whether studies addressed different parent outcomes (e.g., use of language-focused or code-focused strategies) and/or child outcomes (e.g., expressive language, concepts of print). The data charting form then included space for the researcher to summarize the key findings for each parent or child dependent variable.

Interrater Reliability

To address reliability, a second research team member charted data for 25 nonintervention studies (71.4%) and 15 intervention studies (60.0%). The number of studies used for reliability calculations varied across the two types of studies because different numbers of studies were needed to finalize the data charting forms, and we wanted to calculate independent interrater reliability on studies not used to develop the data charting forms. Although kappa is a useful way of calculating interrater reliability that accounts for chance in categorical variables, our data charting system included both categorical and open-ended variables (e.g., report a number, listing a critical methodological concern). Therefore, we selected point-by-point agreement as the most appropriate reliability calculation. We calculated point-by-point agreement for each variable by taking the number of exact agreements divided by the number of agreements plus disagreements, multiplied by 100. An exact agreement for an open-ended variable needed to contain the same key information but did not need to be word for word. Overall interrater agreement was 94.1%, which broke down as 98.8% for descriptive variables (range: 86.7%–100.0%) and 91.1% (range: 80.0%–100.0%) for method-related variables for intervention studies, and 94.1% (range: 80.0%–100.0%) for descriptive variables and 92.4% (range: 80.0%–100.0%) for method-related variables for nonintervention studies.

Results

Overview of the Literature

The 60 studies were published between 2001 and 2022, with increasing publishing patterns over time; 41.7% of studies (*n* = 25) were published in the 5-year period from 2018 to 2022. Most studies were from the United States (*n* = 37, 61.7%). Most were nonintervention studies (*n* = 35; see Table 1), and 25 were intervention studies (see Table 2).

Study Design

The majority (85.7%) of the 35 nonintervention studies were cross-sectional; only five were longitudinal (see Table 1). Most answered multiple research questions, with 23 (65.7%) addressing descriptive questions, 19 (54.3%) comparative questions, and 22 (62.9%) correlational questions. Only three studies involved qualitative analysis; Lusby and Heinz (2020) and Ricci and Osipova (2012) qualitatively analyzed responses to open-ended survey questions, and Walker et al. (2022) conducted focus groups. Seven of the nonintervention studies (20.0%) were flagged as having significant methodological concerns (see Table 1), which included concerns with interobserver reliability (Morwane et al., 2019; Westerveld et al., 2020), data collection/analysis (Ricci & Osipova, 2012, Westerveld & van Bysterveldt, 2017), reporting of participants (Daniels et al., 2022), sampling/sample size (Van Heerden & Kritzinger, 2008), and lack of integration between qualitative and quantitative components in a mixed-method design (Walker et al., 2022).

Within the 25 intervention studies, more than one third (*n* = 9, 36.0%) were quasi-experimental or nonexperimental designs. Of experimental designs, 12 were single-case designs (48.0%), three were randomized controlled trials (Justice et al., 2015; Lo & Shum, 2021; Westerveld et al., 2021), and one was a within-subjects design (Burgoyne & Cain, 2022). However, only eight intervention studies met

Table 1. Overview of nonintervention studies included in the scoping review.

Study	Topics							Participants			Data collection				Quality appraisal	Research questions
	Country	Literacy materials	Literacy activities	Language strategies	Code strategies	Parent views	Child interest/ skills	Child participation	*n*	Participant description	Design	Questionnaires	Direct assessments	Observations	Focus groups	
Al Otaiba et al., 2009	USA	✓	✓			✓	✓		107	Parents of children with DS (3–6 years)	CS	✓				Meets	DES
Barton-Hulsey et al., 2020	USA			✓	✓			✓	22^a	Mothers of children with DS (2–5 years)	CS		✓	✓		Meets	COMP, CORR
Breit-Smith et al., 2010	USA		✓				✓		478^a	Parents of children with disabilities (3–6 years)	CS	✓				Meets	COMP
Butz et al., 2009	USA	✓	✓						204^a	Parents of children with disabilities (1–12 years)	CS	✓				Meets	DES, COMP, CORR
Carlson et al., 2012	USA		✓						3104	Parents of children with disabilities (3–5 years)	L	✓				Meets	DES, COMP, CORR
Daniels et al., 2022	USA	✓	✓			✓	✓	✓	209	Parents of children with DS (age NR)	CS	✓				No	DES, COMP
Dynia et al., 2014	USA		✓		✓	✓	✓		70^a	Parents of children with ASD (3–6 years)	CS	✓	✓			Meets	DES, COMP, CORR
Fleury & Hugh, 2018	USA			✓	✓			✓	37^a	Parents of children with ASD (3–6 years)	CS		✓	✓		Meets	DES, COMP, CORR
Hilvert et al., 2021	USA			✓				✓	22^a	Mothers of children with DS (2–5 years)	CS		✓	✓		Meets	DES, COMP, CORR
Hilvert et al., 2022	USA			✓				✓	15	Mothers and fathers of children with DS (2–5 years)	CS		✓	✓		Meets	DES, COMP, CORR
Justice et al., 2016	USA		✓		✓		✓		692	Parents of children with disabilities (3–6 years)	CS	✓				Meets	COMP, CORR

(*table continues*)

Table 1. *(Continued).*

Study	Topics								Participants			Data collection				Quality appraisal	Research questions
	Country	Literacy materials	Literacy activities	Language strategies	Code strategies	Parent views	Child interest/ skills	Child participation	*n*	Participant description	Design	Questionnaires	Direct assessments	Observations	Focus groups		
Kaderavek et al., 2014	USA			✓	✓			✓	16	Parents of children with LI (3–5 years)	CS		✓	✓		Meets	DES, COMP
Lanter et al., 2012	USA	✓	✓	✓	✓	✓	✓	✓	41	Parents of children with ASD (4–8 years)	CS		✓			Meets	DES, COMP
Lanter et al., 2013	USA	✓	✓			✓	✓		32[a]	Parents of children with ASD (4–8 years)	CS		✓			Meets	DES, COMP
Logan et al., 2019	USA		✓						695	Parents of children with disabilities (*M* = 4 years)	L	✓				Meets	DES, CORR
Lusby & Heinz, 2020	IE		✓	✓	✓	✓		✓	191	Parents of children with DS (1–6 years)	CS	✓				Meets	DES, COMP, CORR
Morwane et al., 2019	ZA	✓	✓	✓				✓	12	Parents of children with CP (3–7 years)	CS	✓		✓		No	DES
Næss et al., 2021	NO		✓				✓		43[a]	Parents of children with DS (5–6 years)	L	✓	✓			Meets	COMP, CORR
Peeters, Verhoeven, van Balkom, et al., 2009	NL	✓	✓	✓	✓	✓	✓	✓	40[a]	Parents of children with CP (*M* = 6 years)	CS	✓	✓			Meets	COMP, CORR
Peeters, Verhoeven, de Moor, et al., 2009	NL	✓	✓	✓	✓	✓	✓	✓	35	Parents of children with CP (*M* = 6 years)	L	✓	✓			Meets	CORR
Ranzato et al., 2021	UK		✓			✓	✓		59[b]	Parents of children with DS and WS (4–11 years)	CS	✓				Meets	DES, COMP, CORR
Ricci, 2011a	USA		✓	✓	✓		✓		31	Parents of children with DS (7–13 years)	CS	✓	✓			Meets	CORR

(*table continues*)

Table 1. *(Continued).*

Study	Topics								Participants			Data collection				Quality appraisal	Research questions
	Country	Literacy materials	Literacy activities	Language strategies	Code strategies	Parent views	Child interest/ skills	Child participation	*n*	Participant description	Design	Questionnaires	Direct assessments	Observations	Focus groups		
Ricci, 2011b	USA	✓	✓	✓	✓		✓		38[a]	Parents of children with DS (3–13 years)	CS	✓	✓			Meets	COMP
Ricci & Osipova, 2012	USA	✓	✓			✓	✓	✓	50	Parents of children with DS (3–13 years)	CS	✓				No	DES
Sawyer et al., 2014	USA		✓		✓		✓		119	Parents of children with LI (4–6 years)	CS	✓	✓			Meets	CORR
Skotko et al., 2004	USA		✓	✓	✓			✓	4	Parents of children with RS (4–7 years)	L			✓		Meets	CORR
Trenholm & Mirenda, 2006	CA	✓	✓	✓	✓	✓	✓		224	Parents of children with DS (birth to 19 years)	CS	✓				Meets	DES
van Bysterveldt et al., 2010b	NZ	✓	✓	✓		✓	✓		85	Parents of children with DS (5–15 years)	CS	✓				Meets	DES
Van Heerden & Kritzinger, 2008	ZA	✓	✓	✓	✓	✓			15	Parents of children with DS (2–5 years)	CS	✓				No	DES
Walker et al., 2022	UK		✓			✓	✓		63	Parents of children with ASD and ID (3–11 years)	CS	✓			✓	No	DES
Wang et al., 2022	CN		✓	✓		✓	✓		381	Parents of children with ID (6–15 years)	CS	✓				Meets	CORR
Westerveld & van Bysterveldt, 2017	AU	✓	✓	✓	✓		✓		111[b]	Parents of children with ASD and DS (3–5 years)	CS	✓	✓			No	COMP, CORR

(*table continues*)

Table 1. *(Continued).*

Study	Topics								Participants			Data collection				Quality appraisal	Research questions
	Country	Literacy materials	Literacy activities	Language strategies	Code strategies	Parent views	Child interest/ skills	Child participation	*n*	Participant description	Design	Questionnaires	Direct assessments	Observations	Focus groups		
Westerveld et al., 2017	AU		✓				✓		57	Parents of children with ASD (4–6 years)	CS	✓	✓			Meets	DES, CORR
Westerveld et al., 2020	AU			✓	✓		✓	✓	47	Parents of children with ASD (4–6 years)	CS	✓	✓	✓		No	DES, CORR
Wicks et al., 2020	AU			✓			✓	✓	40	Parents of children with ASD (3–5 years)	CS		✓	✓		Meets	DES, CORR

Note. USA = United States of America; LI = language impairment; DS = Down syndrome; CS = cross-sectional; DES = descriptive research questions; COMP = comparison research questions; CORR = correlational research questions; ASD = autism spectrum disorder; L = longitudinal; IE = Ireland; ZA = South Africa; CP = cerebral palsy; NO = Norway; NL = The Netherlands; UK = United Kingdom; WS = Williams syndrome; RS = Rett syndrome; CA = Canada; NZ = New Zealand; ID = intellectual disability; CN = China; ID = intellectual disability; AU = Australia.

[a]Comparison to groups of children who were typically developing. [b]Comparison across disability groups.

Table 2. Overview of intervention studies included in the scoping review.

						Intervention strategies implemented by parents													
				Participants		Code	Language				Engagement								
Study	**Country**	**Design**	**Quality appraisal**	***n***	**Participant description**	**Print referencing**	**Eliciting communication**	**Aided AAC strategies**	**Language input strategies**	**Respond to communication**	**Using child preferences**	**Repeated readings**	**AT or physical adaptations**	**Materials, sound effects, etc.**	**Positive behavior supports**	**Calming techniques**	**Securing joint attention**	**Primary DV**	**Child outcomes[a]**
Akamoglu & Meadan, 2019	USA	SCD	Meets	2	Mothers + children with CP and ASD (3–5 years)		✓		✓	✓								Parent	COM
Akamoglu & Tomeny, 2021	USA	SCD	No	3	Mothers + children with ASD (3–5 years)		✓		✓									Parent	COM
Benson-Goldberg & Erickson, 2021	USA	CS	No	1	Mother + child with multiple disabilities (3 years)	✓												Child	ENGAGE
Bullard et al., 2017	USA	SCD	Meets	3	Mothers + children with Fragile X (5–7 years)		✓		✓	✓								Parent	COM, LANG, ENGAGE
Burgoyne & Cain, 2022	UK	WSD	No	8	Mothers + children with DS (4–6 years)		✓											Parent + Child	COM, LANG
Cox et al., 2015	USA	TS	No	3	Parents + children with disabilities (7–13 years)		✓	✓	✓		✓	✓				✓		Child	COM
Dodge-Chin et al., 2022	USA	SCD	Meets	5	Parents + children with ASD, DS, apraxia (3–12 years)		✓	✓	✓	✓								Parent	COM
Golloher, 2018	USA	SCD	Meets	3	Parents + children with ASD (4–10 years)		✓					✓		✓				Child	ENGAGE
Justice et al., 2015	USA	RCT	No	291	Parents + children with disabilities (3–5 years)	✓												Child	PRINT
Kent-Walsh et al., 2010	USA	SCD	Meets	6	Mothers + children with DS or CP (4–8 years)		✓	✓	✓									Parent	COM, LANG

(*table continues*)

Table 2. *(Continued).*

						Intervention strategies implemented by parents													
				Participants		Code	Language				Engagement								
Study	Country	Design	Quality appraisal	*n*	Participant description	Print referencing	Eliciting communication	Aided AAC strategies	Language input strategies	Respond to communication	Using child preferences	Repeated readings	AT or physical adaptations	Materials, sound effects, etc.	Positive behavior supports	Calming techniques	Securing joint attention	Primary DV	Child outcomes[a]
Koppenhaver, Erickson, & Skotko, 2001	USA	CS	No	4	Mothers + daughters with Rett Syndrome (3–7 years)		✓	✓	✓	✓			✓					Child	COM
Koppenhaver, Erickson, Harris, et al., 2001	USA	CS	No	6	Mothers + daughters with Rett Syndrome (3–7 years)		✓	✓	✓	✓			✓					Child	COM
Lo & Shum, 2021	HK	RCT	No	31	Caregivers + children with ASD (3–6 years)		✓	✓	✓	✓							✓	Parent + Child	COMP, ENGAGE
Mathisen et al., 2009	AU	CS	No	1	Parent + child with CP (3 years)		✓	✓										Child	COM, LANG, LANG-R, SPEECH, PA, PRINT
McDuffie et al., 2016	USA	SCD	No	3	Mothers + sons with Fragile X (10–11 years)		✓			✓	✓	✓	✓	✓	✓			Parent	COM, LANG
Na & Wilkinson, 2018	USA	SCD	No	3	Parents + children with DS (5–9 years)		✓	✓	✓	✓								Parent	LANG
Pierson et al., 2021	USA	SCD	Meets	4	Parents + children with ASD and DS		✓	✓	✓	✓	✓				✓			Parent	COMP
Rosa-Lugo & Kent-Walsh, 2008	USA	SCD	No	2	Mothers + children with disabilities (6 years)		✓	✓		✓								Parent	COM, LANG
Thunberg et al., 2007	SE	CS	No	4	Parents + children with ASD (4–7 years)			✓										Child	COM, SPEECH, ENGAGE
Timpe et al., 2021	USA	SCD	Meets	3	Mothers + children with DS (3–5 years)		✓	✓	✓	✓								Parent	COM

(*table continues*)

Table 2. *(Continued).*

						Intervention strategies implemented by parents													
				Participants		Code	Language				Engagement								
Study	Country	Design	Quality appraisal	*n*	Participant description	Print referencing	Eliciting communication	Aided AAC strategies	Language input strategies	Respond to communication	Using child preferences	Repeated readings	AT or physical adaptations	Materials, sound effects, etc.	Positive behavior supports	Calming techniques	Securing joint attention	Primary DV	Child outcomes[a]
Trudeau et al., 2003	CA	CS	No	4	Mothers + children with disabilities (3–5 years)		✓	✓	✓		✓	✓		✓				Parent	COM, ENGAGE
van Bysterveldt et al., 2006	NZ	NE	No	7	Parents + children with DS (4–5 years)	✓												Child	PA, PRINT
van Bysterveldt et al., 2010a	NZ	TS	No	10	Parents + children with DS (4–5 years)	✓												Child	SPEECH, PA, PRINT
Westerveld et al., 2021	AU	RCT	No	16	Parents + children with ASD (3–5 years)		✓		✓					✓				Parent	COM, LANG
Whalon et al., 2016	USA	SCD	Meets	1	Mother + child with ASD (4 years)		✓	✓	✓	✓				✓				Child	COMP

Note. AAC = augmentative and alternative communication; AT = assistive technology; DV = dependent variable; USA = United States of America; SCD = experimental single-case design; CP = cerebral palsy; ASD = autism spectrum disorder; COM = communication; CS = case study; ENGAGE = engagement in literacy activities; LANG = expressive language; UK = United Kingdom; WSD = within-subjects group design; DS = Down syndrome; TS = quasi-experimental or nonexperimental time series design; RCT = randomized controlled trial; PRINT = concepts of print; HK = Hong Kong; AU = Australia; LANG-R = receptive language; SPEECH = speech; PA = phonological awareness; SE = Sweden; CA = Canada; NZ = New Zealand; NE = nonequivalent groups quasi-experimental.

[a] Child outcomes that were measured experimentally or descriptively (without experimental control); child outcomes were categorized as COM (e.g., communication turns, communicative functions), COMP (e.g., accuracy of answering questions about the story), ENGAGE, LANG (e.g., vocabulary, syntactic development), LANG-R, PA, PRINT (e.g., print awareness, alphabet knowledge), and SPEECH (e.g., accuracy or intelligibility of speech production).

the threshold for acceptability for methodological rigor (i.e., 68% did not meet this threshold; see Table 2). Studies published in the most recent 5 years were more likely to meet the quality indicators than older studies, and those that did not meet the quality indicators either were not experimental designs or presented concerns about internal validity (Burgoyne & Cain, 2022; Rosa-Lugo & Kent-Walsh, 2008), fidelity (Burgoyne & Cain, 2022; Justice et al., 2015; Lo & Shum, 2021; McDuffie et al., 2016; Na & Wilkinson, 2018; Westerveld et al., 2021), observational coding and reliability (Akamoglu & Tomeny, 2021; Lo & Shum, 2021), or data analysis (Na & Wilkinson, 2018).

Child Characteristics

A total of 8,634 children participated across the 60 studies. This number included many children that did not have IDD because 15 studies (25.0%) included mixed samples, such as children with IDD and children with other disabilities. Studies included children and youth who had Down syndrome (*n* = 28 studies, 46.7%), autism (*n* = 24, 40.0%), cerebral palsy (*n* = 9, 15.0%), multiple disabilities (*n* = 7, 11.7%), Fragile X syndrome (*n* = 3, 5.0%), Rett syndrome (*n* = 3, 5.0%), deaf-blindness (*n* = 3, 5.0%), William's syndrome (*n* = 3, 5.0%), traumatic brain injury (*n* = 2, 3.3%), and other intellectual disability or developmental delay (*n* = 9, 15.0%). A total of 24 studies (40%) involved children and youth who had complex communication needs, of which 16 studies involved aided AAC (e.g., picture symbols, speech-generating devices). Child age ranged from birth to 19 years old, but the majority of studies focused on preschool-age children (*n* = 50 studies, 83.3%) and/or children in lower elementary school grades (i.e., kindergarten through second grade *n* = 32 studies, 53.3%). A smaller number of studies also reported participants in upper elementary school (i.e., grades 3–5; *n* = 11 studies, 18.3%), middle school (i.e., grades 6–8; *n* = 8 studies, 13.3%), and high school (i.e., grades 9–12; *n* = 1 study, 1.7%), with many studies including children across these school levels.

Parent/Caregiver and Family Characteristics

The characteristics of parents and families were reported inconsistently, and many studies did not allow for extracting data specifically on the families of children with IDD. Therefore, information about the full samples is reported here, which sometimes includes families of children without disabilities or with other types of disabilities. A total of 8,635 caregivers or family members were reported as participants, but the role/relationship to the child was only reported for 1,976 of these (38.3%), as many were simply described as "parents" or "caregivers." Most with a reported relationship were mothers (86.8%), 9.7% were fathers, and 3.5% were other caregivers or family members (e.g., grandparents, siblings). Just over two thirds of studies (70.0%) reported caregiver level of education. The majority of caregivers were reported to have at least a high school degree, with most having also completed some college or more. Across the 29 studies (48.3%) that reported race/ethnicity, the majority of families were reported as being White and non-Hispanic or Latino. Within studies conducted in primarily English-speaking countries, 82.7% included only families whose sole home language was English. Less than half of the studies (41.7%) reported socioeconomic status, which included many different indicators (e.g., annual income, child eligibility for free or reduced-price lunch at school). Most studies from the United States reported that a majority of families were middle-income to upper-income families with annual household incomes between $45,000 and $140,000. Marital status was reported in only 14 studies (23.3%), with most caregivers described as being married or living in a two-parent household.

Nonintervention Studies

Aspects of the Home Literacy Environment Measured

Table 1 shows which aspects of the home literacy environment researchers addressed in nonintervention studies. The frequency/duration of home literacy practices, such as time reading with family members, was addressed most frequently (*n* = 28 studies, 80.0%). Additionally, many studies addressed children's print interest and/or emergent literacy skills (*n* = 23, 65.7%), parent use of language-focused teaching strategies (*n* = 20, 57.1%), code-focused teaching strategies (*n* = 17, 48.6%), parent views (*n* = 15, 42.9%), children's participation and engagement in shared book reading (*n* = 15, 42.9%), and the availability of literacy materials in the home (*n* = 14, 40.0%).

Researchers commonly used surveys or questionnaires (*n* = 26 studies, 74.3%) or direct assessment with children (*n* = 18, 51.4%). Observational measurement was used infrequently, with only nine studies coding parent–child behaviors from video samples (25.7%). Only one study used focus group interviews (Walker et al., 2022). Researchers in two studies analyzed existing national databases (Breit-Smith et al., 2010; Carlson et al., 2012). Of note, one third of nonintervention studies were described as being secondary analysis of data from a larger project or another study (*n* = 10, 28.6%).

Descriptive and Comparative Findings

Key descriptive and comparative findings from nonintervention studies are synthesized below across four areas (i.e., parent views, literacy materials and activities, parent strategies, and children's literacy skills/interest), and summaries of each study's findings are in Supplemental Material S1.

Parent views. Parents viewed literacy as an important priority, including parents of children with Down syndrome (Al Otaiba et al., 2009; Daniels et al., 2022; Ricci & Osipova, 2012; Trenholm & Mirenda, 2006; van Bysterveldt et al., 2010b; Van Heerden & Kritzinger, 2008) and autism (Dynia et al., 2014; Lanter et al., 2013; Walker et al., 2022). Although most parents viewed teaching literacy as a shared responsibility of the family and school (Lanter et al., 2012, 2013; Walker et al., 2022), Lanter et al. (2012) also found that nearly one third of parents felt it was primarily the responsibility of schools. Parents often felt uncertain about how to support their child's literacy learning. For instance, parents in the work of Peeters, Verhoeven, van Balkom, et al. (2009) reported not knowing what expectations to have for their children with cerebral palsy related to literacy, and Lanter et al. (2013) found that parents of children with autism were less confident in supporting their child's literacy development than parents of children without disabilities.

Literacy materials and activities. Many researchers reported that children's homes were filled with many different literacy materials and that most parents and their children engaged regularly in shared reading (e.g., nearly every day, for 5–10 min). Although this was consistent for studies across the United States (Al Otaiba et al., 2009; Butz et al., 2009; Carlson et al., 2012; Daniels et al., 2022; Lanter et al., 2012, 2013; Ricci & Osipova, 2012), Australia (Westerveld & van Bysterveldt, 2017; Westerveld et al., 2017), Ireland (Lusby & Heinz, 2020), Canada (Trenholm & Mirenda, 2006), and Norway (Næss et al., 2021), findings were mixed in South Africa (Morwane et al., 2019; Van Heerden & Kritzinger, 2008). Researchers did not find large differences in home literacy activities for children with and without disabilities overall (Breit-Smith et al., 2010; Butz et al., 2009; Justice et al., 2016), but there were differences when looking more specifically at children with specific characteristics, diagnoses, and support needs. For instance, Carlson et al. (2012) found preschool-age children with more severe disabilities participated significantly less in home literacy activities than children with less severe disabilities. Parents of preschool-age children with autism reported less frequent shared reading than parents of children with Down syndrome (Westerveld & van Bysterveldt, 2017) and who were typically developing (Dynia et al., 2014). Daniels et al. (2022) found that among parents of children with Down syndrome, mothers with a college degree reported significantly more min/week reading with their child than mothers without a college degree.

Parent teaching strategies and language input. Parent talk during shared reading was focused on things like labeling, talking about pictures, and asking questions or providing prompts; parents rarely made or asked about predictions, drew connections to children's own lives, provided explanations, or talked about story structure (Hilvert et al., 2021, 2022; Kaderavek et al., 2014; Trenholm & Mirenda, 2006; Westerveld et al., 2020; Wicks et al., 2020). Hilvert et al. (2021, 2022) examined contextualized talk (i.e., about the "here and now") and decontextualized talk (e.g., narratives about past and future events, explanations, pretend talk) of mothers and fathers with preschool-age children with Down syndrome, recognizing that decontextualized language plays an important role in later academic language abilities. They found that mothers of children with Down syndrome used a smaller proportion of decontextualized talk (particularly narrative and explanatory talk) than mothers of typically developing children (Hilvert et al., 2021), and that mothers' and fathers' use of contextualized and decontextualized talk looked different (Hilvert et al., 2022). Across several other studies, parents were also found to rarely use code-related strategies such as print referencing, including parents of children with Down syndrome (Barton-Hulsey et al., 2020; Lusby & Heinz, 2020), autism (Westerveld et al., 2020), cerebral palsy (Peeters, Verhoeven, van Balkom, et al., 2009), and language impairment (with or without IDD; Kaderavek et al., 2014).

Children's literacy skills, reading interest, and participation. For children with Down syndrome, researchers found that (a) parents described their children as being interested in learning to read (Daniels et al., 2022; Ricci & Osipova, 2012; Westerveld & van Bysterveldt, 2017) and that (b) children typically outperformed assumptions for literacy achievement based on age-equivalent intelligence scores (Al Otaiba et al., 2009; Næss et al., 2021; Ricci, 2011b; Trenholm & Mirenda, 2006). Findings on children with autism highlighted wide variability in children's literacy skills (Dynia et al., 2014; Walker et al., 2022; Westerveld et al., 2017) and found that variability—at least in several areas such as alphabet knowledge, print concepts, and writing—was associated with children's expressive language skills (Lanter et al., 2012). As a group, children with autism were found to have relative strengths in areas related to code-related knowledge such as alphabet knowledge and greater difficulties with meaning-related tasks such as retelling narratives (Dynia et al., 2014; Lanter et al., 2012, 2013; Westerveld et al., 2017).

Correlational Findings

Researchers examined correlates of either (a) the home literacy environment or (b) children's literacy-related skills or behaviors. Key findings are described below, and a summary from each study is included in Supplemental Material S2.

Longitudinal relations. Only five studies examined longitudinal relations, each with different research questions and populations of interest. In a large study of preschool-age children with different disabilities, Carlson et al. (2012) found that home literacy predicted receptive language and reading comprehension scores for children who were characterized as having less severe disabilities, but not children with more severe disabilities. This finding may have been impacted by the researchers' use of outcome measures without adequate sensitivity for children with more complex disabilities. Næss et al. (2021) examined predictors of expressive language for early elementary-age children with Down syndrome and compared those to children who were typically developing. They found that the frequency of shared reading at home predicted expressive language for both groups when controlling for child and other family characteristics. In a study with 35 children with cerebral palsy, Peeters, Verhoeven, de Moor, et al. (2009) found that home literacy activities in kindergarten were associated with early reading skills 1 year later, with phonological awareness as the mediator. Additionally, Logan et al. (2019) examined predictors of parent completion of a home literacy intervention for children with and without disabilities. They found parents who were most likely to drop out of the study were parents with lower levels of education and/or who had children with lower language abilities.

Concurrent relations. Five studies examined how parent and child behaviors during shared reading related to one another (Barton-Hulsey et al., 2020; Fleury & Hugh, 2018; Skotko et al., 2004; Westerveld et al., 2020; Wicks et al., 2020). For young children with Down syndrome (2–5 years), mother's talk during storybook reading was only somewhat related to children's receptive language skills. Mothers of children who had stronger receptive language used fewer utterances, but there were no differences in the number of different words, mean length of utterance, or the function of mother's utterances (Barton-Hulsey et al., 2020). For children with Rett syndrome (4–7 years), children's AAC use was associated with mothers' use of strategies such as asking questions and pointing to symbols (Skotko et al., 2004). The engagement and communication of young children with autism (3–6 years) were associated with book type (Fleury & Hugh, 2018) and parents' use of strategies such as commenting (i.e., book language) and asking questions (Westerveld et al., 2020; Wicks et al., 2020).

Nine studies examined associations between child, parent, or family characteristics and the home literacy environment (see Supplemental Material S2). For instance, Peeters, Verhoeven, van Balkom, et al. (2009) found that parents of children with cerebral palsy with lower speech intelligibility read less frequently with their children than those with stronger speech intelligibility; parents of children with lower speech intelligibility were also less likely to report engaging their children in word- or print-related interactions (e.g., naming pictures or talking about vocabulary, referencing print). In a study with children with Down syndrome and Williams syndrome, Ranzato et al. (2021) found that parents of children with stronger expressive language, adaptive behavior, and fine motor skills reporting engaging in home literacy activities more often than parents with children who scored lower in these areas.

Eight studies examined whether aspects of the home literacy environment predicted child literacy outcomes within cross-sectional designs (see Supplemental Material S2). Across studies, findings suggested that shared storybook reading predicts outcomes such as alphabet knowledge and oral narrative quality for young children with autism (Dynia et al., 2014; Westerveld et al., 2017) and print knowledge for children with language impairment (Sawyer et al., 2014). Furthermore, parents' use of print-related strategies during shared reading predicted written communication scores for young children (4–6 years) with autism (Westerveld et al., 2020). Alongside these findings, children's reading interest had important roles in children's literacy interest, with some studies showing that child interest may be a more driving factor than reading frequency itself (Justice et al., 2016; Ricci, 2011a), and one study showing that child interest plays a mediating role in the relationship between home literacy activities and children's literacy gains (Wang et al., 2022). Even more, Wang et al. (2022) found that the effect of home literacy activities on children's reading interest effect may be moderated by the quality of the parent–child relationship.

Intervention Studies

Intervention Components

Interventions generally consisted of researchers working with parents/caregivers to implement strategies during shared storybook reading. Two research teams simultaneously intervened with educators (Justice et al., 2015; Mathisen et al., 2009). Parents were taught intervention strategies through a variety of formats, primarily in person (75.0% of studies) but also through telepractice (37.5%), with some studies using a hybrid approach. Most studies involved teaching families individually, but four (23.5%) involved working with groups of caregivers together, at least for part of the intervention (i.e., Cox et al., 2015; Justice et al., 2015; Lo & Shum, 2021; Trudeau et al., 2003; van Bysterveldt et al., 2006). Researchers generally taught intervention strategies by (a) providing training and coaching-style support and (b) assigning "homework" to families. Collaboration with parents—such as shared decision-making and utilizing parent input to inform the intervention—was reported infrequently, in only five studies (i.e., Golloher, 2018; Koppenhaver, Erickson, Harris, et al., 2001; Thunberg et al., 2007; Trudeau et al., 2003; Westerveld et al., 2021).

Most interventions focused on increasing parents' use of language-focused strategies (80.0% of intervention studies; see Table 2). This included (a) eliciting or encouraging child communication (e.g., providing communication opportunities through questioning or time delay, prompting communication), (b) integrating the use of aided AAC, (c) providing language input (e.g., commenting, story-related talk, modeling target vocabulary), and (d) responding to child communication (e.g., recasts, expansions). Nearly half of interventions (44.4%) also incorporated strategies focused on children's engagement in shared reading, which included utilizing the child's interests or preferences, repeated readings, assistive technology or physical adaptations (e.g., hand splints, page fluffers), interactive components (e.g., real objects or prompts, books with buttons or other interactive components, "silly" noises, acting things out), sensory and/or calming strategies, and positive behavior supports. Only five interventions (20.0%) focused on increasing parents' use of code-related strategies.

Intervention Materials

Most intervention studies (73.9%) utilized traditional storybooks, including Justice et al. (2015) who specified using books with high print salience. Studies also utilized adapted books (Burgoyne & Cain, 2022; Cox et al., 2015; Golloher, 2018; Trudeau et al., 2003), electronic books (Benson-Goldberg & Erickson, 2021; Bullard et al., 2017; McDuffie et al., 2016), and wordless books (Bullard et al., 2017), with several studies using combinations of these. Adaptations included laminating books for durability, adding picture symbols, shortening the length of the book, and embedding question prompts for parents.

Intervention Outcomes

Outcomes from intervention studies were difficult to synthesize because of the diversity of dependent variables of interest and because many studies were nonexperimental or had methodological concerns (see Table 2).

Parent-related outcomes. Nearly half of intervention studies ($n = 12$, 48.0%) focused on parent/caregiver behaviors as one of the primary dependent variables, six of which met the threshold for quality (see Table 2). Researchers generally found that parent training and coaching—including through telepractice (Bullard et al., 2017; Dodge-Chin et al., 2022; Pierson et al., 2021; Timpe et al., 2021)—increased parents' use of language-focused strategies (e.g., asking questions, prompting communication, providing story-related talk, modeling aided AAC). In contrast, Trudeau et al. (2003) found that observing clinicians' use of strategies during group sessions was not sufficient to change parent interaction styles.

Child-related outcomes. Just over half of intervention studies ($n = 15$, 60.0%) examined changes in children's communication and/or expressive language, either as a primary or secondary dependent variable (see Table 2). Although findings suggested that parents' use of language-focused strategies was associated with increases in children's communication and language during storybook reading, methodological limitations make it challenging to draw strong conclusions. Some studies also showed positive results when evaluating changes in child engagement (Bullard et al., 2017; Golloher, 2018; Lo & Shum, 2021) and comprehension (Lo & Shum, 2021; Whalon et al., 2016).

Very few studies examined intervention outcomes on children's code-related literacy skills (e.g., concepts of print, alphabet knowledge, phonemic awareness), and there were methodological concerns in those that did which limiting confidence in the findings (Mathisen et al., 2009; van Bysterveldt et al., 2006, 2010a). Justice et al. (2015) examined the effects of print-focused read-alouds for children with language impairment (of the 291 children, 24% had IDD). Results at the group level showed no difference when teachers and parents both implemented the intervention (as compared to teachers only), but parent fidelity was a concern and could have influenced findings. Of interest, a moderator analysis showed that children with global developmental delay (rather than language impairment alone) benefited substantially from the intervention. Results also showed that children with global developmental delay had the greatest benefit when both their teachers and parents implemented the intervention.

Discussion

This scoping review identified 60 studies investigating aspects of the home literacy environment for children and youth with IDD. Findings revealed key gaps in the literature and strengthened understanding of many different aspects of the home literacy environment for children with IDD. The findings also suggested that how parents use language and print-related strategies during shared reading is both responsive to intervention and supportive of positive outcomes for children with IDD. Many important directions for future research are raised.

What Gaps in the Literature Were Raised by the Review?

Encouragingly, the body of research on home literacy for children and youth with IDD is growing. Not only has a sizeable portion of studies been contributed in the most recent 5 years, but these studies are generally of higher quality than their predecessors (including methodological rigor and quality of reporting). Yet, the results of this review suggest that there are still several key gaps where more research is needed or where improvements in research quality are needed.

Related to child characteristics, little appears to be known about the home literacy environment for older school-age students, even though many students with IDD continue to gain foundational literacy skills through middle and high school and beyond (Erickson, 2017). Literacy activities outside of school are undoubtedly different for older students than they are for young children, but literacy plays an important role in supporting independence, community living, and employment opportunities into adulthood (Copeland & Keefe, 2018). Therefore, future research is needed to understand the nature of home literacy experiences for older students, including what makes a difference in improving outcomes (e.g., Dodge-Chin et al., 2022; Wang et al., 2022).

Related to family and caregiver characteristics, studies were largely based in the United States and tended to include upper income or middle-income and White, non-Hispanic families who were English speaking. Part of this may relate to our inclusion criteria focusing on studies published in English, but it also raises concerns about underrepresentation of non-White families, families who are bilingual or multilingual, and/or families from other diverse backgrounds even within English-speaking countries. Future researchers should focus on recruiting and involving families from underrepresented and historically marginalized backgrounds, including diverse racial/ethnic, linguistic, and socioeconomic backgrounds. Furthermore, fathers and other caregivers were underrepresented, with most participating caregivers being mothers. Flippin and Crais (2011) raised a similar concern, noting that early intervention research has almost exclusively focused on mothers, despite the reality that fathers are often more actively involved in caregiving for children relative to past generations. Although researchers or practitioners might be tempted to assume that findings about mothers will generalize to fathers or other caregivers (e.g., grandparents), fathers and mothers have different ways of interacting with their children (Hilvert et al., 2022), and interventions viewed positively by mothers may not be seen the same way by fathers (Lundahl et al., 2008).

Concerns were also raised related to methods and quality, including (a) methodological quality and (b) the nature of research questions explored. Many studies did not meet the threshold criteria for quality, particularly intervention studies. Further research is needed that demonstrates greater consideration of critical methodological issues, including sampling, data collection, internal validity/experimental control, implementation fidelity, and data analysis. Furthermore, we were somewhat surprised at research questions that have not been as thoroughly addressed by researchers. For example, few studies have sought to understand the first-hand experiences and perspectives of families, particularly through qualitative inquiry (e.g., Walker et al., 2022). Although qualitative cannot be used to answer questions about intervention outcomes or efficacy, it does provide critical insight for developing and implementing effective and socially valid ways of supporting families by better understanding their first-hand views and experiences (Snodgrass et al., 2022).

What Is Known About the Nature of Home Literacy for Children and Youth With IDD?

By looking across this body of literature, the findings of this review provide important insight into the characteristics of the home literacy environment for children with IDD. Findings indicate that parents of children with IDD value literacy for their children but do not always know what expectations to have or how to support their children's literacy development—something that appears to be especially true when children have limited expressive language skills (Lanter et al., 2013; Lusby & Heinz, 2020; Peeters, Verhoeven, van Balkom, et al., 2009). Findings also suggest that the home environments of many children with IDD are literacy rich (Al Otaiba et al., 2009; Ricci & Osipova, 2012), but frequency of home literacy activities appears to be impacted by family characteristics (e.g., income, education levels; Butz et al., 2009; Daniels et al., 2022; Logan et al., 2019) and the nature of the child's disability. Children with more complex support needs, including complex communication needs, appear to have fewer literacy learning opportunities than children with less significant support needs (Breit-Smith et al., 2010; Carlson et al., 2012; Dynia et al., 2014; Logan et al., 2019; Peeters, Verhoeven, van Balkom, et al., 2009).

Finally, studies examining the nature of parent–child interactions during book reading suggest the interaction styles of parents vary widely but have some common patterns. Many parents utilize language-focused strategies (e.g., labeling and describing pictures, prompting communication), but they were found to rarely (a) use strategies to support the development of code-related skills such as print or phonological awareness (Barton-Hulsey et al., 2020; Kaderavek et al., 2014; Westerveld et al., 2020) or (b) model more cognitively demanding or abstract ways of talking and thinking about stories (e.g., making connections to personal experiences, making predictions, recalling event, teaching story structure; Hilvert et al., 2021, 2022; Kaderavek et al., 2014; Morwane et al., 2019; Westerveld et al., 2020). It can be helpful to contextualize these findings within the understanding that parents of children without disabilities have also been found to rarely use strategies like print referencing (e.g., Barton-Hulsey et al., 2020; Ezell & Justice, 2000). Nonetheless, findings from this review highlight the need for interventions that support parents/caregivers in helping their children develop and integrate skills from both strands that make up skilled reading: language comprehension and print-related skills (Gough & Tunmer, 1986; Scarborough, 2001; Sénéchal et al., 2017).

How Can Findings Inform Home Literacy Interventions?

Findings from this review suggest that interventions focused on supporting families with home literacy are useful for improving outcomes for children with IDD, including their communication and engagement during shared reading (Bullard et al., 2017; Dodge-Chin et al., 2022; Golloher, 2018; Kent-Walsh et al., 2010; Pierson et al., 2021; Timpe et al., 2021; Whalon et al., 2016). However, future research is needed. Despite the importance of both code-related and language-related skills for literacy development (Gough & Tunmer, 1986), most interventions were focused on language-related strategies; very few focused print or the reading "code" (e.g., Justice et al., 2015). More research is needed to understand how parents and caregivers can support print and code-related skills of their children with IDD, particularly given the findings from the work of Justice et al. (2015) that young children with global developmental delay appeared to benefit substantially from print-referencing strategies and that they had the greatest benefit when they had support both at home and at school.

Another way that this review informs intervention development is related to findings about children's print interest. Findings from included studies highlight that home literacy activities—and the way that parents relate to their children—seem to have an important impact on children's literacy and print interest (Wang et al., 2022) and that this print interest in turn may be one of the strongest predictors of children's literacy gains (Justice et al., 2016). Therefore, children and their families may especially benefit from support focused on children's interest in and engagement and participation during book reading, such as through building on children's interests, strengthening the parent–child relationship, and utilizing repeated readings, interactive strategies, and positive behavior supports.

Importantly, all of the intervention studies with positive results involved providing information and coaching to parents that was specifically geared to them and their child, including coaching delivered in person and through telepractice (e.g., Akamoglu & Meadan, 2019; Bullard et al., 2017; Dodge-Chin et al., 2022; Kent-Walsh et al., 2010; Timpe et al., 2021). Conversely, simply telling parents about strategies or having them observe clinicians or educators was shown to be ineffective to support positive change (Trudeau et al., 2003). One of the things that surprised us, however, was that interventions primarily focused on training parents (in a one-way fashion from the researcher to the parent), and they rarely reported using collaborative or family-centered coaching approaches where parents share in decision making (e.g., Golloher, 2018). Looking to the future, more research is needed to understand how to actually partner with families, not just to provide training. We would urge future researchers to ensure home literacy interventions are family centered and culturally responsive, which may also ease concerns about the practicality and sustainability of these interventions for some families (Logan et al., 2019). Family-centered and culturally responsive intervention models would ensure that families were full partners in goal setting, decision making, and evaluating the effects of interventions; recognize cultural and individual differences across families; and use strengths-based approaches to build trusting, reciprocal relationships (Potvin et al., 2018).

Limitations

The findings of this review should be considered in light of its limitations. First, we opted to include articles from different countries, but this introduces variability related to culture and nationality that cannot be fully parsed out. Relatedly, we limited inclusion to articles published in English in peer-reviewed journals. We may have inadvertently limited the racial, cultural, and linguistic diversity of the children and families in this review by focusing only on studies published in English, rather than studies published in other languages. Second, reporting varied widely across studies, and we relied only on the information reported in articles. Study authors often reported participant information in varied ways, and we found that they frequently did not directly report children's intellectual functioning, adaptive living skills, or need for support across different domains, particularly when the study focused on children with autism. Thus, there are limitations to this review related to how decisions were made about the inclusion criteria that children with disabilities have "significant support needs," and other research groups might have opted to operationalize this in different ways than we did. Third, it is challenging to address methodological quality in a scoping review when studies of many different designs/methodologies are included (e.g., experimental single-case design, group experimental design, descriptive survey studies, descriptive observational studies, case studies). We wanted to provide a simple way of evaluating methodological quality, and we were able to do so with strong agreement between raters (see interrater reliability). However, we recognize that our approach to appraising study quality was more subjective than ratings would be if we had undertaken a systematic review or meta-analysis of studies that focus on a particular design. Other researchers may want to take a meta-analytic approach, looking at just a subset of literature (e.g., experimental intervention studies), in which study quality and risk of bias could be evaluated more systematically. Finally, due to the iterative nature of how we developed the data charting forms, we did not preregister the review. It is also noteworthy that some registers for reviews, such as PROSPERO, do not currently accept registrations for scoping reviews. Yet, this is a limitation because preregistration of reviews can promote transparency, help reduce potential for bias, and help avoid accidental duplicating of effort across research groups.

Conclusion

It is important to understand how to promote strong literacy outcomes for children and youth with IDD, including through their experiences at home. This scoping review provides important insight into the nature of the home literacy environment for children with IDD and the experiences of children and families with home literacy interventions. Future research should address key gaps in the literature, particularly by focusing on older school-age students and families/caregivers from diverse backgrounds. There is also a need for the design and delivery of home literacy interventions that are family centered and culturally responsive, which may have more sustained and equitable impact on improving outcomes.

Data Availability Statement

The datasets generated and/or analyzed during the current study are available from the corresponding author on reasonable request.

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