



# Circles of Support: Exploring the ‘Where’ and ‘Why’ of Parents’ of Infants Information Seeking Behaviors

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## Abstract

Parenting knowledge affects parenting practices and child development, yet more information is needed about “where” parents of infants turn for information and “why” they choose these sources. Using a mixed-methods approach, the authors captured and analyzed the cited resources that 38 parents turn to when seeking information about parenting. The present study utilized an innovative interview design which invited parents to consider and compare the people, places, and tools (“where”) they turn for support and their relative preference for each by thinking of their resources within “Circles of Support”. Parents were also asked to provide insight into “why” they make these choices. The Survey of Parental Expectations and Knowledge (SPEAK) was used as a measure of parenting knowledge. Descriptive information about parents (years of education and parenting knowledge) were also considered in relation to stated preferences for resource categories. Findings indicated that “informal” sources of information, such as family and friends, are commonly sought out with parent education level being significantly correlated with some resource categories (i.e., books, professionals). As to why they choose certain resources, parents prioritized “relational” and “informational” reasons, over “personal” reasons. Implications for avenues to provide parents with parenting knowledge and information are discussed.

**Keywords** Parenting knowledge · Parenting competence · Infant care · Parent support · Social support

## Highlights

- Parents demonstrated a strong preference for family members as a source of support.
- Parents with higher levels of formal education showed increased preference for professional sources and books.
- Findings from the inductive thematic analysis of interviews indicated that overall, parents prioritized “relational” reasons, and “informational” reasons, over “personal” reasons for turning to specific resources.

Opportunity gaps and the subsequent achievement gaps in early academic skills between students from lower and higher socioeconomic status (SES) are widely documented (e.g., Reardon, 2013; Solano & Weyer, 2017). While much emphasis is placed on increasing standards of practice for teachers and improving school quality, it is also important

to consider ways in which parents can be equipped to promote better early-childhood experiences and outcomes for their children (Heckman, 2011). In a survey of adult knowledge of child development, “gaps” in understanding were discovered which have implications for how children are parented. Specifically, parents without college degrees demonstrated less knowledge about child development than their peers with more formal schooling (Civitas Initiative et al., 2000). This correlation between parent education and overall parenting knowledge is well documented and widespread (e.g., Bornstein et al., 2010). Given the important role that parenting knowledge plays in shaping parenting practices (e.g., Huang et al., 2005; Rowe, 2008), the current study focuses on broadening our understanding of the preferred people, places, and tools that parents of infants utilize when seeking information about parenting, why they

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use these specific tools or resources, and whether these resources or explanations differ for parents of different education levels.

## Importance of Parenting Knowledge

An infant's caregiver plays a crucial role in supporting development and overall child well-being. This task is one which can be fraught with challenges and stress as parents try to navigate caring for an infant (Harwood et al., 2007). The definition of "parenting knowledge" varies within the literature with a consistent emphasis on parents' knowledge of child development and developmental milestones (Benasich & Brooks-Gunn, 1996; Huang et al., 2005). Why does parenting knowledge of child development and infant care matter? There are several domains which can be impacted by a parent's understanding of child development and infant care, such as: increased parental self-efficacy, appropriate estimation of child abilities, potentially detecting developmental problems, and the promotion of cognitive development.

Parental self-efficacy, or confidence in one's ability to organize and carry out tasks related to parenting a child, can be limited when a parent does not have a baseline of knowledge about infant care and child-rearing. In a study of 400 mothers, a relationship was found between social support, self-efficacy, and depression rates post-partum (Leahy-Warren et al., 2012). It is hypothesized that caregivers with a higher sense of self-efficacy during the newborn period may have a higher sense of satisfaction in their parenting which leads to improved parent-child relations (Paradis et al., 2011). Thus, increasing parental self-efficacy by increasing parenting knowledge may positively influence maternal mental health and parenting attitudes.

A second domain which may be influenced by increasing parenting knowledge is appropriate expectation setting by parents. A national study of adult knowledge of child development found that a gap existed between adult interpretations of behavior and developmental milestones (Civitas Initiative et al., 2000). For example, a belief that children were seeking "revenge" or were aware of the "ramifications" for behaviors was attributed to children at a younger age than is appropriate (Civitas Initiative et al., 2000). Misinterpretations of behavior can lead to parent frustration and dissatisfaction, which can negatively impact parent well-being (Goodnow, 1988). Additionally, inappropriate expectations or a misunderstanding of a child's developmental capacity can increase the risk of child abuse and maltreatment (Zand et al., 2015). By providing information to parents about child development and thus increasing "parenting knowledge," parents may be able to

more appropriately engage and interpret challenging behaviors.

Having appropriate expectations and awareness of developmental milestones is also linked to parents' ability to look for and interpret signs of developmental delays (Bornstein et al., 2010). The parent's "surveillance" of the child and awareness of cues which could signal concerns to address with a pediatrician is also connected to the parents' overall knowledge of child development (Bornstein et al., 2010). Early detection and the administration of necessary medical interventions can be better provided when parents are aware of child development processes.

Finally, promoting cognitive development is an important job that early caregivers can best take on when they are aware of the capabilities of young children (Huang et al., 2005). Mothers with less education are found to inaccurately estimate the abilities of their young children, with some mothers overestimating and some underestimating their child's abilities (Huang et al., 2005). Both of these misunderstandings pose risks, such as increased frustration for parents who overestimate abilities, and failure to provide proper stimulation when a parent underestimates (Huang et al., 2005). This link between parents' knowledge of child development and their parenting practices has been examined in relation to parent-child interactions that promote language development. Converging evidence has suggested that rich parent-child interactions support children's language development (e.g., Hoff & Naigles, 2002; Huttenlocher et al., 1991; Pan et al., 2005; Weisleder & Fernald, 2013), and parents with a higher education level tend to talk more, use more varied vocabulary and interact in ways that are more conducive to language learning (Rowe, 2008). Critically, parenting knowledge mediates this relationship between education and how parents talk with children (Rowe, 2008), suggesting that increasing parent knowledge may result in a change in children's home communicative environment and experiences, regardless of parent education level. Further, a recent study found that the amount of parenting knowledge a mother has when her child is born positively predicts the quality of parent-child interactions at nine months old (Suskind et al., 2018b). In short, parents who understand their children's ability levels are more equipped to create environments which match the "cognitive level" of the child (Miller & Davis, 1992). In Leung & Suskind (2020), parents of lower SES who knew more about cognitive and language development in the first week of a child's life were more likely to foster the child's cognitive growth at the 9-month mark, further highlighting the importance of increasing parenting knowledge about early cognitive and language development to subsequently improve the trajectories of potentially disadvantaged young children.

Importantly, parenting knowledge is malleable. For example, a study of the Early Head Start program which included home visits that focused on discussion of child development, saw a positive impact on caregiver knowledge (Administration on Children Youth and Families, 2001) measured using the Knowledge of Infant Development Inventory (KIDI; MacPhee, 1981), a common index of parenting knowledge (e.g., Civitas Initiative et al., 2000; Huang et al., 2005). Converging evidence from countries and populations around the world has shown that parenting knowledge is malleable through interventions. For instance, a recent systematic review and meta-analysis of interventions targeting parents of young children (age 3 or younger) indicated that various interventions, implemented in 33 countries, were successful in improving parenting knowledge and practices (Jeong et al., 2021).

In sum, parenting knowledge is important to the above-mentioned domains of child rearing and development, and it appears to be malleable through education, information sharing, and parenting interventions (e.g., Jeong et al., 2021). It has been suggested that researchers should find ways to “personalize delivery of anticipatory guidance,” especially for families of lower SES (Leung & Suskind, 2020, p. 7). Thus, it is important to consider the means by which parents seek and receive parenting information and advice. Knowledge of parent information seeking practices and preferences can be used to inform professionals about where it is most advantageous to share and circulate resources and guidance.

## Parents’ Knowledge-Seeking Patterns

While studies of parent’s knowledge-seeking patterns related to parenting are less common, there is a small and growing body of evidence to draw upon. The research around parent information seeking behavior typically documents the current, self-reported information seeking behavior of parents, collects information about preferred or aspirational sources (i.e., where parents would like to find or receive information), or explores the type of information parents are interested in finding (e.g., Ruthven et al., 2018). When examining the sources parents currently report that they turn to, one study of interviews with low SES mothers in the US found that family and friends were the most commonly identified source of information and the next most reported category was print media and healthcare-related sources (Berkule-Silberman et al., 2010). In Australia, researchers surveyed 54 first-time mothers about the sources they utilize to learn about children’s language development and found that 47% of participants sought information from friends, while 38% identified healthcare providers (Williams et al., 2014). In a more recent study,

parents were asked whether they had used any of 21 listed sources over the prior 6 months and could also add any additional sources, the top categories reported were “Friends/other parents” (77.1%), “Internet: parenting websites” (64.5%), and “previous experience with your older children” (58.8%; Baker et al., 2017). Another strategy to explore parents’ information seeking behaviors is to inquire of their preferences for sources of information or where they would like to receive information. When asked to rate their preferences for delivery from a list of nine methods, U.S. parents of 3- to 6-year-olds reported the strongest preference for self-administered delivery formats such as television, online programs, and written materials, and the least preference for home visits, therapists, and multi-week parenting groups (Metzler et al., 2012).

The literature often distinguishes between turning to “formal” supports, such as doctors, childcare providers, and nurses, or “informal” supports such as, family members, neighbors, and friends (e.g., Rowe et al., 2016). As to formal supports, a study using data from the ECLS-B National Dataset showed that US parents’ years of education positively predicted their rates of reporting that they would turn to formal “professionals” for information about parenting (Rowe et al., 2016). Family members and friends, or “informal” supports, are especially important to ethnic minority families (Burton & Jarrett, 2000). Additionally, social support has been documented as advantageously moderating the negative effects of stress on maternal satisfaction (Crnic et al., 1983). These social networks also enhance maternal well-being and parental self-efficacy (Leahy-Warren et al., 2012). Further, the increased access to information online or through parenting apps may be changing the landscape of resources used by parents. In a survey of parents’ social media use, 59% of respondents indicated that in their last 30 days of looking at social media content they had come across useful information about parenting (Duggan et al., 2015). Nevertheless, the studies previously described did not examine why parents turn to various sources of information. Scott & Gershoff’s (2021) recent experimental study sheds important light on this question. Their findings indicate that generally speaking, parents tend to trust an expert’s evidence-based comments more than a layperson’s opinion. Importantly, the topic under discussion (e.g., spanking versus the use of car seats), the valence of the comment (e.g., pro- versus anti-spanking), and parents’ preexisting beliefs and attitudes jointly shape their decisions. These findings highlight the need to further examine the intricate reasoning processes driving parents’ decisions to seek and trust information from various resources. The current study is the first in the literature to qualitatively examine why parents turn to particular resources for information. Findings will inform our understanding of how and why parents prioritize certain

information sources and illuminate how researchers can better disseminate information that is useful to parents with varying educational backgrounds or differential levels of knowledge about child development.

The specific research questions examined are as follows:

1. Which resources (i.e., people, places, and tools) do parents turn to when seeking information about parenting?
2. Is there a relationship between parents' reported resources for obtaining parenting information and their education level and parenting knowledge?
3. How do parents explain their preferences and prioritization of the people, places, and tools they utilize when seeking this information?

## Methods

This study centers on qualitative interviews with parents to understand which people, places and tools they go to for parenting information and why. In this section, we discuss the demographics of the participants and data collection procedures.

## Participants

Thirty-eight primary caregivers participated in the study. The caregivers were drawn from a larger sample of 50 families participating in a longitudinal study of children's language development and gesture use (Rowe & Leech, 2019). The larger study was an intervention study, but the current analysis uses data from the first baseline visit only before the intervention occurred. Census data was utilized in order to recruit a socioeconomically diverse sample; parents were recruited through direct mailings, advertisements placed in public spaces, parenting magazines, and on social media sites in the surrounding areas of a large city in the Northeast United States. Parents were told the purpose of the study was to better understand the benefits of play for child development. Interested parents were screened via phone or email to ensure they met the following inclusionary criteria prior to participation: (1) The family was available to begin the study when the child was approximately 10-month old, (2) the child had no known developmental or language delays, (3) the child was not born prematurely (defined here as before 27 weeks), and (4) the child heard English at least 75% of the time at home. The sample was selected to vary in parent education level. Twelve of the 50 families were eliminated for the current study because they did not complete the full interview protocol. The final sample of 38 includes one grandmother,

who designated herself as the target child's primary caregiver, and the rest are mothers. All parents spoke English in the home as their primary language. In this sub-sample of 38 families, parents' education ranged from 10 years to 18 years with a mean educational attainment of 15.42 years ( $SD = 2.23$ ). In regards to race/ethnicity, 29 of the parents are White, five are Black, two are "more than one race" and two identified as "other." Parents' ages ranged from 23 to 51 years ( $M = 33.6$ ,  $SD = 5.4$ ) and children were, on average, 10.3 months ( $SD = 0.56$  months) when parents were interviewed.

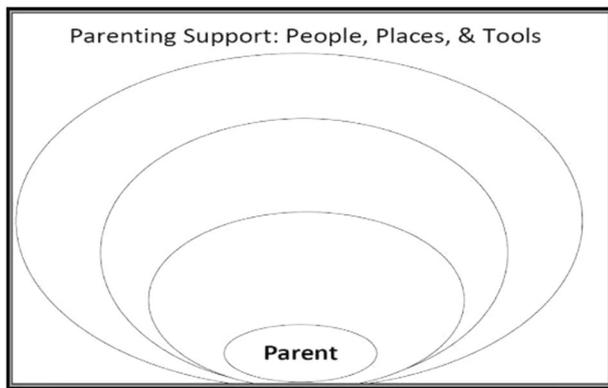
## Procedure

A home visit was conducted when the child was approximately 10-month old. At this visit, parents signed an informed consent document and completed a questionnaire packet to gather information on family demographics and their knowledge of child language development. Dyads then engaged in a 15-min semi-structured play interaction. Following the play interaction, the researcher engaged the parent in a structured interview regarding their perceived levels of parenting support and information; the first author titled this interview "Circles of Support".

Two researchers, with experience in early-childhood education, were trained by the primary investigator in a 3-h training to conduct the initial home visit. The training provided knowledge on infant developmental milestones as well as an in-depth explanation of the intervention protocol (i.e., play sessions and interviews). Each researcher carried a detailed handbook to each visit in order to maintain fidelity across visits and between researchers. The home visits and interviews were video recorded for later transcription and coding. Parents and infants also jointly played with a standardized set of toys for 15 min. Analyses of parent-child play are reported in another paper (Rowe & Leech, 2019). Parents were compensated with \$20 and three toys after the visit.

## Parent interview

The Circles of Support interview session focused on determining what people, places and/or tools parents seek out when they need parenting advice, information, or support. Parents were shown a visual featuring three concentric circles with a circle labeled "parent" in the center (see Fig. 1). The concentric circles served as a way to represent varying levels of support; the circle closest to the "parent" circle indicated parents' first level of support, the next closest circle indicated a secondary level of support and the last circle represented a tertiary level of support. The visual served both as a tool for the parent to envision levels of



**Fig. 1** Circles of Support visual elicitation device

support, but also as a place for the experimenter to scribe parents' answers during the interview.

The two researchers followed a script to ensure consistency across participants. Parents were asked six specific questions. The first three questions focused on listing the resources (i.e., people, places and tools) parents seek out in each level/circle. During this portion of the interview, parents were free to list as many resources per circle as they desired. The second three questions asked parents to explain why a given resource was placed in its corresponding circle. During this portion of the interview, parents were allowed to move their choices to different circles if they so desired. Interviews lasted approximately 5–10 min and were recorded.

## Data Processing

### Processing and analysis of parent interviews

The Circles of Support visual elicitation tool (Fig. 1) provided one source of data for all 38 participants. Based on qualitative examination of the visuals, resource categories were formed to encapsulate parents' responses. As such, seven categories were created: books, community tools/members, family members, friends, Google, professionals and websites. The community tools/members category was comprised of responses such as: neighborhood parent networks, affinity-based community groups (e.g., hiking, knitting), community institutions (e.g., library, local health centers), parenting Facebook groups, members of religious groups, and other individuals within a parents' community (e.g., co-worker, neighbor). The websites category consisted of parents' references to specific websites, blogs and/or phone apps (e.g., Baby Center, Wonder Weeks App).

To describe the trends of information and support described by the parents, each participant's response was analyzed at each circle/level for the presence or absence of a response that aligned with the seven resource categories.

**Table 1** Participant references to resource category by circle/level of support

Resource category	Participants ( <i>n</i> ) <sup>a</sup>	% of sample
<i>Books</i>		
1st	4	10.5
2nd	9	23.6
3rd	3	7.9
<i>Community members/tools</i>		
1st	11	28.9
2nd	11	28.9
3rd	3	7.9
<i>Family members</i>		
1st	27	71.1
2nd	4	10.5
3rd	2	5.3
<i>Friends</i>		
1st	19	50.0
2nd	5	13.2
3rd	2	5.3
<i>Google</i>		
1st	6	15.8
2nd	13	34.2
3rd	5	13.2
<i>Professional</i>		
1st	10	26.3
2nd	9	23.7
3rd	12	31.6
<i>Website</i>		
1st	3	7.9
2nd	9	23.7
3rd	4	10.5

<sup>a</sup>Participants who listed more than one support resource that would fit under the same category were not included twice

Parents received a score of "1" for the presence of a resource and a score of "0" for the absence of a resource (see Table 1). Once a category was marked as "present" for a given parent, they would not receive additional credit for having this category present in a less proximal circle level. For example, if a parent listed two different family members in the first circle, they would receive a "1" for the family category; additionally, if a parent listed a family member in the first circle and another family member in the second circle, they would still receive a "1" for the family category. This measure provided information about which category parents were most likely to turn to first as well as the overall frequency of a given category's perceived supportive and informational power. A broader measure was also created: total number of resources. This measure was a calculation of the total number of resources parents listed. Parents' total

number of resources ranged from three to 11 ( $M = 6$ ,  $SD = 1.7$ ).

For 33 of the 38 participants interviews were recorded and full interview transcripts were available. To investigate why parents sought information from particular individuals, places, and tools, thematic analysis was applied (Boyatzis, 1998) to the 33 available transcripts. Emic codes based on parents' discussion of why they sought information from particular resources were developed, and the codes were further organized into themes. The codebook was developed following an iterative process (Boyatzis, 1998). A primary coder (the third author) first developed a preliminary codebook based on eight randomly selected transcripts. Each unit of coding (i.e., a meaning unit that describes one reason parents sought out a particular resource) received one code that most closely captured its meaning. The primary coder then trained a research assistant to apply the codebook to the eight transcripts based on which the codebook was developed. The two coders worked in partnership to examine and reconcile disagreements, sharpen code definitions, and revised the codebook. The final codebook (see Table 2 for the detailed codebook with quotes from parents) included 26 codes which fell under six code categories. Then the two coders each independently coded eight additional transcripts following the updated codebook, yielding an overall Cohen's Kappa of 0.82. The high reliability indicates consistency of judgment and interpretation (Boyatzis, 1998). The remaining 17 transcripts were independently coded by the two coders. Using codes from 25 transcripts (excluding the transcripts used to train the research assistant), the authors calculated the reliability for each code. All codes yielded Cohen's Kappas between 0.66 and 1. The two coders then discussed all ambiguous cases and reconciled all disagreements. This double-coding and discussion process allowed the coders to monitor definitional drifts and afforded them a better understanding of the meanings each parent expressed. Transcripts with codes both coders agreed upon were used in subsequent analysis.

## Parent Education and Knowledge of Child Development

### Parent education

The categorical levels of education on the demographic survey were translated into years of education such that an advanced degree received a score of 18, a 4-year college degree received a score of 16, a 2-year college degree or "some college" received a score of 14, a high school degree or GED received a score of 12, and "some high school" received a score of 10. In this sample, parents' education

ranged from 10 to 18 years with a mean educational attainment of 15.42 years ( $SD = 2.23$ ).

### Parents' knowledge of child development

Parents completed an early version of the Survey of Parental Expectations and Knowledge (SPEAK; Suskind et al., 2018a). This version of the SPEAK included 52 items which examined parents' knowledge about early-childhood development in five main areas: early academic skills, predictors of school success, language learning and development, electronic media use, and dialogic reading practices. Parents scored, on average, 35.35 on the SPEAK (range = 20.25–43.00,  $SD = 5.53$  points). Five mothers were excluded from any analyses which included parenting knowledge because their SPEAK scores were unavailable, resulting in a sample size of 33 when examining this variable.

## Results

Descriptive statistics for parents' referenced resources at each support circle/level are displayed in Table 1. Parents most frequently mentioned family members (71.1%) and friends (50.0%), individuals who are likely present in daily interactions, in the first level of parenting support. Other resources, such as community members/tools and professionals, were not as frequently mentioned in the first level of support (28.9 and 26.3%, respectively) but were mentioned by a majority of parents in at least one of the support levels. The least frequently mentioned resources in the first levels of parenting support were Google (15.8%), specific websites (7.9%) and books (10.5%).

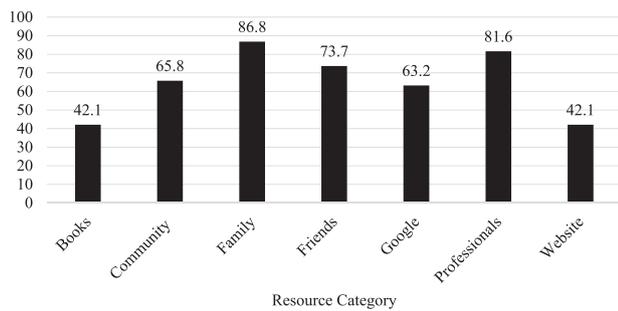
Figure 2 illustrates the percentage of parents who referenced a given resource category in any of the levels of support. Each reference category was mentioned by almost half of the parents, illustrating the varied resources that parents turn to when seeking parenting information and advice. When taking all of the levels of support into consideration, most parents mentioned family and professionals (86.8 and 81.6%, respectively); Google also served as a commonly used informational resource by the majority of the parents (63.2%), despite being referenced infrequently as a first level of support. Unsurprisingly, fewer parents mentioned turning to books or websites as a source of parenting information or support (42.1% for both).

As noted, the authors also examined the total number of resources parents mentioned ( $M = 5.92$ ,  $SD = 1.65$ ), and associations between resources and demographic factors (see Table 3). Parents' level of educational attainment was strongly and positively correlated with the total number of resources they mentioned,  $r(36) = 0.488$ ,  $p = 0.002$ ,

**Table 2** Codebook for parents' explanations for resource preferences

Category	Code	Definition	Examples
Relationship	Developing relationship	R knows P from previous contact (but P and R are not family or friends)	"The specialist knows me, knows her and knows how I would react to the situation."
	Family and/or friend	R is family and/or friends with P and has a close relationship with P	"I've known my college friends a long time."
Common ground	Experience	R can relate to P's experiences	"We were pregnant at the same time."
	Shared beliefs/practices	P and R share parenting practices/beliefs	"We have similar parenting styles."
Traits of resource	General similarity	P and R share similarities not specific to parenting	"We live by similar values."
	Accessibility	R is readily available and easily accessible to P	"Google is the easiest and quickest place to access."
	Knowledge	R has professional knowledge/training	"I would consult someone with a medical background."
	Browse	P can browse R to get second opinions or come across information	"In Facebook groups, interesting questions may come up on my feed."
	Attitude	P discusses the attitude and/or personality of R	"Folks at the center are always willing to help."
Connection	Connection	R provides access to other resources	"The center puts me in touch with other specialists."
	Expediency	R compensates for the lack of more ideal resources	"We have no family here, so the group is nice to have."
Convenience	Convenience	P can achieve multiple goals in a single action	"The specialists are close to the doctor's office and we go see them because we have to see the doctor."
	Testimony	R is recommended or spoken highly of by other individuals	"I downloaded that app because all these people were like 'it's so great.'"
Confidentiality	Confidentiality	P feels comfortable sharing confidential/private information with R	"The Facebook group is very confidential."
	Affordability	R is free or affordable	"It's free so I just go."
Information quality	Anonymity	P can remain anonymous when interacting with R	"The group is anonymous which I like."
	Credibility	R provides credible or research-based information	"I prefer trusted websites that are research-based."
	Specificity	R provides detailed or individualized information	"I can often find moms who will write out in detail."
	Abundance	R provides a large variety/amount of information	"The talks are very informative and I learn a lot."
	Clarity	R provides clear information	"They provide clear recommendations."
Agency	Preparation	R provides information that prepares P for the future	"It tells me when to expect they'll be fussier – good for predicting the next step."
	Confidence	P demonstrates confidence in her own perspectives, beliefs, and/or knowledge	"I know it's a good resource because it's kind of just my gut feeling."
Emotion	Background	P refers to her own social or cultural background	"I prefer that because I lived in another country."
	Negative	R triggers negative emotions	"I use Google last because some answers freak you out."
	Positive	R causes positive emotions	"I go to her pediatrician first because I feel that comfort."

P parent interviewee, R resource, i.e., the person/tool/place under discussion



**Fig. 2** Participant references to resource category in any level of support

**Table 3** Bivariate correlations (Pearson's  $r$ ) between variables

	1	2	3	4
1. Education	–			
2. Total resources	0.488**	–		
3. SPEAK	0.632**	0.359*	0.293~	–

~ $p < 0.10$ , \* $p < 0.05$ , \*\* $p < 0.01$

suggesting that more highly educated parents have more resources or can more readily identify resources to utilize when seeking parenting advice and information, on average, than their less formally educated peers. Additionally, parents' knowledge of child development, as measured by the SPEAK, was also correlated to the total number of resources parents referenced during their interviews,  $r(31) = 0.359$ ,  $p = 0.040$ . This suggests that parents with greater knowledge about parenting also believe they have more resources and tools at their disposal to receive parenting information; on the other hand, this may suggest that parents who have a greater number of tools and resources to turn to for parenting information are more likely to develop a greater knowledge base around child development and parenting. Notably, however, once controlling for education, parents' knowledge of child development and the total number of referenced resources no longer displayed a significant correlation; the authors hypothesize that this may be due to the high collinearity between parent education and the measure of parents' knowledge,  $r(31) = 0.632$ ,  $p < 0.001$ .

### Types of Resources and Parents' Education Level

Given that parents' educational attainment was associated with parents' total number of resources, the authors investigated whether education was related to the types of resources that they referenced as sources of information and support during their interview. The descriptive results indicated that some categories were infrequently mentioned as primary supports, as illustrated by infrequent references as a first circle support (see Table 1). In order to expand

categories for analysis, parents' responses for circles one and two for all resource categories were collapsed. As such, parents who listed a resource in the first Circle of Support ("Circle One" henceforth) or the second Circle of Support ("Circle Two"), received credit for the presence of a resource.

Simple Pearson's correlations between parents' education and a reference to a given resource category as a first or second level of support are displayed in Table 4. Results indicated that education was only significantly related to parents' reference of books as a resource, with more educated parents referencing books as a Circle One or Circle Two resource more frequently than less educated parents,  $r(36) = 0.39$ ,  $p = 0.015$ . All other resource categories were not correlated with education, suggesting that parents' level of educational attainment has little bearing on the types of supports that parents turn to for parenting information and advice. The authors also investigated whether parenting knowledge of child development was correlated with parents' references to particular resource categories in the first two circles. Results indicated that parents with greater knowledge of child development were more likely to reference books,  $r(31) = 0.46$ ,  $p = 0.008$ , and professionals,  $r(31) = 0.40$ ,  $p = 0.020$ , than peers with less knowledge of child development. To follow up on this finding, the authors ran a linear regression model for parents' performance on the SPEAK using books, professionals, and education as predictors. The model predicted significant variability on the SPEAK,  $R^2 = 0.53$ ;  $F(3, 29) = 10.49$ ,  $p < 0.001$ , with education as a significant predictor ( $\beta = 0.51$ ,  $t(29) = 3.64$ ,  $p = 0.001$ ), and references to professionals as a marginal predictor ( $\beta = 0.27$ ,  $t(29) = 2.03$ ,  $p = 0.051$ ); references to books was not a significant predictor ( $\beta = 0.20$ ,  $t(29) = 1.39$ , ns) with the other measures in the model. These results suggest that not only does a parents' formal educational attainment level predict their parenting knowledge, but the types of resources they access, specifically whether or not they report turning to professionals, may also predict their level of child development knowledge.

### Results of Coding Parent Interviews

To answer the third research question concerning how parents explain their resource preferences, the transcribed interviews were analyzed using inductive thematic analysis. From the 26 codes, three themes were identified: relational reasons (those focusing on social relations or common ground between the parent and the resource), informational reasons (those focusing on traits of the resource or the quality of the information provided), and personal reasons (where parents discussed their personal agency, preferences, and knowledge and how certain resources evoked positive or negative emotions in them). First, the frequency and

**Table 4** Bivariate correlations (Pearson's *r*) between parent variables of interest and resource category references

	1	2	3	4	5	6	7	8	9
1. Education	–								
2. SPEAK	0.632**	–							
3. Books	0.392*	0.455**	–						
4. Community	0.293	0.265	–0.021	–					
5. Family	0.040	–0.372*	–0.172	–0.075	–				
6. Friends	0.146	–0.056	0.091	–0.248	–0.127	–			
7. Google	–0.168	–0.336	–0.166	–0.053	0.258	–0.218	–		
8. Professional	0.168	0.404*	0.277	–0.159	–0.258	0.00	–0.053	–	
9. Website	0.128	0.144	0.226	–0.072	–0.205	0.049	–0.340*	–0.113	–

\* $p < 0.05$ , \*\* $p < 0.01$ **Table 5** Code frequency (with relative proportion out of a total of 429 codes in parentheses)

Theme	Code category	Code	
Relational reasons 151 (35%)	Common ground 79 (18%)	Experience	57 (13%)
		Shared beliefs/ practices	13 (3%)
		General similarity	9 (2%)
	Relationship 72 (17%)	Developing relationship	38 (9%)
		Family and/ or friend	34 (8%)
		Informational reasons 246 (57%)	Resource traits 172 (40%)
		Knowledge	35 (8%)
		Browse	31 (7%)
		Attitude	16 (4%)
		Connection	14 (3%)
		Expediency	8 (2%)
		Convenience	5 (1%)
		Testimony	3 (1%)
		Confidentiality	3 (1%)
		Affordability	2 (0.5%)
		Anonymity	1 (0.2%)
	Information quality 74 (17%)	Credibility	26 (6%)
		Specificity	24 (6%)
		Abundance	16 (4%)
		Clarity	6 (1%)
		Preparation	2 (0.5%)
Personal reasons 32 (7%)	Agency 18 (4%)	Confidence	17 (4%)
		Background	1 (0.2%)
	Emotion 14 (3%)	Negative	8 (2%)
		Positive	6 (1%)

relative proportion of codes, code categories, and themes were examined (see Table 5). In total, mothers provided 429 reasons (i.e., units of coding). Over half of the reasons were informational (246 units of coding, 57% out of the total

number of codes assigned), followed by relational (151 units, 35%) and personal reasons (32 units, 7%).

The distribution of the most frequent codes and themes in each Circle of Support were examined (see Table 6). As mentioned before, Circle One consisted of the most proximal and preferred resources that parents most frequently and willingly turned to, and Circle Two and Circle Three contained sources that parents relied on to a lesser extent. When explaining the reasons for their resource preferences, in general, parents tended to discuss informational and relational reasons more than personal reasons. Interestingly, parents provided different reasons for different Circles of Support. Parents prioritized relational reasons over informational and personal reasons when explaining their preferences for resources in Circle One. All three of the most frequent codes fell under the theme “relational reasons”: “experience” (i.e., the resource under discussion has experience taking care of children or have children themselves, and thus can relate to the parent’s experiences), “developing relationship” (i.e. the resource knows the parent or the family from previous contact), and “family and/or friends” (i.e., the resource is family and/or friends with the parent and has a close, trusting, and/or loving personal relationship with the parent). For instance, parents frequently discussed how these relational reasons led to their decision to seek information from family and friends: “I talk to my sister every day and I always go to her;” “many of my friends, we were pregnant at the same time and have kids the same age;” “somebody who may have never had a child write a book and you’re like okay, how does this person know what it even feels like to give birth because they never did.” However, out of the six most frequent codes for Circle Two and Three, five denoted informational reasons: “accessibility” (i.e., the resource is readily available and easily and/or quickly accessible to the parent), “knowledge” (i.e., the resource possesses a particular body of knowledge or has received professional training), “browse” (i.e. the parent can browse the resource and as a result, get second opinions or confirmatory information or unintentionally

**Table 6** Codes of the highest frequency by circle of support

Circle One (198 codes)	Circle Two (137 codes)	Circle Three (94 codes)
Experience [RR] (42, 21%)	Accessibility [IR] (19, 14%)	Accessibility [IR] (17, 18%)
Developing relationship [RR] (24, 12%)	Knowledge [IR] (19, 14%)	Experience [RR] (9, 10%)
Family and/or friend [RR] (24, 12%)	Browse [IR] (13, 9%)	Abundance [IR] (7, 7%)

Corresponding themes are in square brackets; theme key: [RR] = Relational reasons, [IR] = Informational reasons. Relative proportion out of the total number of codes within each circle of support is in parentheses

come across helpful information), and “abundance” (i.e., the resource provides a large variety and/or amount of information). For instance, when explaining why they turn to Google, parent groups on social media, or parenting websites, parents frequently cited the accessibility of such resources: “It (Google) is the easiest and quickest place to access;” “the turnaround time for a pediatrician is sometimes a little tougher (compared to Google and social media groups).” Hence, parents seemed to have chosen the most preferred and frequently sought-out resources based on relational reasons. When parents decided on the more distal, less preferred, but somewhat useful resources in Circle Two and Three, factors pertaining to traits of the resource (e.g., accessibility and knowledge) and quantity of information (e.g., abundance of information) were of greater importance. Lastly, associations among parents’ educational attainment, knowledge about child development, and their frequency of providing informational, relational, and personal reasons were examined. Two mothers were excluded from any analyses which included parenting knowledge because their SPEAK scores were unavailable, resulting in a sample size of 31. The authors hypothesized that mothers with more years of formal education were more likely to provide informational reasons, and that parents who provided more informational reasons were more knowledgeable about child development. Pearson correlation tests showed no associations between maternal education and the frequency at which they provided informational, relational, or personal reasons,  $ps > 0.1$ . Parenting knowledge about child development was positively and moderately associated with mothers’ frequency of providing informational reasons,  $p < 0.05$ ,  $r(29) = 0.40$ , but not with the frequencies of relational or personal reasons,  $ps > 0.1$ .

## Discussion

The present study contributes to the literature on parenting knowledge in several ways by both examining “where” parents of infants turn and “why” they prefer those sources. Our sample included parents with diverse educational attainment levels and provided an opportunity to re-examine previously documented relations between parent education level, parenting knowledge, and sources of support. The present study adds to the literature by asking parents

directly to describe the people, places and tools they currently access when seeking information about parenting. Said another way, the information provided by parents is distinct in this study as it is descriptive of their present information seeking behavior rather than focused on aspirations of where they think they would like to receive information. The interviewing protocol, Circles of Support, put the parent in the driver’s seat as they were able to describe and report their own preferences while reflecting on what motivates them to make these choices. The present study adds to the literature in three distinct ways by reporting: resource categories and levels of preference (i.e., Circle One, Two, Three) to describe the sources of support, three themes (i.e., personal, relational, informational) to describe parents’ rationale for source selection, and the correlational relation between key variables of interest (i.e., parent education level, knowledge of child development) and the categories of resources and thematic codes.

First, the responses from parents led to the creation of seven resource categories (see Table 1) which encapsulate the common resources parents of infants reported turning to for parenting information. While previous studies have provided a list of sources and asked parents to rank these sources or comment on usage (e.g., Baker et al., 2017), the present study allowed parents to describe their sources of support and the levels at which they turn to these sources. In Baker et al. (2017) it was reported that parents selected “Friends/other parents” (77.1%) and “Internet: parenting websites” (64.5%) at relatively high rates (Baker et al., 2017). The present study potentially clarifies and further differentiates these categories by separating “family” from “friends.” In the present study, the family category was referenced by 86.8% of parents and friends were referenced by 73.7% of parents; this may cause consideration if informal supports vary in terms of friends and family and if the distinction of turning to friends or family is unique or should be grouped as a general form of informal support. Additionally, websites in the present study were referenced by 42.1% of parents, but were only included in the first circle of support by 7.9% of participants (see Table 1). This is a lower rate than that of Baker et al. (2017) and it is worth considering that the use of websites may not be a first source but a secondary or tertiary resource, at which point the website may be functioning as a source to confirm advice already received

from an informal support, rather than as an initial source of information.

Second, findings from the inductive thematic analysis of interviews indicated that overall, when explaining their resource preferences, parents generally prioritized relational reasons (those focusing on social relations or common ground between the parent and the resource), and informational reasons (those focusing on traits of the resource or the quality of the information provided), over personal reasons (where parents discussed their personal agency, preferences, and knowledge and how certain resources evoked positive or negative emotions in them). It is also important to note that reasons parents provided varied across the Circles of Support. Specifically, parents were more likely to provide relational reasons than informational and personal reasons when discussing the most proximal and preferred resources (i.e., those in Circle One), and were more likely to provide informational reasons than relational and personal reasons when discussing resources that fell in Circles Two and Three, the two more distal Circles of Support. In other words, parents sought information from their most preferred resources because they have built strong, positive, and often lasting relations with these resources. In terms of resources that are helpful but less preferred, parents tend to evaluate the characteristics of the resource itself (e.g., to what extent a resource is accessible and knowledgeable) and the quality of the information (e.g., whether the resource provides abundant information). Previous studies have sought to understand the role online forums and resources are playing in parenting (e.g., Duggan et al., 2015) and our findings highlight the relational factors that seem to most directly drive parents preferences for both where they turn and why they describe seeking those sources. Thus even with the growth of online platforms, internet access, and possible accessibility of healthcare, parents first seek out “informal” supports such as family members and friends, above and beyond professionals, and this appears to be because they have built a strong relationship with these “informal” supports. While accessibility is important, the value and trust within relationships may continue to hold the clearest explanation of where and to whom parents look for support.

Third, the present study provided an opportunity to explore whether significant relations exist between variables of interest (i.e., parent education level, parenting knowledge) and resource categories named by parents. Exploring these correlations is important as there is a well-documented correlation between parent education and overall parenting knowledge (e.g., Bornstein et al., 2010). Parents with college degrees demonstrate more knowledge about child development than parents with fewer years of formal education, on average (Civitas Initiative et al., 2000). When considering the sources that parents turn to in relation to

their educational attainment and parenting knowledge, research has indicated that parents’ years of educational attainment positively predicted rates of self-reported turning to formal “professionals” for information about parenting (Rowe et al., 2016). In the present study, parenting knowledge scores were predicted by educational attainment level and references to seeking support from professionals. Also, in the present study, greater parenting knowledge (as measured by SPEAK score) correlated with the total number of resources referenced by parents. Higher levels of parenting knowledge were also positively associated with a higher rate of reference to resources such as books and professionals and fewer references to a family member. While higher rates of parenting knowledge were associated with increased references to professionals or formal supports, family members were cited at the highest rate across all participants in this study, indicating that regardless of educational attainment, parents demonstrated a strong preference for family members as a primary source of support. We also found that mothers who more frequently discussed informational reasons for mentioning a support (i.e., traits of resources and quality of information) had higher levels of parenting knowledge. Taken together, our findings replicate previous research highlighting an association between parent education level, parenting knowledge, and higher rates of citing professionals or books as resources (e.g., Rowe et al., 2016).

## Conclusion, Limitations, and Future Directions

By exploring the people, places, and tools parents turn to when seeking information, the present study adds to the literature by replicating patterns of preference for informal and relationally motivated support as well as providing more in-depth understanding of the prioritization of support by asking parents of infants to consider the support they turn to in terms of “circles” or levels. Each of the seven resource categories was mentioned by nearly half of the parents (see Fig. 2), indicating that parents turn to a multitude of various sources when seeking parenting information and advice. Understanding parent preferences and the “why” behind these preferences can position researchers and practitioners to more adeptly predict and plan interventions which will be most efficacious in supporting families.

The study limitations should be noted when considering the findings. First the study was nested in a broader study which underwent a recruitment process and required parents to engage in an intervention; as such, it is possible that this biases the demographic of participating families to those who have the time and are motivated to participate in an

intervention, posing a potential threat to the external validity and subsequent generalizability of the findings. Additionally, in the event the in-person interviews with parents led parents to dishonestly self-report their support seeking behaviors to the interviewing researcher, then the internal validity of the study would be compromised. It should be noted that the interviews occurred before any interventions from the broader study occurred.

Several considerations and future directions have coalesced in analyzing the findings and will subsequently be discussed in the closing of this paper. The significant relationship the authors found between parents' tendency to discuss informational reasons and parenting knowledge may be reciprocal. On the one hand, parents who placed a stronger emphasis on the quality of information and traits of informants may be more selective in these aspects, and thus might have received information of higher quality from more reliable or credible resources. These parents in turn may gain more knowledge about child development. On the other hand, parents who were more knowledgeable about children's language and cognitive development may have been more selective in gaining information from external sources, and were thus more likely to take factors pertaining to the traits of informants and quality of information into account when deciding where to seek information. It is noteworthy that the present study is correlational in nature, and training and/or intervention studies are needed to shed light on the causal mechanisms.

It has been previously documented that parents appreciate the use of media and advertising to provide information that extends or sparks interest in a parenting topic, but they prefer verbal communication for "brief and concrete" messages (Glascoe et al., 1998). The differential preferences of avenues to locate parenting information reflect the reality that there is not likely a "one size fits all" approach to providing parenting information. Our findings highlight the consistent preference to turn to family and friends ("informal supports") and to cite relational reasons for where they first turn for information. As seeking information often begins with relationships, the dissemination of accurate and useful parenting knowledge and information at local levels with community members of influence may be the most efficacious route.

Education level and knowledge of child development did not significantly correlate with accessing information through the most common resource category in Circle One: family members and friends. While preference for these informal or social supports appears to be a consistent preference for parents, regardless of education level, some sources (e.g., books and professionals) are significantly correlated with parent education level. The findings provoke thought about future directions. For example, if parent education level is significantly correlated with preference

for books and professionals, it may be more strategic to either lower access barriers to books and professionals or to change the medium through which parents with lower levels of education access information and anticipatory guidance. In other words, it remains to be seen whether providers should try to change the preferences parents currently have for where they seek out information, or if they should consider developing novel approaches, keeping in mind that family relationships and social networks are a preferred avenue to seek out information. Echoing the work of other authors (e.g., Committee on Early Childhood, Adoption, and Dependent Care, 2011), perhaps more "formal" providers (e.g., pediatricians, social workers) should strategically include extended family members in visits or should intentionally share information with local influencers who are more likely to be sought out by new or less experienced parents in community contexts (e.g., community center, laundromat, apartment building).

Ensuring parents have access to accurate and useful parenting information is a practical and effective way to promote positive early-childhood experiences for all children. Intervention studies, such as "Pointing to Success" (Rowe & Leech, 2019), 30-Million Words (Suskind et al., 2016), and Providence Talks (Wong et al., 2018) have evaluated the impact of parenting communication with children which may increase language development. If such interventions are effective, the next question becomes, "How will parents encounter and internalize this new information which can affect their parenting practices?" A better understanding of the people, places, and tools parents use allows for future dissemination of information in ways that are most effective. The present study prompted parents by asking where they generally go for information, but further research exploring the ways in which different parenting topics of interest (e.g., feeding, discipline, educational options, potty training) may be associated with different support seeking behaviors would be informative. It may also be useful for future research to explore parents' cited reasons for not turning to certain supports (e.g., professionals) as some research has indicated that anxiety and perceived judgment can impact information seeking (Loudon et al., 2016). Additionally, information quality or correctness was not considered in this study and future research should explore the quality of information that comes from different information sources.

In a national survey of parents, results made it clear that caregivers believe they can improve in their parenting practices and want to learn more about parenting in order to do so (Zero to Three: National Center for Infants and Bezos Family Foundation, 2016). These findings have practical implications for professionals and organizations that provide services or information to parents with young children. Given that parents are often motivated and eager to seek out

support and information, it is essential that sound, credible parenting advice is accessible and is in the hands and minds of community members who have the greatest influence, whether that is a pediatrician or a matriarch in a local community. The safety and well-being of young children is likely to be enhanced as researchers and practitioners learn how to leverage the relationships and resources which are accessed by parents most readily.

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## Compliance with Ethical Standards

**Conflict of Interest** The authors declare no competing interests.

**Ethical Approval** The study protocol was approved by the Committee on the Use of Human Subjects in Research at Anonymized University (IRB14-2973).

**Informed Consent** Informed consent was obtained from all participants included in the study.

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## References

- Administration on Children, Youth and Families. (2001). *Building their futures: How Early Head Start Programs are enhancing the lives of infants and toddlers in low-income families. Volume 1: Technical Report*. Washington DC: Department of Health and Human Services.
- Baker, S., Sanders, M. R., & Morawska, A. (2017). Who uses online parenting support? A cross-sectional survey exploring Australian parents' internet use for parenting. *Journal of Child and Family Studies*, 26(3), 916–927. <https://doi.org/10.1007/s10826-016-0608-1>.
- Benasich, A. A., & Brooks-Gunn, J. (1996). Maternal attitudes and knowledge of child-rearing: Associations with family and child outcomes. *Child Development*, 67(3), 1186–1205. <https://doi.org/10.1111/1467-8624.ep9704150191>.
- Berkule-Silberman, S., Dreyer, B. P., Huberman, H. S., Klass, P. E., & Mendelsohn, A. L. (2010). Sources of parenting information in low SES mothers. *Clinical Pediatrics*, 49(6), 560–568. <https://doi.org/10.1177/0009922809351092>.
- Bornstein, M. H., Cote, L. R., Haynes, O. M., Hahn, C., & Park, Y. (2010). Parenting knowledge: Experiential and sociodemographic factors in European American mothers of young children. *Developmental Psychology*, 46(6), 1677–1693.
- Boyatzis, R. E. (1998). *Transforming qualitative information: Thematic analysis and code development*. Thousand Oaks, CA: Sage Publishing.
- Burton, L. M., & Jarrett, R. L. (2000). In the mix, yet on the margins: The place of families in urban neighborhood and child development research. *Journal of Marriage & Family*, 62(4), 1114–1135. <https://doi.org/10.1111/j.1741-3737.2000.01114.x>.
- Civitas Initiative, Zero to Three, & Brio Corporation. (2000). What grown-ups understand about child development: A national benchmark survey. Washington, DC: Zero to Three, National Center for Infants, Toddlers, and Families.
- Crnic, K. A., Greenberg, M. T., Ragozin, A. S., Robinson, N. M., & Basham, R. B. (1983). Effects of stress and social support on mothers and premature and full-term infants. *Child Development*, 54(1), 209–217. <https://doi.org/10.2307/1129878>.
- Committee on Early Childhood, Adoption, and Dependent Care. (2011). The pediatrician's role in family support and family support programs. *Pediatrics*, 128(6), e1680–e1684. <https://doi.org/10.1542/peds.2011-2664>.
- Duggan, M., Lenhart, A., Lampe, C., & Ellison, N.B. (2015). *Parents and social media*. Retrieved October 2016, from <http://www.pewinternet.org/2015/07/16/parents-and-social-media/#fn-13802-1>.
- Glascoe, F. P., Oberklaid, F., Dworkin, P. H., & Trimm, F. (1998). Brief approaches to educating patients and parents in primary care. *Pediatrics*, 101(6), e10. <https://doi.org/10.1542/peds.101.6.e10>.
- Goodnow, J. J. (1988). Children's household work: Its nature and functions. *Psychological Bulletin*, 103, 5–26. <https://doi.org/10.1037/0033-2909.103.1.5>.
- Harwood, K., McLean, N., & Durkin, K. (2007). First-time mothers' expectations of parenthood: What happens when optimistic expectations are not matched by later experiences? *Developmental Psychology*, 43(1), 1–12. <https://doi.org/10.1037/0012-1649.43.1.1>.
- Heckman, J. J. (2011). The economics of inequality: The value of early childhood education. *Education Digest: Essential Readings Condensed for Quick Review*, 77(4), 4–11.
- Hoff, E., & Naigles, L. (2002). How children use input to acquire a lexicon. *Child Development*, 73(2), 418–433. <https://doi.org/10.1111/1467-8624.00415>.
- Huang, K. Y., O'Brien Caughy, M., Genevro, J. L., & Miller, T. L. (2005). Maternal knowledge of child development and quality of parenting among white, African-American and Hispanic mothers. *Journal of Applied Developmental Psychology: An International Lifespan Journal*, 26(2), 149–170.
- Huttenlocher, J., Haight, W., Bryk, A., Seltzer, M., & Lyons, T. (1991). Early vocabulary growth: Relation to language input and gender. *Developmental Psychology*, 27(2), 236. <https://doi.org/10.1037/0012-1649.27.2.236>.
- Jeong, J., Franchett, E. E., Ramos de Oliveira, C. V., Rehmani, K., & Yousafzai, A. K. (2021). Parenting interventions to promote early child development in the first three years of life: A global systematic review and meta-analysis. *PLoS medicine*, 18(5), e1003602. <https://doi.org/10.1371/journal.pmed.1003602>.
- Leahy-Warren, P., McCarthy, G., & Corcoran, P. (2012). First-time mothers: Social support, maternal parental self-efficacy and postnatal depression. *Journal of Clinical Nursing*, 21(3), 388–397. <https://doi.org/10.1111/j.1365-2702.2011.03701.x>.
- Leung, C., & Suskind, D. L. (2020). What Parents Know Matters: Parental Knowledge at Birth Predicts Caregiving Behaviors at 9 Months. *The Journal of Pediatrics*, 221, 72–80. <https://doi.org/10.1016/j.jpeds.2019.12.021>.
- Loudon, K., Buchanan, S., & Ruthven, I. (2016). The everyday life information seeking behaviours of first-time mothers. *Journal of*

- Documentation*, 72(1), 24–46. <https://doi.org/10.1108/JD-06-2014-0080>.
- MacPhee, D. (1981). *Manual: Knowledge of infant development inventory*. Unpublished manuscript, University of North Carolina.
- Metzler, C. W., Sanders, M. R., Rusby, J. C., & Crowley, R. (2012). Using consumer preference information to increase the reach and impact of media-based parenting interventions in a public health approach to parenting support. *Behavior Therapy*, 43(2), 257–270. <https://doi.org/10.1016/j.beth.2011.05.004>.
- Miller, S. A., & Davis, T. L. (1992). Beliefs about children: A comparative study of mothers, teachers, peers and self. *Child Development*, 63(5), 1251–1265. <https://doi.org/10.2307/1131531>.
- Pan, B. A., Rowe, M. L., Singer, J. D., & Snow, C. E. (2005). Maternal correlates of growth in toddler vocabulary production in low-income families. *Child Development*, 76(4), 763–782. <https://doi.org/10.1111/j.1467-8624.2005.00876.x>.
- Paradis, H. A., Conn, K. M., Gewirtz, J. R., & Halterman, J. S. (2011). Innovative delivery of newborn anticipatory guidance: A randomized, controlled trial incorporating media-based learning into primary care. *Academic Pediatrics*, 11(1), 27–33. <https://doi.org/10.1016/j.acap.2010.12.005>.
- Reardon, S. F. (2013). The widening income achievement gap. *Educational Leadership*, 70(8), 10–16.
- Rowe, M. L. (2008). Child-directed speech: Relation to socioeconomic status, knowledge of child development and child vocabulary skill. *Journal of Child Language*, 35(1), 185–205.
- Rowe, M. L., Denmark, N., Harden, B. J., & Stapleton, L. M. (2016). The role of parent education and parenting knowledge in children's language and literacy skills among white, black, and Latino families. *Infant & Child Development*, 25(2), 198–220.
- Rowe, M. L., & Leech, K. A. (2019). A parent intervention with a growth mindset approach improves children's early gesture and vocabulary development. *Developmental Science*, 22(4), e12792 <https://doi.org/10.1111/desc.12792>.
- Ruthven, I., Buchanan, S., & Jardine, C. (2018). Relationships, environment, health and development: The information needs expressed online by young first-time mothers. *Journal of the Association for Information Science and Technology*, 69(8), 985–995. <https://doi.org/10.1002/asi.24024>.
- Scott, J. K., & Gershoff, E. T. (2021). Trust in expert versus lay comments in online articles about spanking and car seat safety. *Journal of Family Psychology*, 35(3), 399–409. <https://doi.org/10.1037/fam0000784>.
- Solano, I. S., & Weyer, M. (2017). Closing the opportunity gap in early childhood education. *NCSL Legisbrief*, 25(25), 1–2.
- Suskind, D. L., Leffel, K. R., Graf, E., Hernandez, M. W., Gunderson, E. A., Sapolich, S. G., & Levine, S. C. (2016). A parent-directed language intervention for children of low socioeconomic status: A randomized controlled pilot study. *Journal of Child Language*, 43(2), 366–406. <https://doi.org/10.1017/S0305000915000033>.
- Suskind, D. L., Leung, C. Y. Y., Webber, R. J., Hundertmark, A. C., Leffel, K. R., Suskind, E., & Graf, E. (2018a). Development of the Survey of Parent/Provider Expectations and Knowledge (SPEAK). *First Language*, 38(3), 312–331. <https://doi.org/10.1177/0142723717737691>.
- Suskind, D. L., Leung, C. Y. Y., Webber, R. J., Hundertmark, A. C., Leffel, K. R., Fuenmayor Rivas, I. E., & Grobman, W. A. (2018b). Educating parents about infant language development: A randomized controlled trial. *Clinical Pediatrics*, 57(8), 945–953. <https://doi.org/10.1177/0009922817737079>.
- Weisleder, A., & Fernald, A. (2013). Talking to children matters: Early language experience strengthens processing and builds vocabulary. *Psychological Science*, 24(11), 2143–2152. <https://doi.org/10.1177/0956797613488145>.
- Williams, V., Pearce, W. M., & Devine, S. (2014). First-time mothers' knowledge and beliefs regarding early communication development. *Early Child Development and Care*, 184(1), 15–31.
- Wong, K., Boben, M., & Thomas, M. C. (2018). *Disrupting the early learning status quo: Providence Talks as innovative policy in diverse urban communities*. Retrieved November 11, 2019, from <http://www.providencetalks.org/wp-content/uploads/2018/07/updated-brown-eval.pdf>.
- Zand, D. H., Pierce, K. J., Nibras, S., & Maxim, R. (2015). Parental Risk for the Maltreatment of Developmentally Delayed/Disabled Children. *Clinical Pediatrics*, 54(3), 290–292. <https://doi.org/10.1177/0009922814536264>.
- Zero to Three: National Center for Infants, T. and F., & Bezos Family Foundation. (2016). *Tuning in: Parents of young children speak up about what they think, know and need*. Zero to Three National Parent Survey Report. Retrieved November 11, 2019, from <https://www.zerotothree.org/resources/series/tuning-in-parents-of-young-children-tell-us-what-they-think-know-and-need>.

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